

IROS

VANCOUVER 2017

IEEE/RSJ International Conference on
Intelligent Robots and Systems
Vancouver, BC, Canada
September 24 - 28, 2017

Conference Digest



IEEE



SICE



New Technology Foundation

IROS 2017 Technical Program

Sunday September 24, 2017 -- Day 1

	WS 1	WS 2	WS 3	WS 4	WS 5	WS 6	WS 7	WS 8	WS 9	WS 10	WS 11	WS 12	WS 13	WS 14	WS 15	WS 16	WS 17	WS 18
RM	109 & 110	111 & 112	116 & 117	114 & 115	118-120	121	122	202 & 203	204	205 & 206	207	208 & 209	211-214	217-219	215 & 216	220	221 & 222	223 & 224
09:00 - 12:30	SuAW1 Human In-The-Loop Manipulation: On the Influence of the Human Role	SuAW2 Introspective Methods for Reliable Autonomy	SuAW3 Verification of Autonomous Systems Workshop	SuAW4 Shared Platforms for Medical Robotics Research	SuAW5 Planning Legged and Aerial Locomotion with Dynamic Motion Primitives	SuAW6 Workshop on Acoustic Based Navigation for Marine Robots	SuAW7 On the Energetic Economy of Robotics and Biological Systems: A Challenging Handicap to Overcome	SuAW8 (Tutorial) A* Planning and Model Predictive Control with Dynamics-Based and Multiple Heuristics	SuAW9 Gravity Offload Testbeds for Space Robotic Mission Simulation	SuAW10 Soft Morphological Design for Haptic Sensation, Interaction and Display	SuAW11 Towards an Artist-In-The-Lab Framework	SuAW12 Continuum Robots in Medicine – Design, Integration, and Applications	SuAW13 9th Workshop on Planning, Perception and Navigation for Intelligent Vehicles	SuAW14 Learning for Collaborative Robotics: Enabling Flexible, Redeployable and Agile Industrial Applications	SuAW15 Agile Robotics for Industrial Automation Competition (ARIAC) Workshop	SuAW16 Workshop on Perception and Planning for Robotic Inspection	SuAW17 2nd Workshop on Semantic Policy and Action Representations for Autonomous Robots	SuAW18 Human-Robot Interaction in Collaborative Manufacturing Environments
14:00 - 17:30	SuAW1 (cont.)	SuAW2 (cont.)	SuAW3 (cont.)	SuAW4 (cont.)	SuAW5 (cont.)		SuAW7 (cont.)	SuBW8 Development of Benchmarking Protocols for Robot Manipulation	SuAW9 (cont.)	SuAW10 (cont.)	SuAW11 (cont.)	SuAW12 (cont.)	SuAW13 (cont.)	SuAW14 (cont.)	SuAW15 (cont.)	SuBW16 Micro-Data: The New Frontier of Robot Learning?	SuAW17 (cont.)	SuAW18 (cont.)
19:00 - 21:00	Welcome Reception <i>Ballroom Foyer</i>																	

* Coffee breaks will be provided 10:30-11:00 and 15:30 - 16:00.

Thursday September 28, 2017 -- Day 5

	WS 1	WS 2	WS 3	WS 4	WS 5	WS 6	WS 7	WS 8	WS 9	WS 10	WS 11	WS 12	WS 13	WS 14	WS 15	WS 16	WS 17	WS 18
RM	109 & 110	111 & 112	116 & 117	114 & 115	118-120	121	122	202 & 203	204	205 & 206	207	208 & 209	211-214	217-219	215 & 216	220	221 & 222	223 & 224
09:00 - 12:30	ThAW1 Vision-Based Agile Autonomous Navigation of UAVs	ThAW2 Workshop on Medical Imaging Robotics	ThAW3 Folding in Robotics	ThAW4 International Workshop on Lines, Planes and Manhattan Models for 3-D Mapping	ThAW5 Smart Mechanics: Fusion of Softness and Rigidity in Robot Mechanism	ThAW6 Adaptive Control Methods in Assistive Technologies	ThAW7 Synergies between Learning and Interaction	ThAW8 Shared Autonomy - Joint Learning in Human-Robot Collaboration	ThAW9 Best Practices in Designing Effective Roadmaps for Robotics Innovation	ThAW10 Robotics -Inspired Biology	ThAW11 Embodied Brain Systems Science –from Body Representation in Human Brain Toward Rehabilitation Technology–	ThAW12 Assistance and Service Robotics in a Human Environment	ThAW13 Agricultural Robotics: Learning from Industry 4.0 and Moving into the Future	ThAW14 Frontiers in Contact-Rich Robotic Interaction: Modeling, Optimization and Control Synthesis	ThAW15 Complex Collaborative Systems: Closing the Loop, Learning, and Self-Confidence	ThAW16 Human Movement Understanding for Humanoid and Wearable Robots	ThAW17 Workshop on Physical Human-Robot and Human-Telerobot Interaction: From Theory to Application for Neuro-Rehabilitation	ThAW18 The 2nd Workshop on Machine Learning Methods for High-Level Cognitive Capabilities in Robotics
14:00 - 17:30	ThAW1 (cont.)	ThAW2 (cont.)	ThAW3 (cont.)	ThAW4 (cont.)	ThBW5 (Tutorial) HoloLens As a Perception Platform for Robotics	ThAW6 (cont.)	ThAW7 (cont.)	ThAW8 (cont.)	ThAW9 (cont.)	ThAW10 (cont.)	ThAW11 (cont.)	ThAW12 (cont.)	ThBW13 Learning for Localization and Mapping	ThAW14 (cont.)	ThAW15 (cont.)	ThAW16 (cont.)	ThAW17 (cont.)	ThAW18 (cont.)

* Coffee breaks will be provided 10:30-11:00 and 15:30 - 16:00.

Monday September 25, 2017 -- Day 2

	Track 1	Track 2	Track 3	Track 4	Track 5	Track 6	Track 7	Track 8	Track 9	Track 10	Track 11	Track 12	Track 13	Track 14	Track 15	Track 16	Track 17	Track 18	Forum
RM	109 & 110	111 & 112	116 & 117	114 & 115	118-120	121	122	202 & 203	204	205 & 206	207	208 & 209	211-214	217-219	215 & 216	220	221 & 222	223 & 224	201
09:00 - 10:00	MoPP Plenary I <i>Ballroom B, C & D</i> Toward Robots That Understand People and Their Environments Dieter Fox, University of Washington																		
10:00 - 10:30	MoAPo <i>Ballroom Foyer</i> Monday AM Poster Session and Coffee Break																		
10:30 - 12:00	MoAT1 Deep Learning in Robotics and Automation I	MoAT2 Learning and Adaptive Systems I	MoAT3 Autonomous Agents I	MoAT4 Force and Tactile Sensing	MoAT5 Medical Robots I	MoAT6 CP Multiple Aerial Vehicles	MoAT7 Grasping I	MoAT8 Underactuated Robots	MoAT9 Virtual Reality and Interfaces	MoAT10 Micro/Nano Robotics I	MoAT11 Flexible Robots	MoAT12 Soft Material Robotics I	MoAT13 Rehabilitation Robotics	MoAT14 Computer Vision for Automation I	MoAT15 Semantic Scene Understanding	MoAT16 Mapping I	MoAT17 Humanoid	MoAT18 Software and Middleware	
13:00 - 13:45	MoKA1 Keynote 1 <i>Room 211-214</i> Reliability and Robustness of Autonomous Systems Edwin Olson, University of Michigan						MoKA2 Keynote 2 <i>Room 109&110</i> Fun! Free! Awesome! Advanced Robotics in the Era of Open Source Software Brian Gerkey, Open Source Robotics Foundation (OSRF)						MoKA3 Keynote 3 <i>Room 118-120</i> Attention, Noise, and the Coordination of Robot Movements Frank Chongwoo Park, Seoul National University						
13:45 - 14:30	MoKB1 Keynote 4 <i>Room 211-214</i> Enhancing Human Capability with Intelligent Machine Teammates Julie Shah, MIT						MoKB2 Keynote 5 <i>Room 109&110</i> Robots That Evolve, Develop, and Learn Josh Bongard, University of Vermont						MoKB3 Keynote 6 <i>Room 118-120</i> Robust Robot Decision Making under Uncertainty: From Known Unknowns to Unknown Unknowns David Hsu, National University of Singapore						
14:30 - 16:00	MoBT1 Deep Learning in Robotics and Automation II	MoBT2 Learning and Adaptive Systems II	MoBT3 Service Robots	MoBT4 Haptics and Haptic Interfaces	MoBT5 Medical Robots II	MoBT6 Aerial Systems Applications I	MoBT7 SLAM I	MoBT8 Wearable Robots I	MoBT9 Multi-Robots I	MoBT10 Automation at Micro-Nano Scale	MoBT11 Gripper and Other End-Effectors	MoBT12 Soft Material Robotics II	MoBT13 Dexterous Manipulation	MoBT14 Visual-Based Navigation	MoBT15 Collision Avoidance	MoBT16 Mapping II	MoBT17 Humanoid Sensing	MoBT18 Calibration I	MoFA1 Robotics and Automation in Nuclear Facilities & Environments
16:00 - 16:30	MoPPo <i>Burrard Foyer</i> Monday PM Poster Sessions and Coffee Break																		
16:30 - 18:00	MoCT1 Deep Learning in Robotics and Automation III	MoCT2 Learning and Adaptive Systems III	MoCT3 SLAM III	MoCT4 Industrial Robots	MoCT5 Medical Robots and Systems I	MoCT6 Aerial Systems Applications II	MoCT7 SLAM II	MoCT8 Wearable Robots II	MoCT9 Multi-Robots II	MoCT10 Micro/Nano Robotics II	MoCT11 Grasping II	MoCT12 Kinematics and Mechanisms	MoCT13 Motion and Path Planning I	MoCT14 Motion Control I	MoCT15 Biologically-Inspired Robots I	MoCT16 Autonomous Vehicle Navigation I	MoCT17 Force Control	MoCT18 Calibration II	MoFA1 (cont.)





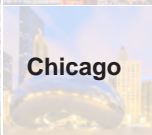
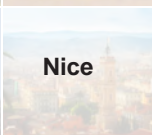

Tuesday September 26, 2017 -- Day 3

	Track 1	Track 2	Track 3	Track 4	Track 5	Track 6	Track 7	Track 8	Track 9	Track 10	Track 11	Track 12	Track 13	Track 14	Track 15	Track 16	Track 17	Track 18	Forum	
RM	109 & 110	111 & 112	116 & 117	114 & 115	118-120	121	122	202 & 203	204	205&206	207	208 & 209	211-214	217-219	215 & 216	220	221 & 222	223 & 224	201	
09:00 - 10:00	TuPP Plenary II <i>Ballroom B, C & D</i> A Quest for Visual Intelligence Fei-Fei Li, <i>Stanford University/Google</i>																			
10:00 - 10:30	TuAPo <i>Ballroom Foyer</i> Tuesday AM Poster Session and Coffee Break																			
10:30 - 12:00	TuAT1 Deep Learning in Robotics and Automation IV	TuAT2 Biologically Inspired Robots II	TuAT3 Perception for Grasping and Manipulation I	TuAT4 Localization I	TuAT5 Medical Robots and Systems II	TuAT6 Telerobotics and Teleoperation I	TuAT7 Autonomous Vehicle Navigation II	TuAT8 Field Robotics	TuAT9 Search and Rescue Robots	TuAT10 Cellular Robots I	TuAT11 Social HRI	TuAT12 Motion Control II	TuAT13 Motion and Path Planning II	TuAT14 Soft Material Robotics III	TuAT15 Visual Servoing	TuAT16 Micro/Nano Robotics III	TuAT17 Dynamics	TuAT18 Human Factors and Human Performance Augmentation		
13:00 - 13:45	TuKA1 Keynote 7 <i>Room 211-214</i> Representations vs Algorithms: Symbols and Geometry in Robotics Nicholas Roy, <i>MIT</i>						TuKA2 Keynote 8 <i>Room 109&110</i> Cooperating without Communicating: Achieving Teaming by Observation Lynne Parker, <i>University of Tennessee</i>						TuKA3 Keynote 9 <i>Room 118-120</i> Robotics As the Path to Intelligence Oliver Brock, <i>Technical University of Berlin</i>							
13:45 - 14:30	TuKB1 Keynote 10 <i>Room 211-214</i> Studies on Interactive Robots - Principles of Conversation Hiroshi Ishiguro, <i>ATR</i>						TuKB2 Keynote 11 <i>Room 109&110</i> Mechanics of Tactile Perception and Haptic Interface Design Vincent Hayward, <i>ISIR</i>						TuKB3 Keynote 12 <i>Room 118-120</i> Static and Dynamic Multi-Camera Clusters for Localization and Mapping Steven Waslander, <i>University of Waterloo</i>							
14:30 - 16:00	TuBT1 Learning from Demonstration I	TuBT2 Biologically Inspired Robots III	TuBT3 Perception for Grasping and Manipulation II	TuBT4 Localization II	TuBT5 Legged Robots I	TuBT6 Telerobotics and Teleoperation II	TuBT7 Autonomous Vehicle Navigation III	TuBT8 Aerial Systems: Perception and Autonomy I	TuBT9 AI-Based Methods	TuBT10 Cellular Robots II	TuBT11 Physical HRI	TuBT12 Medical Robots and Systems III	TuBT13 Motion and Path Planning III	TuBT14 Soft Material Robotics IV	TuBT15 Visual Tracking	TuBT16 Space Robotics	TuBT17 Formal Methods for Robotics	TuBT18 Physically Assistive Devices	TuFA1 Entrepreneurship forum & Start-Up Competition	
16:00 - 16:30	TuPPo <i>Burrard Foyer</i> Tuesday PM Poster Session and Coffee Break																			
16:30 - 18:00	TuCT1 Learning from Demonstration II	TuCT2 Biologically Inspired Robots IV	TuCT3 Manipulation Planning	TuCT4 Localization III	TuCT5 Legged Robots II	TuCT6 Human Detection and Tracking	TuCT7 Marine Robotics I	TuCT8 Aerial Systems: Perception and Autonomy II	TuCT9 Recognition	TuCT10 Swarms	TuCT11 Cognitive and Physical HRI	TuCT12 Sensor Fusion	TuCT13 Motion and Path Planning IV	TuCT14 Intelligent Transportation	TuCT15 Biped Locomotion	TuCT16 Impedance and Adaptive Control	TuCT17 Physical Human-Robot Interaction	TuCT18 Assembly and Automation	TuFA1 (cont.)	
19:00 - 22:00	Conference Banquet <i>Ballroom B, C & D</i>																			

Wednesday September 27, 2017 – Day 4

	Track 1	Track 2	Track 3	Track 4	Track 5	Track 6	Track 7	Track 8	Track 9	Track 10	Track 11	Track 12	Track 13	Track 14	Track 15	Track 16	Track 17	Track 18	Forum
RM	109 & 110	111 & 112	116 & 117	114 & 115	118-120	121	122	202 & 203	204	205 & 206	207	208 & 209	211-214	217-219	215 & 216	220	221 & 222	223 & 224	201
09:00 - 10:00	<p style="text-align: center;">WePP Plenary III <i>Ballroom B, C & D</i> Automation vs. Augmentation: Defining the Future of Socially Assistive Robotics Maja Mataric, University of Southern California</p>																		WeFA1 08:30-12:00
10:00 - 10:30	<p style="text-align: center;">WeAPo <i>Ballroom Foyer</i> Wednesday AM Poster Session and Coffee Break</p>																		Research and Practice Ethics in Robotics and Automation
10:30 - 12:00	WeAT1 Model Learning for Control	WeAT2 Compliant Joint/Mechanism I	WeAT3 Manipulation	WeAT4 Optimization and Optimal Control I	WeAT5 Legged Robots III	WeAT6 RGBD Perception I	WeAT7 Biomimetics I	WeAT8 Humanoid and Bipedal Locomotion I	WeAT9 Human Assistive Systems	WeAT10 Object Detection, Segmentation, and Categorization I	WeAT11 Aerial Systems: Mechanics and Control I	WeAT12 Agricultural Robotics I	WeAT13 Motion and Path Planning V	WeAT14 Humanoid Locomotion	WeAT15 Aerial I	WeAT16 Reactive and Sensor-Based Planning I	WeAT17 Redundant Robotics	WeAT18 Failure Detection and Recovery	
12:00 - 13:45	<p style="text-align: center;">Awards Luncheon <i>Ballroom B, C & D</i></p>																		
13:45 - 14:30	<p style="text-align: center;">WeKB1 Keynote 13 <i>Room 211-214</i> Assembling Orders in Amazon's Robotic Warehouses Joey Durham, Amazon Robotics</p>						<p style="text-align: center;">WeKB2 Keynote 14 <i>Room 109&110</i> Ultrasound and Ultrasound-Mediated Image Guidance for Robot Assisted Surgery Tim Salcudean, University of British Columbia</p>						<p style="text-align: center;">WeKB3 Keynote 15 <i>Room 118-120</i> Robotics Goes Soft: Challenges and Achievements, for New Robotics Scenarios Cecilia Laschi, the BioRobotics Institute, Scuola Superiore Sant'Anna</p>						
14:30 - 16:00	WeBT1 Deep Learning	WeBT2 Compliant Joint/Mechanism II	WeBT3 Planning	WeBT4 Optimization and Optimal Control II	WeBT5 Surgical Robotics I	WeBT6 RGBD Perception II	WeBT7 Biomimetics II	WeBT8 Humanoid and Bipedal Locomotion II	WeBT9 Calibration and Identification	WeBT10 Object Detection, Segmentation, and Categorization II	WeBT11 Aerial Systems: Mechanics and Control II	WeBT12 Agricultural Robotics II	WeBT13 Task Planning	WeBT14 Environment Monitoring	WeBT15 Computer Vision for Robotic Applications I	WeBT16 Reactive and Sensor-Based Planning II	WeBT17 Soft Material Robotics V	WeBT18 Marine Robotics II	
16:00 - 16:30	<p style="text-align: center;">WePPo <i>Burrard Foyer</i> Wednesday PM Poster Session and Coffee Break</p>																		
16:30 - 18:00	WeCT1 Mobile Manipulation and Path Planning	WeCT2 Mechanism Design	WeCT3 Force Control and Tactile Sensing	WeCT4 Simulation and Animation	WeCT5 Surgical Robotics II	WeCT6 RGBD Perception III	WeCT7 Climbing Robots	WeCT8 Social Human Robot Interaction	WeCT9 Sensor Network	WeCT10 Mapping and Localization	WeCT11 Sensing and Perception	WeCT12 SLAM IV	WeCT13 Planning, Scheduling, and Coordination	WeCT14 Aerial II	WeCT15 Computer Vision for Robotic Applications II	WeCT16 Wheeled Robotics	WeCT17 Kinematics	WeCT18 Social Aspects	
18:00 - 19:00	<p style="text-align: center;">Informal Talk by Jorge Cham <i>Ballroom B, C & D</i></p>																		
19:00 - 21:00	<p style="text-align: center;">Farewell Reception <i>Ballroom Foyer</i></p>																		



 St Louis	 Munich	 Las Vegas	 Takamatsu
 Vilamoura	 Edmonton	 Raleigh	 Maui
 Hamburg	 Daejeon	 Kyongju	 Grenoble
 Tsuchiura	 Yokohama	 Pittsburgh	 Tokyo
 Tokyo	 San Francisco	 Osaka	 Taipei
 Sendai	 Chicago	 Lausanne	 Victoria
 Beijing	 Nice	 San Diego	 Tsukuba
 Vancouver	 <p>東京 麗士浦 大 隅 RALEIGH 橫濱 MUNICH 大 隅 GRENOBLE CHANGWON 慶 州 大 隅 VICTORIA 漢 城 慶 州 大 隅</p>		 Osaka

IFROS
VANCOUVER 2017

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Registration

The registration desk, located in the Vancouver Convention Centre Ballroom Foyer on the first level, will be open for general information, picking up your registration materials, and onsite registrations.

Registration hours are as follows:

Day	Time
Sunday, September 24	7:00 am – 8:00 pm
Monday, September 25	7:00 am – 6:00 pm
Tuesday, September 26	7:00 am – 6:00 pm
Wednesday, Sept. 27	7:00 am – 6:00 pm
Thursday, Sept. 28	7:00 am – 3:00 pm

On-Site Registration Fees

Category	Onsite
IEEE/RSJ/SICE Member	\$900
Non-member	\$1100
IEEE Student Member	\$475
Student Non-member	\$575
IEEE Life Member	Free

On-Site Workshops and Tutorials Registration Fees

Category	Onsite
IEEE/RSJ/SICE Member	\$175
Non-member	\$225
IEEE Student Member	\$100
Student Non-member	\$150
IEEE Life Member	Free

Exhibition

IROS 2017 Exhibits are located at the Vancouver Convention Centre in Ballroom A, on the first level. Exhibit hours are as follows:

Day	Time
Monday, September 25	8:00 am – 5:00 pm
Tuesday, September 26	8:00 am – 6:00 pm
Wednesday, Sept. 27	8:00 am – 3:00 pm

Conference Web App

IROS has partnered with design firm INFOVAYA to provide an interactive web app for the conference.

Please visit the following link to register and view the app:

<https://events.infovaya.com/>

Once logged in, you can:

- View your events
- Explore the program in full detail
- Plan your time at the event
- Set up your profile
- Browse other profiles
- Access conference documents
- View venue maps / floor plans
- Like your favorites
- Find the most popular presentations

Vancouver Convention Centre Floor Map



Conference Events on Level 1

Ballroom A: Exhibits

Ballrooms B, C & D: Plenary Talks, Receptions, and Conference Banquet

Parallel Technical Sessions: Tracks 1-7



Conference Events on Level 2
Parallel Technical Sessions: Tracks 8-18
Forums



Conference Events on Level 3

Society and Board Meetings

RSJ/SICE Luncheons, Tutorial

Welcome Message

A warm welcome to IROS 2017, the 30th anniversary of the IROS conference. Bienvenue au Canada, on the 150th anniversary of this young nation. With the strong support of the IROS community, we present to you a rich and exciting IROS 2017 program, consisting of plenary and keynote talks, parallel technical sessions, poster presentations, robot competitions and challenges, industrial exhibits, technical tours, and social events. We wish everyone a great time during the five-day program of IROS 2017 in the beautiful city of Vancouver, with the company of the best and brightest robotics researchers and engineers from around the world!

This year we received a total of 2164 paper submissions including 1874 regular paper submissions and, for the first time, 290 submissions to Robotics and Automation Letters (RA-L) with IROS option. Upon a careful review of the papers, a total of 970 papers were accepted into the IROS program, representing an acceptance rate of 45%. Arranged into 162 sessions, all regular papers will be presented orally in 18 parallel tracks over three days. In addition, 286 abstract-only submissions were received, of which 278 are included in the IROS program as poster presentations. A total of 63 workshop and tutorial proposals were submitted, and 39 workshops and two tutorials were accepted, and will take place on the two days before and after the main conference.

The IROS 2017 technical program is anchored by three plenary talks and sixteen keynote presentations from leaders in our field, on a wide range of topics representing the latest in robotics and intelligent systems research. In addition, three forums addressing pressing needs of our community are organized. In parallel with the technical talks, the program also includes three robot competitions and challenges: on robot grasping, humanoid robot applications, and drone racing. This year's conference also sees a strong industrial participation with over 50 industrial exhibits and sponsors at all levels of sponsorship from bronze to platinum. Technical tours to local industries and research labs at two local universities, UBC and SFU, have also been organized to further enrich the IROS program.

IROS has enjoyed in recent years a steady growth, and the management and the organization of the conference has

become a major undertaking, requiring the collective efforts of many individuals. We would like to take this opportunity and thank the large team of volunteers and supporters of the conference for their time and dedication. Our Conference Paper Review Board, that is 270+ members strong and led by Tony Maciejewski and his dedicated editors, has done an outstanding job with reviewing the papers and ensuring the technical quality of the accepted papers and the fairness of the review process. In addition, our inaugural partnership with RA-L was made smooth by its editor-in-chief, Antonio Bicchi and his Editorial Board, to allow IROS to bring this valuable and timely service to the IROS community. We would also like to express our gratitude to the members of the organizing committee whose tireless work managed the workflow and the many threads in organizing IROS 2017. Last but not least, we thank the authors and registrants for their contributions to IROS 2017. It is truly an amazing collective achievement, and we would like to congratulate everyone involved for a job well done.

IROS is 30 years old. From a humble beginning in 1988 as a workshop with just over 100 papers, to a leading multi-dimensional international conference attended by thousands, IROS has played a major role in shaping the future of intelligent robots and systems. With the explosive growth of robotics and the significant demand being placed on robotics researchers, we as a community must respond by continuing to thrive and meet the challenges before us. We wish IROS many more years of success in our mission to deliver benefits to the scientific and engineering communities and to society at large.

Once again, enjoy IROS 2017, and Bon séjour à Vancouver!



A handwritten signature in black ink, appearing to read 'Hong Zhang'.

Hong Zhang
University of Alberta
IROS 2017 General Chair



A handwritten signature in black ink, appearing to read 'Richard Vaughan'.

Richard Vaughan
Simon Fraser University
IROS 2017 Program Chair

IROS 2017 Organizing Committee

Advisory Committee

Fumio Harashima (Tokyo Metropolitan U)
Tyzh-Jong Tarn (Washington U)
Toshio Fukuda (Meijo U)
George Lee (Purdue U)
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General Chair

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IROS@30

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Oussama Khatib (Stanford U)
Christian Laugier (INRIA)
Yannis Rekleitis (U South Carolina)

Workshops/Tutorials

Mike Jenkin (York U)
Mario Campos (UFMG)
Dylan Shell (Texas A&M U)
Ryan Eustice (U of Michigan)

Competitions

Steve Waslander (U of Waterloo)
Daniel Lee (U of Pennsylvania)
Information Technology
Torsten Kroeger (Karlsruhe Institute of Tech)

Visual Arts

Max Meng (Chinese U of Hong Kong)

Awards

Kazuhiro Kosuge (Tohoku U)
Gregory Dudek (McGill U)
Michael Wang (HK U of Sci and Tech)
Eugenio Gulielmelli (Campus Bio-Medico)

Publications

Zhidong Wang (Chiba Institute of Tech)
Yisheng Guan (Guangdong U of Tech)

Paperplaza

Jindong Tan (U of Tennessee)

Exhibits

Joshua Marshall (Queen's U)
Zexiang Li (HK U of Sci and Tech)
Yunhui Liu (Chinese U of Hong Kong)
Erwin Prassler (B-IT)

Publicity

Nikos Papanikolopoulos (U of Minnesota)
Tim Barfoot (U of Toronto)
Yasushi Nakauchi (U of Tsukuba)
Dong-Soo Kwon (KAIST)
Francois Michaud (U of Sherbrooke)
Jianwei Zhang (U of Hamburg)

Travel Awards

Jing Xiao (U of North Carolina at Charlotte)
Nilanjan Ray (U of Alberta)
Daniel Lofaro (George Mason U)
Nancy Amato (Texas A&M U)
Marco Morales (ITAM)

Financials

Melanie Calvert (U of Alberta)
Xiaoping Yun (Naval Postgraduate School)
Local Arrangements
Elizabeth Croft (U of British Columbia)
Kamal Gupta (Simon Fraser U)
Martin Jagersand (U of Alberta)
David Meger (McGill U)
Mahdi Tavakoli (U of Alberta)
Philip Giguere (Laval U)

Registration

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Jonathan Kelly (U of Toronto)
Natsuki Yamanobe (AIST)

Senior Program Committee



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Corke, Peter
Gini, Maria
Gu, Jason
Hamel, Bill
Hutchinson, Seth
Jaydev, Desai
Jenkin, Michael
Kosuge, Kazuhiro
Kwon, Dong-Soo
Lee, George
Maciejewski, Anthony
Meng, Max
Oh, Paul
Tan, Jindong
Vaughan, Richard
Wang, Michael
Wang, Zhidong
Waslander, Steven
Xi, Ning
Zhang, Hong

IROS Steering Committee

Chair

C.S. George Lee, Purdue University, USA
(1998 PC, 2003 GC)

Awards Chair

Shigeaki Sugano, Waseda University, Japan (2013 GC)

Secretary

Yasushi Nakauchi, Tsukuba University, Japan

Past Chair

Tzyh-Jong Tarn, Washington University, USA (2001 GC)

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John Hung, Auburn University, USA (IEEE IES President)

Atsuo Takanishi, Waseda University, Japan (RSJ President)

Satoshi Honda, Keio University, Japan (SICE President)

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Katsu Ikeuchi, University of Tokyo, Japan (1995 GC)

Minoru Asada, Osaka University, Japan (1996)

Tamio Arai, Shibaura Institute of Technology, Japan (1996 PC)

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Kazuhiro Kosuge, Tohoku University, Japan (2004 GC)

Hajime Asama, University of Tokyo, Japan (2004 PC, 2010)

Max Meng, Chinese University of Hong Kong, Hong Kong SAR, China (2005 GC)

Hong Zhang, University of Alberta, Canada (2005 PC, 2017 GC)

Yunhui Liu, Chinese University of Hong Kong, Hong Kong SAR, China (2006 GC)
Ning Xi, Michigan State University, USA (2006 PC; 2009)
Thomas C. Henderson, University of Utah, USA (2007 PC)
Raja Chatila, ISIR, Université Pierre et Marie Curie, France (2008 Co-GC)
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William R. Hamel, University of Tennessee, USA (2009)
Oussama Khatib, Stanford University, USA (2011 GC)
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Anibal T. de Almeida, University of Coimbra, Portugal (2012 Co-GC)
Urbano Nunes, University of Coimbra, Portugal (2012)
Eugenio Guglielmelli, Università Campus Bio-Medico, Italy (2012 PC)
Makoto Kaneko, Osaka University, Japan (2013 PC)
Kevin M. Lynch, Northwestern University, USA (2014 GC)
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About Vancouver



“To describe the beauties of this region will on some future occasion be a very grateful task to the pen of a skilled panegyrist.

The serenity of the climate, the innumerable pleasing landscapes, and the abundant fertility that unassisted nature puts forth, requires only to be enriched by the industry of man with villages, mansions, cottages, and other buildings.”

Captain George Vancouver
British Explorer

Vancouver was originally a small sawmilling settlement, called Granville in the 1870s. It was incorporated as a city in April 1886 (just before it became the western terminus of the first trans-Canada railway, the Canadian Pacific) and was renamed to honour the English navigator George Vancouver, of the Royal Navy, who had explored and surveyed the coast in 1792. A disastrous fire just two months after incorporation destroyed the city in less than an hour. The city recovered, however, to become a prosperous port, aided in part by the opening of the Panama Canal (1914), which made it economically feasible to export grain and lumber from Vancouver to the east coast of the United States and to Europe. In 1929 two large suburbs to the south, Point Grey and South Vancouver, amalgamated with Vancouver, and its metropolitan area became the third most populous in Canada. By the 1930s Vancouver was Canada's major Pacific coast port. After World War II it developed into Canada's main business hub for trade with Asia and the Pacific Rim.

Today, the city is the industrial, commercial, and financial heart of British Columbia, with trade and transportation as basic components of its economy. Its ice-free deepwater port (on Burrard Inlet), Canada's largest, has extensive docks and grain elevator facilities; it handles freighters, a

fishing fleet, and some ferries. Major cargoes include bulk commodities (grain, coal, sulfur, potash, and petrochemicals), forest products, steel, and containers. It is also an important port for cruise ships, with Alaska as their most common destination.

The city has become a centre for high-technology industries and for television and film production. Indeed, in the early 21st century it ranked after Los Angeles and New York City as the third largest film-production location in North America, and many television programs are produced in the region. American film and TV companies are attracted to the city by its ability to “stand in” for other places, by its lower production costs, and by the professional expertise of the local crews.

The most popular tourist attraction in Vancouver is perhaps Stanley Park, within walking distance to the Vancouver Convention Centre. With its gardens and large public aquarium, Stanley Park occupies some 1,000 acres (400 hectares) of the downtown peninsula at the harbour entrance and is surrounded by a scenic 5.5-mile (8.8-km) seawall that is popular with strollers, joggers, and inline skaters. Lost Lagoon, at the entrance to the park, was named by poet Pauline Johnson, daughter of an Ontario Mohawk chief, for the tidal forces that regularly emptied the lagoon. Today its 41 acres (16.6 hectares) are enclosed, but the old name has been retained. The 55-acre (22-hectare) VanDusen Botanical Garden excels among many other parks and gardens in the city. Bloedel Floral Conservatory lies just to the east in Queen Elizabeth Park, named in 1939 for the Queen Mother. Cypress and Mount Seymour provincial parks are nearby.

Nearby Dining



- 1 Jam Café
- 2 Bauhaus Restaurant
- 3 Meat & Bread
- 4 Chambar
- 5 L'Abattoir Restaurant
- 6 The Flying Pig
- 7 Old Spaghetti Factory
- 8 Steamworks
- 9 Scoози's
- 10 Water Street Café
- 11 Nuba
- 12 Tuc Craft Kitchen
- 13 Nicli Antica Pizzeria
- 14 Gyoza Bar
- 15 Meet In Gastown
- 16 Ask for Luigi
- 17 Al Porto Ristorante
- 18 Wildebeest
- 19 Catch 122
- 20 Pourhouse Restaurant
- 21 Rodney's Oyster House in Gastown
- 22 Tacofino
- 23 Momo Sushi
- 24 Cuchillo
- 25 Joyeaux Cafe & Restaurant
- 26 La Taqueria
- 27 Pizzeria Ludica
- 28 Starbucks
- 29 Five Sails Restaurant
- 30 Miku
- 31 ARC
- 32 Bella Gelateria & Gelato
- 33 Lions Pub
- 34 Fatburger
- 35 Cactus Club Café
- 36 Nightingale

IROS 2017 Dining Options

#	Title	Cost	Style
1	Jam Café	\$\$	Café
2	Bauhaus Restaurant	\$\$\$\$	European
3	Meat & Bread	\$	Fast Food, Soups
4	Chambar	\$\$\$\$	Belgian
5	L'Abattoir Restaurant	\$\$\$\$	French
6	The Flying Pig	\$\$	American, Bar
7	Old Spaghetti Factory	\$\$\$	Italian
8	Steamworks	\$\$	Pub
9	Scoozi's	\$\$	Greek
10	Water Street Café	\$\$	Canadian
11	Nuba	\$\$\$	Lebanese
12	Tuc Craft Kitchen	\$\$	Canadian
13	Nicli Antica Pizzeria	\$\$	Italian
14	Gyoza Bar	\$\$\$	Japanese
15	Meet In Gastown	\$\$	Canadian
16	Ask for Luigi	\$\$\$	Italian
17	Al Porto Ristorante	\$\$\$	Italian
18	Wildebeest	\$\$	Canadian
19	Catch 122	\$\$	Canadian
20	Pourhouse Restaurant	\$\$	American, Bar
21	Rodney's Oyster House in Gastown	\$\$\$	Seafood, Bar
22	Tacofino	\$\$	Mexican
23	Momo Sushi	\$	Japanese
24	Cuchillo	\$\$\$	Mexican, Latin
25	Joyeaux Cafe & Restaurant	\$	Vietnamese
26	La Taqueria	\$	Mexican, Spanish
27	Pizzeria Ludica	\$	Italian
28	Starbucks	\$\$\$	Coffee
29	Five Sails Restaurant	\$\$\$\$	Seafood
30	Miku	\$\$\$\$	Japanese
31	ARC	\$\$\$\$	Canadian
32	Bella Gelateria & Gelato	\$\$	Desert
33	Lions Pub	\$\$	British, Bar
34	Fatburger	\$	Fast Food
35	Cactus Club Café	\$\$\$	Canadian
36	Nightingale	\$\$\$	Canadian

Street Address	Phone	Distance from VCC
556 Beatty St	778-379-1992	1.3 KM
1 Cordova St W	604-974-1147	1.2 KM
370 Cambie St	604-566-9003	950 M
568 Beatty St	604-879-7119	1.3 KM
217 Carrall St	604-568-1701	1.2 KM
102 Water St	604-559-7968	1 KM
53 Water St	604-684-1288	1.1 KM
375 Water St	604-689-2739	700 M
445 Howe St	604-684-1009	500 M
300 Water St	604-689-2832	950 M
207 West Hastings Street	604-688-1655	1 KM
60 W Cordova St	604-559-8999	1.1 KM
62 E Cordova St	604-669-6985	1.1 KM
622 Pender St W	604-336-5563	750 M
12 Water St	604-688-3399	1.1 KM
305 Alexander St	604-428-2544	1.7 KM
321 Water St	604-683-8376	750 M
120 Hastings St W	604-687-6880	1.1 KM
122 Hastings St W	604-731-3474	1.1 KM
162 Water St	604-568-7022	850 M
52 Powell St	604-685-2005	1.3 KM
15 Cordova St W	604-899-7907	1.2 KM
375 Water St	604-683-7632	700 M
261 Powell St	604-559-7585	1.6 KM
551 Howe St	604-681-9168	650 M
322 Hastings St W	604-568-4406	1.2 KM
189 Keefer Place	604-669-5552	1.5 KM
999 Canada Place, #140	604-696-9909	0 KM
999 Canada Place, #300	604-844-2855	0 KM
70-200 Granville St	604-568-3900	450 M
900 Canada Place Way	604-691-1818	210 M
1001 Cordova St W	604-569-1010	400 M
888 Cordova St W	604-488-8602	300 M
200 Burrard St, #23	n/a	350 M
1085 Canada Pl	604-620-7410	0 KM
1017 West Hastings Street	604-695-9500	500 M

Social Events of the Conference

Welcome Reception

Sunday September 24, 19:00 - 21:00

Ballroom Foyer, Vancouver Convention Centre



IROS 2017 will welcome its participants with a two-hour reception, on Sunday September 24, in the Foyer and the Terrace section on Meeting Level 1 of the Vancouver Convention Centre. The participants will take in the spectacular view of North Vancouver from the waterfront Ballroom foyer, reconnect with old friends and meet new colleagues. The standing reception will serve a variety of food choices as well as alcoholic and non-alcoholic beverages to fully registered IROS delegates.

Coffee Breaks

Coffee Breaks will be provided throughout the five days of the conference, twice a day. Serving stations will be located conveniently outside the Session Rooms, the Ballrooms, and the Exhibit Hall.

OC & iCPRB Appreciation Dinner (by invitation only)

Monday September 25, 19:00 - 21:00

Waterview, 1661 Granville St, Vancouver

Located on the downtown Vancouver waterfront directly overlooking Burrard Inlet with stunning views of False Creek, Granville Island and the surrounding cityscape and mountain backdrop.

For the IROS Conference Paper Review Board, IROS 2017 Organizing Committee, and sponsoring society VIPs.

RSJ-IAC Luncheon

Monday September 25, 12:00 - 13:00
Room 301, Vancouver Convention Centre

Because of time restriction, attendees in IROS 2017 could not visit all exhibition booths. The Robotics Society of Japan (RSJ) will hold an industry-academia cooperative luncheon introducing exhibitors' products and articles. This will help most IROS attendees not to miss informative exhibitions. This will also be a good opportunity of the start of your collaboration. Lunch boxes will be provided for attendees, but the number is limited (A first-come-first-served basis).

IEEE RAS Women in Engineering Leadership Lunch

Monday September 25, 12:00 - 13:30
Room 306, Vancouver Convention Centre

The luncheon provides the opportunity to foster discussion on the role of women in robotics and automation, inspire girls and promote collaborations and initiatives to advance women in leadership. As the goal for this event is to be more than a lunch for women, but a lunch with women, men are more than welcome to participate and enjoy the discussion.

IEEE RAS Lunch with Leaders - Student Lunch

Tuesday September 26, 12:00 - 13:30
Room 301, Vancouver Convention Centre

This luncheon is open to student attendees, offering the chance to meet and interact with leaders from RAS. Each table will be associated with a focus area and several discussion topics. Leaders will be paired with tables according to their interests and background.

IEEE RAS Young Professionals Lunch

Tuesday September 26, 12:00 - 13:30
Room 306, Vancouver Convention Centre

Under the umbrella of IEEE Young Professionals program, the Robotics & Automation Society (RAS) is further empowering its young professionals through the RAS Young Professionals (YP) group. 'Young Professionals' are IEEE members who have graduated with their first professional degree within the last 15 years, and who are not student members.

Conference Banquet

Tuesday September 26, 19:00 - 22:00

Ballrooms B, C & D, Vancouver Convention Centre



IROS 2017 Conference Banquet will be held on Tuesday, September 26, in Ballrooms B, C and D of the Vancouver Convention Centre. The evening will be dedicated to the celebration of 30 years of IROS conferences, with recognition of the people who have made significant contributions to IROS. The celebration activities will be light-hearted with cash-prize draws for the lucky few who happened to have registered for the IROS 2017 at the right moments. The delegates will also hear brief reports from the conference chairs with acknowledgment of people who have played key roles in the organization of IROS 2017. The dinner menu will feature western Canadian foods, accompanied by entertainment and completed with wine choices from the nearby BC Okanagan Valley. The evening will end with the introduction of IROS 2018.

Awards Lunch

Wednesday September 27, 12:00 - 13:45

Ballrooms B, C & D, Vancouver Convention Centre

As has been customary, we will announce winner of various IROS best paper awards at this ceremony where boxed lunch will be provided. A total of seven best paper awards will be handed out, including the Best Student Paper and the Best Conference Paper. Please come and join your colleagues in celebration of their achievements.

SICE Luncheon

Wednesday September 27, 12:00 - 13:30
Room 306, Vancouver Convention Centre

SICE Luncheon Seminar, sponsored by SICE (one of co-sponsors of IROS) provides the opportunity for academic and industry participants to exchange information and opinions, to build networks, and to foster entrepreneurship in robotics and systems.

Farewell Reception

Wednesday September 27, 19:00 - 21:00
Ballroom Foyer, Vancouver Convention Centre



IROS 2017 will bid its farewell to the participants in this two-hour reception, on Wednesday September 27, in the Foyer and the Terrace section on Meeting Level 1 of the Vancouver Convention Centre where the Welcome Reception is held. The participants will have an opportunity to relax with their colleagues and friends with parting words until the next IROS. The standing reception will serve a variety of food choices as well as alcoholic and non-alcoholic beverages to fully registered IROS delegates.

Vancouver Attractions

Landsea Tours & Adventures

<https://vancouver tours.com/>

Landsea Tours & Adventures provides half-day and full-day sightseeing excursions around Vancouver, Victoria, Whistler, the Sea to Sky corridor and Vancouver's North Shore. Our highly trained driver/guides host fun and informative tours conducted on our preferred mini-coaches. With hotel pick-up and drop-off, and a la carte adventure options, each tour is unique and allows for a more personalized experience. Fully narrated and inclusive of multiple stops with free time to capture the stunning scenery, you're sure to not miss a thing.

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Sea to Sky Gondola

<https://www.seatoskygondola.com/>

The Sea to Sky Gondola is located on Highway 99 just south of Squamish, a scenic 45 minute drive from downtown Vancouver. A 10 minute gondola ride will take you up to a truly magical place with some of the most spectacular views you will ever see and activities for all interests and ages.

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845 Avison Way Vancouver, BC
Phone: 604.659.3474

Stanley Park

<http://vancouver.ca/parks-recreation-culture/stanley-park.aspx>

Ideally situated on a peninsula at the northwestern edge of downtown Vancouver, Stanley Park is one of the city's main tourist destinations, attracting approximately 8 million visitors each year. Featuring lovely beaches, miles of well-maintained paved and dirt trails, Canada's largest aquarium and an array of can't-miss kid-friendly spots (including a pool, water park, miniature railway and more), this 400-hectare (1,000-acre) haven is recognized as one of the greatest urban parks in the world.

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Transportation

*From Vancouver Airport (YVR)
to the Vancouver Convention Centre*

Skytrain

Cost: \$9.10

Travel Time: 30 minutes

From the Vancouver Airport (YVR) , board the CANADA LINE / WATERFRONT train. Tickets may be purchased from Compass Vending Machines located in the Skytrain loading platforms.

Taxi

Cost: \$45

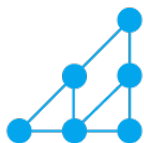
Travel Time: 32 minutes

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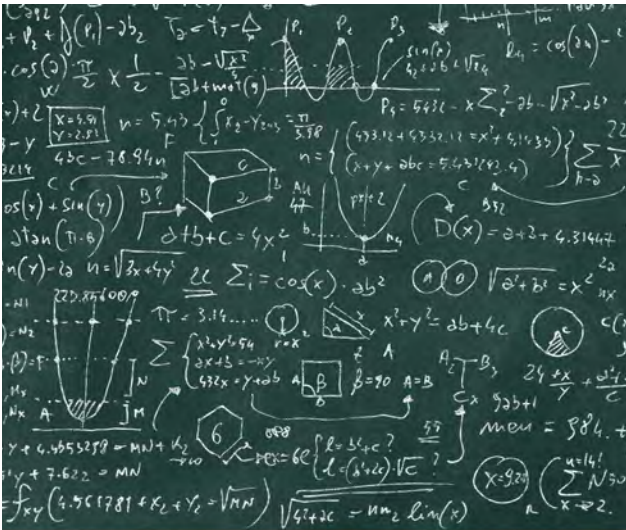
Plenaries & Keynotes

Plenaries

Dieter Fox, University of Washington

Fei-Fei Li, Stanford University/Google

Maja Mataric, University of Southern California



Keynotes

Edwin Olson, University of Michigan

Brian Gerkey, Open Source Robotics
Foundation (OSRF)

Frank Chongwoo Park, Seoul National University

Julie Shah, MIT

Josh Bongard, University of Vermont

David Hsu, National University of Singapore

Nicholas Roy, MIT

Lynne Parker, University of Tennessee

Oliver Brock, Technical University of Berlin

Hiroshi Ishiguro, Advanced Telecommunications
Research Institute International (ATR)

Vincent Hayward, Institut des Systèmes Intelligents
et de Robotique (ISIR)

Steven Waslander, University of Waterloo

Joey Durham, Amazon Robotics

Tim Salcudean, University of British Columbia

Cecilia Laschi, The BioRobotics Institute, Scuola
Superiore Sant'Anna

Aleksandr Kapitonov, Airalab

Plenary I



Unifying Model-based and Learning-based Robotics

Dieter Fox
University of Washington

Monday 25 September
09:00 - 10:00
Ballrooms B, C & D

Abstract

The predominant approach to perception, control, and planning in robotics is to design approximate models of the physics underlying a robot, its sensors, and its interactions with the environment. These model-based techniques often capture properties such as the propagation of light and sound, or the mass, momentum, shape, and surface friction of objects, and use these to generate controls that change the environment in a desirable way. While physics-based models are very general and have broad applicability, they can be brittle when not all relevant model parameters are known or observed with sufficient accuracy. Over the last years, deep learning has been applied successfully to various recognition and control learning tasks in robotics. While these approaches often result in state-of-the-art performance on specific test cases, they still lack the generalization capabilities of model-based approaches. In this talk, I will discuss the pros and cons of model-based and learning-based techniques using examples from the research done in my lab. Building on these experiences, I will present ideas on how these two paradigms can be unified. Rather than treating them as opposing solutions, I argue that their combination could inherit the benefits of both paradigms, thereby enabling progress toward the development of truly robust, autonomous systems.

Biography

Dieter Fox is a Professor in the Paul G. Allen School of Computer Science & Engineering at the University of Washington, where he heads the UW Robotics and State Estimation Lab. From 2009 to 2011, he was also Director of the Intel Research Labs Seattle. Dieter obtained his Ph.D. from the University of Bonn, Germany. His research is in robotics and artificial intelligence, with a focus on

state estimation and perception applied to problems such as mapping, object detection and tracking, manipulation, and activity recognition. He has published more than 180 technical papers and is the co-author of the textbook "Probabilistic Robotics." He is a Fellow of the IEEE and the AAAI, and he received several best paper awards at major robotics, AI, and computer vision conferences. He was an editor of the IEEE Transactions on Robotics, program co-chair of the 2008 AAAI Conference on Artificial Intelligence, and program chair of the 2013 Robotics: Science and Systems conference.

Plenary II



A Quest for Visual Intelligence

Fei-Fei Li
Stanford University/Google

Tuesday 26 September
09:00 - 10:00
Ballrooms B, C & D

Abstract

It took nature and evolution more than five hundred million years to develop a powerful visual system in humans. The journey for AI and computer vision is about half of a century. In this talk, I will briefly discuss the key ideas and the cutting edge advances in the quest for visual intelligences in computers, focusing on work done in our lab over the years.

Biography

Dr. Fei-Fei Li is currently on sabbatical as the Chief Scientist of AI/ML at Google Cloud. She is an Associate Professor in the Computer Science Department at Stanford, and the Director of the Stanford Artificial Intelligence Lab. Dr. Fei-Fei Li's main research areas are in machine learning, deep learning, computer vision and cognitive and computational neuroscience. She has published more than 150 scientific articles in top-tier journals and conferences, including Nature, PNAS, Journal of Neuroscience, CVPR, ICCV, NIPS, ECCV, IJCV, IEEE-PAMI, etc. Dr. Fei-Fei Li obtained her B.A. degree in physics from Princeton in 1999 with High Honors, and her PhD degree in electrical engineering from California Institute of Technology (Caltech) in 2005. She

joined Stanford in 2009 as an assistant professor, and was promoted to associate professor with tenure in 2012. Prior to that, she was on faculty at Princeton University (2007-2009) and University of Illinois Urbana-Champaign (2005-2006). Dr. Li is the inventor of ImageNet and the ImageNet Challenge, a critical large-scale dataset and benchmarking effort that has contributed to the latest developments in deep learning and AI. In addition to her technical contributions, she is a national leading voice for advocating diversity in STEM and AI. She is co-founder of Stanford's renowned SAILORS outreach program for high school girls and the national non-profit AI4ALL. For her work in AI, Dr. Li is a speaker at the TED2015 main conference, a recipient of the IAPR 2016 J.K. Aggarwal Prize, the 2016 nVidia Pioneer in AI Award, 2014 IBM Faculty Fellow Award, 2011 Alfred Sloan Faculty Award, 2012 Yahoo Labs FREP award, 2009 NSF CAREER award, the 2006 Microsoft Research New Faculty Fellowship and a number of Google Research awards. Work from Dr. Li's lab have been featured in a variety of popular press magazines and newspapers including New York Times, Wall Street Journal, Fortune Magazine, Science, Wired Magazine, MIT Technology Review, Financial Times, and more. She was selected as one of the "Great Immigrants: The Pride of America" in 2016 by the Carnegie Foundation, past winners include Albert Einstein, Yoyo Ma, and Sergey Brin.

Plenary III



**Automation vs.
Augmentation: Defining the
Future of Socially Assistive
Robotics**

**Maja J. Mataric
U of Southern California**

**Wednesday 27 September,
09:00 - 10:00
Ballrooms B, C & D**

Abstract

Robotics has been driven by the desire to automate work, but automation raises concerns about the impact on the future of work. Less discussed but no more important are the implications on human health, as the science on longevity and resilience indicates that having the drive to work is key for health and wellness.

However, robots, machines that were originally invented to automate work, are also becoming helpful by not doing any physical work at all, but instead by motivating and coaching us to do our own work, based on evidence from neuroscience and behavioral science demonstrating that human behavior is most strongly influenced by physically embodied social agents, including robots. The field of socially assistive robotics (SAR) focuses on developing intelligent socially interactive machine that that provide assistance through social rather than physical means. The robot's physical embodiment is at the heart of SAR's effectiveness, as it leverages the inherently human tendency to engage with lifelike (but not necessarily human-like or otherwise biomimetic) agents. People readily ascribe intention, personality, and emotion to robots; SAR leverages this engagement to develop robots capable of monitoring, motivating, and sustaining user activities and improving human learning, training, performance and health outcomes. Human-robot interaction (HRI) for SAR is a growing multifaceted research field at the intersection of engineering, health sciences, neuroscience, social, and cognitive sciences, with rapidly growing commercial spinouts. This talk will describe research into embodiment, modeling and steering social dynamics, and long-term adaptation and learning for SAR, grounded in projects involving multi-modal activity data, modeling personality and engagement, formalizing social use of space and non-verbal communication, and personalizing the interaction with the user over a period of months, among others. SAR systems have been validated with a variety of user populations, including stroke patients, children with autism spectrum disorders, elderly with Alzheimers and other forms of dementia; this talk will cover the short, middle, and long-term commercial applications of SAR, as well as the frontiers of SAR research.

Biography

Maja Mataric is Chan Soon-Shiong Professor of Computer Science, Neuroscience, and Pediatrics at the University of Southern California, founding director of the USC Robotics and Autonomous Systems Center, and Vice Dean for Research in the Viterbi School of Engineering. Her PhD and MS are from MIT, and BS from the University of Kansas. She is Fellow of AAAS, IEEE, and AAI, and received the Presidential Award for Excellence in Science, Mathematics and Engineering Mentoring, Anita Borg Institute Women of Vision Award in Innovation, the Okawa Foundation, NSF Career, MIT TR35, and IEEE RAS Early Career Awards. She has published extensively and is active in K-12 STEM outreach. A pioneer of socially assistive robotics, her research enables robots to help people through social

interaction in therapy, rehabilitation, training, and education, developing robot-assisted therapies for autism, stroke, Alzheimer's and other special needs, as well as wellness interventions <http://robotics.usc.edu/interaction/>. She is also founder and CSO of Embodied, Inc. www.embodied.me.

Keynote 1



Reliability and Robustness of Autonomous Systems

Edwin Olson
University of Michigan
Monday 25 September
13:00 - 13:45
Room 211

From self-driving cars to domestic robots, it's relatively easy to build a system that works well enough for the purposes of a video. Achieving high levels of reliability, on the other hand, is all-too-often viewed as an engineering step through which bugs are removed and corner cases are addressed. In some domains, however, the gap between the reliability demonstrated by today's system and the bar needed for real-world deployment remain many orders of magnitude apart. This is not a matter of engineering polish, but rather a need for fundamentally different ways of building our systems.

Biography: Edwin Olson is an Associate Professor of Computer Science and Electrical Engineering at the University of Michigan, and co-founder/CEO of May Mobility, Inc., which develops autonomous cars. He earned his PhD from MIT in 2008 for work in robot mapping.

He has worked on autonomous vehicles for the last 10 years, including the 2007 DARPA Urban Challenge, collaborating with Ford as a Principle Investigator on their autonomous vehicle program, serving as Co-Director for Autonomous Driving Development at Toyota Research Institute, and running the APRIL lab at the University of Michigan since 2008. His academic research includes work on perception, planning, and mapping. He was awarded a DARPA Young Faculty Award, named one of Popular Science's "Brilliant 10", and was winner of the 2010 MAGIC

robotics competition. He is perhaps best known for his work on AprilTags, SLAM using MaxMixtures and SGD, and Multi-Policy Decision Making.

Keynote 2



Fun! Free! Awesome!
**Advanced robotics in
the era of Open Source
Software**

Brian Gerkey
**Open Source Robotics
Foundation (OSRF)**

Monday 25 September
13:00 - 13:45 Room 109

After many years of it being “just around the corner,” we are now witnessing the beginning of a robot revolution. We hear about robots daily, from awe-inspiring technical achievements to breath-taking investments and acquisitions. Why? And, why now? In this session, I’ll explain how open source software, embedded computing, and new sensors have come together to change the landscape for robotics developers (and users).

Biography: Brian Gerkey is CEO of OSRF. Prior to joining OSRF, Brian was Director of Open Source Development at Willow Garage. Previously, Brian was a Computer Scientist in the Artificial Intelligence Center at SRI, and before that, a postdoctoral research fellow in the Artificial Intelligence Lab at Stanford University. Brian received his Ph.D. in Computer Science from the University of Southern California (USC) in 2003, his M.S. in Computer Science from USC in 2000, and his B.S.E. in Computer Engineering, with a secondary major in Mathematics and a minor in Robotics and Automation, from Tulane University in 1998. Brian is a strong believer in, frequent contributor to, and constant beneficiary of open source software. Since 2008, Brian has worked on the ROS Project, which develops and releases one of the most widely used robot software platforms in robotics research and education (and soon industry). He is founding and former lead developer on the open source Player Project, which continues to maintain widely used robot simulation and development tools. For his work on Player and ROS, Brian was recognized by MIT Technology Review with the TR35 award in 2011 and by Silicon Valley Business Journal with their 40 Under 40 award in 2016.

Keynote 3



Attention, Noise, and the Coordination of Robot Movements

Frank Chongwoo Park
Seoul National University

Monday 25 September

13:00 - 13:45

Room 118

As both robots and their tasks become more complex, strategies for perception, planning, and control must increasingly take into account the limits on a robot's computation and communication resources. Inspired by recent research on the role of attention in human motor control and visual perception, and more generally by the remarkable ability of humans to cope with noise while performing multiple tasks--both physical and cognitive--simultaneously, this talk will explore some ideas for quantifying attention and their use in robot perception, planning, and control. Some relevant notions of attention and control cost from the human motor control and optimal control theory literature are first introduced. Examples are then given of planning and control methods that make use of these concepts, ranging from simple kinematic feedback control laws based on the minimum variance principle that generate natural human-like motions, to combined feedback-forward control laws for ball catching and other skills that rely on sensory feedback. The implications of these results on the role of feedforward and feedback in learning, and whether attention and sparsity are meaningful objective functions for robot coordination and learning, are further discussed.

Biography: Frank Chongwoo Park received his B.S. in electrical engineering from MIT in 1985, and Ph.D. in applied mathematics from Harvard University in 1991. From 1991 to 1995 he was assistant professor of mechanical and aerospace engineering at the University of California, Irvine. Since 1995 he has been professor of mechanical and aerospace engineering at Seoul National University, where he is currently serving as department chair beginning June 2017. His research interests are in robot mechanics, planning and control, vision and image processing, machine learning, and related areas of applied mathematics. He

has been an IEEE Robotics and Automation Society Distinguished Lecturer, and received best paper awards for his work on visual tracking and parallel robot design. He has served on the editorial boards of the Springer Handbook of Robotics, Springer Advanced Tracts in Robotics (STAR), Robotica, and the ASME Journal of Mechanisms and Robotics. He has held adjunct faculty positions at the NYU Courant Institute, the Interactive Computing Department at Georgia Tech, and the Robotics Institute at HKUST. He is a fellow of the IEEE, current editor-in-chief of the IEEE Transactions on Robotics, developer of the EDX course Robot Mechanics and Control I, II, and author (with Kevin Lynch) of Modern Robotics: Mechanics, Planning and Control (2017 Cambridge University Press).

Keynote 4



Enhancing Human Capability with Intelligent Machine Teammates

Julie Shah
MIT

Monday 25 September
13:45 - 14:30
Room 211

Every team has top performers -- people who excel at working in a team to find the right solutions in complex, difficult situations. These top performers include nurses who run hospital floors, emergency response teams, air traffic controllers, and factory line supervisors. While they may outperform the most sophisticated optimization and scheduling algorithms, they cannot often tell us how they do it. Similarly, even when a machine can do the job better than most of us, it can't explain how. In this talk I share recent work investigating effective ways to blend the unique decision-making strengths of humans and machines. I discuss the development of computational models that enable machines to efficiently infer the mental state of human teammates and thereby collaborate with people in richer, more flexible ways. Our studies demonstrate statistically significant improvements in people's performance on military, healthcare and manufacturing tasks, when aided by intelligent machine teammates.

Biography: Julie Shah is an Associate Professor of Aeronautics and Astronautics at MIT and director of the Interactive Robotics Group, which aims to imagine the future of work by designing collaborative robot teammates that enhance human capability. As a current fellow of Harvard University's Radcliffe Institute for Advanced Study, she is expanding the use of human cognitive models for artificial intelligence. She has translated her work to manufacturing assembly lines, healthcare applications, transportation and defense. Before joining the faculty, she worked at Boeing Research and Technology on robotics applications for aerospace manufacturing. Prof. Shah has been recognized by the National Science Foundation with a Faculty Early Career Development (CAREER) award and by MIT Technology Review on its 35 Innovators Under 35 list. Her work on industrial human-robot collaboration was also in Technology Review's 2013 list of 10 Breakthrough Technologies. She has received international recognition in the form of best paper awards and nominations from the ACM/IEEE International Conference on Human-Robot Interaction, the American Institute of Aeronautics and Astronautics, the Human Factors and Ergonomics Society, the International Conference on Automated Planning and Scheduling, and the International Symposium on Robotics. She earned degrees in aeronautics and astronautics and in autonomous systems from MIT.

Keynote 5



**Robots that Evolve,
Develop, and Learn**

Josh Bongard
University of Vermont
Monday 25 September
13:45 - 14:30
Room 109

Many organisms experience radical morphological and neurological change over evolutionary time, as well as their own lifetimes. Traditionally, this has been hard to do with rigid-body robots. The emerging field of soft robotics, however, is now making it relatively easy to create robots that change their body plans and controllers over multiple time scales. In this talk I will explore not just how to do this, but why one might choose to do so: I will show how such

robots are more adaptable than robots that cannot adapt body and brain over time.

Biography: Josh Bongard is a roboticist and professor in the Department of Computer Science at the University of Vermont. He was a Microsoft New Faculty Fellow (2006), an MIT Technology Review “Top Innovator under the Age of 35” (2007), and the recipient of a PECASE award (2011). His funded research covers the crowdsourcing of robotics, embodied cognition, human-robot interaction, autonomous machines that recover functionality after unanticipated damage, soft robotics, and white box machine learning. His work has been funded by NSF, DARPA, ARO, AFRL, and NASA. He is the co-author of the book *How the Body Shapes the Way We Think: A New View of Intelligence*.

Keynote 6



**Robust Robot
Decision Making under
Uncertainty: From
Known Unknowns to
Unknown Unknowns**

**David Hsu
National University of
Singapore**

Monday 25 September,
13:45 - 14:30
Room 118

In the near future, robots will “live” with humans, providing a variety of services at homes, in workplaces, or on the road. For robots to become effective and reliable human collaborators, a core challenge is the inherent uncertainty in understanding human intentions, in addition to imperfect robot control and sensor noise. To achieve robust performance, robots must hedge against uncertainties and sometimes actively elicit information to reduce uncertainties. I will briefly review Partially Observable Markov Decision Process (POMDP) as a principled general model for planning under uncertainty and present our recent work that tackles the intractable POMDP planning problem and achieves near real-time performance in dynamic environments for autonomous vehicle navigation among many pedestrians. In practice, an outstanding challenge of

POMDP planning is model construction. I will also discuss how recent advances in deep learning can help bridge the gap and connect planning and learning.

Biography: David Hsu is a professor of computer science at the National University of Singapore (NUS), a member of NUS Graduate School for Integrative Sciences & Engineering, and deputy director of the Advanced Robotics Center. He received Ph.D. in computer science from Stanford University, USA. In recent years, he has been working on robot planning and learning under uncertainty.

He served as the General Co-Chair of IEEE International Conference on Robotics & Automation (ICRA) 2016, the Program Chair of Robotics: Science & Systems (RSS) 2015, a steering committee member of International Workshop on the Algorithmic Foundation of Robotics (WAFR), an editorial board member of Journal of Artificial Intelligence Research, and an associate editor of IEEE Transactions on Robotics. He, along with colleagues and students, won the Humanitarian Robotics and Automation Technology Challenge Award at ICRA 2015 and the RoboCup Best Paper Award at IEEE/RSJ International Conference on Intelligent Robots & Systems (IROS) 2015.

Keynote 7



Representations vs Algorithms: Symbols and Geometry in Robotics

Nicholas Roy
MIT

Tuesday 26 September
13:00 - 13:45
Room 211

In the last few years, the ability for robots to understand and operate in the world around them has advanced considerably. Examples include the growing number of self-driving car systems, the considerable work in robot mapping, and the growing interest in home and service robots. However, one obstacle to getting more widely useful robots is the difficulty that people have in interacting with robots. A major driver of this difficulty is that how robots reason about the world is still pretty different to how people reason. Robots think in terms of point features, dense

occupancy grids and action cost maps. People think in terms of landmarks, segmented objects and tasks (among other representations). There are good reasons why these are different, and robots are unlikely to ever reason about the world in the same way that people do. However, for effective operation, robots must be able to interact naturally with people around them and act as real team-mates.

I will talk about recent work in joint reasoning about semantic representations and physical representations, especially how such reasoning relates to natural language understanding, and how we can bridge the gap between low-level sensing and control, and higher-level semantic representations to create more capable robots.

Biography: Nicholas Roy is the Bisplinghoff Professor of Aeronautics & Astronautics at the Massachusetts Institute of Technology and a member of the Computer Science and Artificial Intelligence Laboratory (CSAIL) at MIT. He received his Ph. D. in Robotics from Carnegie Mellon University in 2003. His research interests include unmanned aerial vehicles, autonomous systems, human-computer interaction, decision-making under uncertainty and machine learning. He spent two years at Google [x] as the founder of Project Wing.

Keynote 8



**Cooperating without
Communicating:
Achieving Teaming by
Observation**

Lynne Parker
University of Tennessee
Tuesday 26 September
13:00 - 13:45
Room 109

A long-term goal of research in both multi-robot and human-robot teams is to achieve a natural and intuitive collaboration, similar to the type of implicit cooperation demonstrated by many well-practiced human-only teams. In smoothly-operating human-only teams, individuals have trained together and understand intuitively how to interact with each other on the current task without the need for any explicit commands or conversations. A fundamental

research question is whether a similar level of teaming fluency can be created in multi-robot and human-robot teams. Such teams would consist of individuals that operate side-by-side in the same physical space, each performing physical actions based upon their individual skills and capabilities, while also collaborating seamlessly and implicitly with other teammates. Achieving this level of implicit interaction requires team member observation of the activities and actions of teammates, with appropriate action responses to ensure that the team collectively achieves its shared objectives. This talk explores the challenges and possible solutions for achieving team-based implicit cooperation without explicit communication, focusing on the collaborations that are possible through observation, modeling, inference, and implicit activity coordination in multi-robot and human-robot teams.

Biography: Dr. Lynne E. Parker is an Associate Dean in the Tickle College of Engineering at the University of Tennessee, Knoxville (UTK), and Professor in the Department of Electrical Engineering and Computer Science. She received her PhD in Computer Science from the Massachusetts Institute of Technology. Lynne is the founder and director of the Distributed Intelligence Laboratory at UTK. She has made significant research contributions in distributed and heterogeneous robot systems, machine learning, and human-robot interaction, and has received numerous awards for her research, teaching, and service, including the PECASE Award (U.S. Presidential Early Career Award for Scientists and Engineers), the IEEE RAS Distinguished Service Award, and many UTK Chancellors, College, and Departmental awards. Dr. Parker has been active in the IEEE Robotics and Automation Society for many years; she served as the General Chair for the 2015 IEEE International Conference on Robotics and Automation, as the Editor-in-Chief of the IEEE RAS Conference Editorial Board, as an Administrative Committee Member of RAS, and as Editor of IEEE Transactions on Robotics. She is a Fellow of IEEE.

Keynote 9



Robotics as the Path to Intelligence

Oliver Brock
Technical University of Berlin

Tuesday 26 September
13:00 - 13:45
Room 118

The historical promise robotics is to devise technological artifacts that replicate all human capabilities. This includes physical capabilities like locomotion and dexterity, intellectual capabilities like reasoning and learning, and also social capabilities like collaboration and training. Are we, as a discipline, still pursuing this objective? Is it even worthwhile or promising to do so? And if so, are we making good progress? I will portray my views on the importance for robotics to understand and replicate intelligence, including physical intelligence and social intelligence. By juxtaposing views from related disciplines with recent accomplishments of our field, e.g. soft robotics and deep learning, I will sketch a path towards a future generation of robots with human-like abilities.

Biography: Oliver Brock is the Alexander-von-Humboldt Professor of Robotics in the School of Electrical Engineering and Computer Science at the Technische Universität Berlin in Germany. He received his Diploma in Computer Science in 1993 from the Technische Universität Berlin and his Master's and Ph.D. in Computer Science from Stanford University in 1994 and 2000, respectively. He also held post-doctoral positions at Rice University and Stanford University. Starting in 2002, he was an Assistant Professor and Associate Professor in the Department of Computer Science at the University of Massachusetts Amherst, before to moving back to the Technische Universität Berlin in 2009. The research of Brock's lab, the Robotics and Biology Laboratory, focuses on mobile manipulation, interactive perception, grasping, manipulation, soft material robotics, interactive machine learning, deep learning, motion generation, and the application of algorithms and concepts from robotics to computational problems in structural molecular biology. He is the president of the Robotics: Science and Systems foundation.

Keynote 10



Studies on Interactive Robots - Principles of conversation

Hiroshi Ishiguro
Advanced
Telecommunications
Research Institute
International (ATR)
Tuesday 26 September
13:45 - 14:30
Room 211

We have developed interactive robots and androids and studied principles of interaction and conversation between humans and robots in Osaka University and ATR. This talk introduces the robots and androids and discusses on our future society supported by them. In addition, this talk discusses on the fundamentals of human-robot interaction and conversation focusing on the feeling of presence given by robots and androids and conversations with two robots and touch panels.

Biography: Hiroshi Ishiguro (M¹) received a D.Eng. in systems engineering from the Osaka University, Japan in 1991. He is currently Professor of Department of Systems Innovation in the Graduate School of Engineering Science at Osaka University (2009-), and visiting Director (2014-) (group leader: 2002-2013) of Hiroshi Ishiguro Laboratories at the Advanced Telecommunications Research Institute and an ATR fellow. His research interests include distributed sensor systems, interactive robotics, and android science. He has published more than 300 papers in major journals and conferences, such as Robotics Research and IEEE PAMI. On the other hand, he has developed many humanoids and androids, called Robovie, Repliee, Geminoid, Telenoid, and Elfoid. These robots have been reported many times by major media, such as Discovery channel, NHK, and BBC. He has also received the best humanoid award four times in RoboCup. In 2011, he won the Osaka Cultural Award presented by the Osaka Prefectural Government and the Osaka City Government for his great contribution to the advancement of culture in Osaka. In 2015, he received the Prize for Science and Technology (Research Category) by the Minister of Education, Culture, Sports, Science and Technology (MEXT). He was also awarded the Sheikh Mohammed Bin Rashid Al Maktoum Knowledge Award in Dubai in 2015.

Keynote 11



Mechanics of Tactile Perception and Haptic Interface Design

Vincent Hayward
Institut des Systèmes Intelligents et de Robotique (ISIR)

Tuesday 26 September
13:45 - 14:30
Room 109

The physics of contact differ in fundamental ways from the physics of acoustics and optics. It should therefore be expected that the processing of somatosensory information be very different from the processing in other sensory modalities. The talk will describe some salient facts regarding the physics of touch and will continue with the description recent findings regarding the processing of time-evolving tactile inputs in second-order neurones in mammals. These ideas can be applied to the design of cost effective efficient tactile displays and tactile sensors.

Biography: Vincent Hayward is a professor (on leave) at the Université Pierre et Marie Curie (UPMC) in Paris. Before, he was with the Department of Electrical and Computer Engineering at McGill University, Montréal, Canada, where I became a full Professor in 2006 and was the Director of the McGill Centre for Intelligent Machines from 2001 to 2004. Hayward is interested in haptic device design, human perception, and robotics; and I am a Fellow of the IEEE. He was a European Research Council Grantee from 2010 to 2016. Since January 2017, Hayward is a Professor of Tactile Perception and Technology at the School of Advanced Studies of the University of London, supported by a Leverhulme Trust Fellowship.

Keynote 12



Static and Dynamic Multi-Camera Clusters for Localization and Mapping

Steven Waslander
University of Waterloo
Tuesday 26 September
13:45 - 14:30
Room 118

Multi-camera clusters provide significant advantages over monocular and stereo configurations for localization and mapping, particularly in complex environments with moving objects. The wide or omni-directional field of view afforded by multiple cameras allows the mitigation of detrimental effects from feature deprivation or occlusion. Where possible, large baselines between camera centres afford good sensitivity for scale resolution, without the need for overlap. In this talk, I will describe our work on multi-camera localization and mapping for both static clusters with rigidly mounted cameras and dynamic clusters with gimballed cameras. We evaluate conditions for degeneracy of the state estimation process for each type of cluster. We demonstrate performance results on unmanned aerial vehicles and automotive benchmark data.

Biography: Prof. Waslander received his B.Sc.E. in 1998 from Queen's University, his M.S. in 2002 and his Ph.D. in 2007, both from Stanford University in Aeronautics and Astronautics. He was a Control Systems Analyst for Pratt & Whitney Canada from 1998 to 2001. In 2008, he joined the Department of Mechanical and Mechatronics Engineering at the University of Waterloo in Waterloo, ON, Canada, as an Assistant Professor. He is the Director of the Waterloo Autonomous Vehicles Laboratory (WAVELab, <http://wavelab.uwaterloo.ca>). His research interests are in the areas of autonomous aerial and ground vehicles, simultaneous localization and mapping, nonlinear estimation and control, and multi-vehicle systems.

Keynote 13



Assembling Orders in Amazon's Robotic Warehouses

Joey Durham
Amazon Robotics

Wednesday 27 September

13:45 - 14:30

Room 211

Every day, Amazon is able to quickly pick, pack, and ship millions of items to customers from a network of fulfillment centers all over the globe. Each Amazon warehouse holds millions of items of inventory, most customer orders represent a unique combination of several items, and many orders need to be shipped within a couple hours of being placed to meet delivery promises. This would not be possible without leveraging cutting-edge advances in technology. This talk will describe the mobile robotic fleet that powers an Amazon warehouse and delivers inventory shelves to associates, including how we approach the interrelated problems of assigning tasks and planning paths for thousands of robots in dynamic warehouse environments. I will also present the results of the 2017 Amazon Robotics Challenge in manipulation and grasping, as well as a couple of big open problems in robotic warehousing.

Biography: Joey Durham is Manager of Research and Advanced Development at Amazon Robotics. His team focuses on resource allocation algorithms, machine learning, and path planning for robotic warehouses. He is also the Contest Chair for the Amazon Robotics Challenge, an annual robotic manipulation contest held most recently as part of RoboCup 2017. Joey joined Kiva Systems after completing his Ph.D. at the University of California at Santa Barbara in distributed coordination for teams of robots. He has been with the company through its acquisition and growth into Amazon Robotics. Previously he worked on path planning for autonomous vehicles for the Stanford University team that won the DARPA Grand Challenge.

Keynote 14



Ultrasound and ultrasound-mediated image guidance for robot assisted surgery

**Tim Salcudean
University of British
Columbia**

Wednesday 27 September,
13:45 - 14:30
Room 109

Medical robotic systems present a great opportunity for integrating imaging with surgical navigation. Indeed, the instruments are localized and tracked in real time with respect to the camera view, so once registered to the patient, imaging can be used to display anatomy and pathology with respect to the robot camera and the instruments.

We present our approaches to integrating ultrasound and magnetic resonance imaging with the da Vinci medical robotic system for prostate surgery. We will summarize our calibration and registration techniques and our experience from a first patient study (N=27) in which this system was used.

Integration of ultrasound with medical robots enables new intra-operative ultrasound-based tissue characterization. We present our work in two areas: quantitative elastography to measure tissue shear storage and loss moduli ("objective palpation"), and photoacoustic imaging to measure blood oxygenation.

Biography: Tim Salcudean received his bachelor's and master's from McGill University and the doctorate from U.C. Berkeley, all in Electrical Engineering. From 1986 to 1989, he was a Research Staff Member in the robotics group at the IBM T.J. Watson Research Center. He then joined the Department of Electrical and Computer Engineering at the University of British Columbia, Vancouver, Canada, where he holds a Canada Research Chair and the Laszlo Chair in Biomedical Engineering.

Professor Salcudean's research contributions have been in the areas of medical imaging, medical robotics, simulation and virtual environments, haptics, teleoperation and optimization-based design. Several companies have

licensed his technology and his gland-contouring software for prostate cancer radiotherapy has become the standard of care in British Columbia, and has been used in well over 2000 patients. Prof. Salcudean has been a co-organizer of several research symposia and has served as a Technical and Senior Editor of the IEEE Transactions on Robotics and Automation. He is a Fellow of MICCAI, the IEEE, and the Canadian Academy of Engineering.

Keynote 15



**Robotics goes soft:
challenges and
achievements, for new
robotics scenarios**

Cecilia Laschi
The BioRobotics Institute,
Scuola Superiore Sant'Anna
Wednesday 27 September,
13:45 - 14:30
Room 118

Soft robotics is a young yet promising approach to develop deformable robots that can adapt to the environment and exploit interaction for accomplishing real-world tasks. Widely growing worldwide, soft robotics has produced already interesting achievements in terms of technologies for actuation, sensing, control, and many more. In addition to allowing more applications for robots, soft robotics technologies are enabling robot abilities that were not possible before, like morphing, stiffening, growing, self-healing, evolving. They open up new scenarios for robotics that brings towards more life-like robots, effectively and efficiently adaptable to their environments and tasks.

Biography: Cecilia Laschi is Full Professor of Biorobotics at the BioRobotics Institute of the Scuola Superiore Sant'Anna in Pisa, Italy, where she serves as Rector's delegate to Research. She graduated in Computer Science at the University of Pisa in 1993 and received the Ph.D. in Robotics from the University of Genoa in 1998. In 2001-2002 she was JSPS visiting researcher at Waseda University in Tokyo. Her research interests are in the field of biorobotics and she is currently working on soft robotics, humanoid robotics, and neurodevelopmental engineering. She has been and currently is involved in many National and EU-funded projects, she was the coordinator of the ICT-FET OCTOPUS Integrating Project, leading to one of the first soft robots, and of the European Coordination Action on Soft Robotics RoboSoft. She has authored/co-authored more

than 200 papers, she is Chief Editor of the Specialty Section on Soft Robotics of Frontiers in Robotics and AI and she is in the Editorial Board of Bioinspiration & Biomimetics, IEEE Robotics and Automation Letters, Frontiers in Bionics and Biomimetics, Advanced Robotics, Social Robotics. She is member of the IEEE, of the Engineering in Medicine and Biology Society, and of the Robotics & Automation Society, where she served as elected AdCom member and currently is Co-Chair of the TC on Soft Robotics.

Keynote by Platinum Sponsor



**Robot Economics on
Ethereum Blockchain:
Tasks Formulation
and Proposed
Solutions**

**Aleksandr Kapitonov
Airalab**

Wednesday 27
September

12:00 - 12:10

Ballrooms B, C & D

It is inevitable that robots will be an essential part of every human's life. Machines are capable of performing tasks impossible for humans, they are more effective in many types of business activities and they are already saving people time every day.

The development of robotics has reached the point where the problem of communication has arisen between physically and logically separated autonomous agents (robots). Robots have capacity to decide which actions are appropriate within constantly changing environment. Technologies that are now being used in the world of machines constantly expand the set of decisions available to a robot, which increases its level of autonomy. And soon we'll control robots not at a low level but through capital flow and this'll be "Robot economics".

Biography: Aleksandr Kapitonov is a "Robot economics" academic society professor at Airalab. He is an assistant-professor of Control Systems and Computer Science at ITMO University, where he received his Ph.D. in industrial automation in 2014. His team focuses on navigation,

computer vision, control of mobile robots and communication for multi-agents systems. He is also the Coach of RoboCup teams. Aleksandr is a regional coordinator of Erasmus+ IOT-OPEN.EU project for researching and developing an IoT education practices, and an engineer in “Nonlinear Adaptive Control Systems” international laboratory at ITMO University.

Forums

Time	RM	Title	Organizers
14:30-16:00, 16:30-1800 Monday September 25	201	The Future of Robotics and Automation in Nuclear Facilities and Environments	Bill Hamel, Yoshi Nakamura, Hajime Asama, Raja Chatila, Mitch Pryor
14:30-16:00, 16:30-1800 Tuesday September 26		Entrepreneurship Forum and Start-up Competition (EFSC)	Erwin Prassler, Dominik Boesl, and Jianwei Zhang
08:30 - 12:00 Wednesday September 27		Research and Practice Ethics in Robotics and Automation	Raj Madhavan, Ludovic Righetti, Raja Chatila

The Future of Robotics and Automation in Nuclear Facilities and Environments

OBJECTIVES

The general objective of this forum is to facilitate exchange between researchers, users, and decision makers of robotics and automation technologies in nuclear operations and facilities. The forum will be in cooperation with the Robotics and Remote Systems Division of the American Nuclear Society, and will include presentations and discussions about the challenges of normal and off-nominal operations, with particular interests in clean-up of legacy nuclear facilities around the world, and ongoing recovery operations at the Fukushima Daiichi site. This half-day forum will provide the opportunity for researchers and users to meet and discuss the recent results and emerging technology requirements. Specific objectives are to provide workshop participants with: Updates on key R&A technologies applicable to Nuclear Facilities from both academia and industry. Presentations and discussions regarding recent waste site clean-up uses of, and results with, R&A from around the world. Overviews and future plans robotics in waste clean-up programs in the US and other countries. Updates on the utilization of R&A technologies at the Fukushima Daiichi site.

Topics of interest:

- Robot mobility and navigation in harsh and unstructured environments
- Sensing, mapping, and surveillance/inspection in all phases of nuclear operations
- Tooling centric manipulation
- Human machine interfaces for effective remote operations
- Advanced teleoperation, telerobotic, and autonomous system concepts for harsh and unstructured environments
- Resource allocation, networking, and signal transmission with multiple remote robotic systems in complex environments
- Data/knowledge management and coordination in multi-robot remote operations
- Power sources/transmission for mobile remote robotic systems in complex environments
- Operational experiences with remote robotics systems
- Radiation hardening of materials and components

ORGANIZERS

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Entrepreneurship Forum and Start-up Competition (EFSC)

Purpose of the Event

To foster the entrepreneurial spirit and to provide a platform to encourage researchers and practitioners to transition ideas and prototypes to commercializable products, the IEEE Robotics and Automation Society (IEEE RAS) is inviting the robotics and automation community to participate in an Entrepreneurship Forum and Start-up Competition (EFSC) at the 2017 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS'17) in Vancouver, Canada.

The event is intended to inspire, educate, enable, and empower researchers, students, young professionals, and anyone else who has the 'start-up bug' in starting companies of their own but is not sure of how to go about it. We also believe that this event will create an ecosystem that will provide the much-needed support for start-ups to launch their initiatives while being realistic about their envisioned

ideas and products.

EFSC at IROS'17 will consist of three stages:

(1) In the first stage, submitted applications will be down-selected to arrive at a pool of qualified applicants based on a defined set of criteria developed by the organizers (see 'Application Form' information below).

(2) This will be followed by a remote stage where the selected applicants will be paired with coaches based on the proposal content and the expertise of the coaches. The coaches will then critique, and provide technical and professional assistance to refine the idea/product pitches.

(3) The final stage would allow for the refined pitches and content to be presented in front of a distinguished panel of venture capitalists, industry, and academic experts who have successfully funded, transitioned and have experience in commercialization of robotics and automation technologies.

Who Can Participate?

Anyone with an idea utilizing robotics and/or automation technology that has reached a proof of concept level is welcome to submit an application provided that the entity is 1) less than 3 years old, and 2) has not received any funding from angel investors or venture capitalists in the last 5 years.

How to Participate?

Interested applicants should complete the Application Form available for download from here: PDF, MS Word. Please email completed forms to efsc@iros2017.org.

Travel Support and Awards

We anticipate travel support for all qualified applicants invited to IROS'17 (~\$1500/team) and awards for the top three finishers (pending funding approval at the time of this Call). Qualified applicants will further receive a free mini-booth in the IROS'17 exhibition area for an interactive presentation of their product (idea).

ORGANIZERS

Erwin Prassler

(H-BRS, IEEE RAS VP for Industrial Activities)

Dominik Boesl
(KUKA AG)
Jianwei Zhang
(U. Hamburg)

Research and Practice Ethics in Robotics and Automation

OBJECTIVES

Organized by the IEEE RAS Robotics and Automation Research and Practice Ethics Committee (RARPEC), this Forum is intended as a platform to exchange ideas and discuss the impacts and practice of robotics and automation (R&A) technologies in research, development, and deployment that appear to pose ethical questions for humanity.

With increased awareness and controversies surrounding R&A and AI, this Forum will focus on separating hype from reality by providing an objective and balanced treatment via invited presentations and two panel discussions. It is irrefutable that these technologies are evolving at a rapid pace and that they have the potential to transform and positively impact the lives of people. Perhaps equally undeniable are the fears and concerns associated with their development. While many concerns stem from the confusion surrounding such emerging (autonomous) technologies and a lack of understanding of current capabilities and limitations, their development also raises legitimate ethical and governance questions that should be debated within the community.

For this inaugural RARPEC Forum, we have chosen Autonomous Weapon Systems (AWS), Self Driving Cars (SDCs), and the Governance/Regulation concerns surrounding these issues as broad topics for discussions.

FORMAT

The Forum is anticipated to have the following schedule divided into two sessions:

- **Session 1: Autonomous Weapon Systems**
8:30a – 10:00a (1 Keynote + 2 Regular Talks + Q&A)
Coffee Break: 10:00a-10:30a
- **Session 2: Self-Driving Cars & Governance/Regulation Practices of Emerging Technologies**
10:30a-12:00p (1 Keynote + 2 Regular Talks + Q&A)

ORGANIZERS

Raj Madhavan

Founder & CEO, Humanitarian Robotics Technologies,
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Raja Chatila

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Competition Overview

Time	Title	Organizers
Monday - Tuesday Sept. 25-26	2nd Robotic Grasping and Manipulation Competition Hall A	Yu Sun, Zoe Doulgeri, Erik Engeberg, Joseph Falco, Yunjiang Lou, Hyungpil Moon, Maximo Roa, Yasuyoshi Yokokohji
Tuesday - Wednesday Sept. 26-27	5th Humanoid Robot Application Challenge - Robot Magic Hall A	Jacky Baltes
Tuesday, Sept. 26	Autonomous Drone Racing in Mos Eisley Vancouver Arena Hall A	Hyungpil Moon, Sungkyunkwan U, Hyunchul Shim, KAIST, Si Jung Kim University of Nevada

2nd Robotic Grasping and Manipulation Competition

DESCRIPTION

The second Robotic Grasping and Manipulation Competition is sponsored by the IEEE-RAS TC on Robotic Hands, Grasping and Manipulation. The competition has received wide support from both academia and industry. This year, the competition has two tracks for two different scenarios: daily-living and manufacturing. The tasks in the competition will be randomly selected from a robotic grasping and manipulation task pool. Part of the task pool will be released on April 15, 2017. Teams from academia and industry are equally welcome to participate. For registration, each team will need to provide a one-page description about the team, one-page PowerPoint, and a short video to demonstrate the team's capability of participating in the competition. The detailed registration requirement is at

http://www.rhgm.org/activities/competition_iros2017/.

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IMPORTANT DATES

Official Announcement	April 1, 2017
Registration Deadline	July 1, 2017
Acceptance Decision	July 15, 2017
Competition	Sept. 25-26, 2017

5th Humanoid Robot Application Challenge - Robot Magic

DESCRIPTION

The Humanoid Robot Magic Show will be held from the 24th to 28th of September at the 2017 IEEE International Conference for Robotic Systems in Vancouver, Canada. The Humanoid Robot Magic Show is the continuation of the humanoid robot application challenge which started in 2011. The idea of the humanoid application challenges was to create a competition which allowed teams more creative freedom to express themselves than other standard robot competitions (e.g., HuroCup or RoboCup). In previous years, we had humanoid robots re-enact the most important themes of Indiana Jones and showed skiing and golf playing humanoid robots. In 2017, the theme of the humanoid application challenge is robot magic. That is the use of a humanoid robot as either a magician, an assistant, and/or as a prop during the performance of a magic trick. For example, your robot may help you during a card trick or read the mind of the audience.

ORGANIZERS

Jacky Baltes

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IMPORTANT DATES

- Submission of Qualification Material
31st May 2017
- Announcement of Qualified Teams
1st August 2017
- Registration and Travel Grant Applications
9 August 2017
- Practice
24th/25th September 2017
- Competition
26th/27th September 2017
- IROS Demonstration
28th September 2017

WEBSITE: <https://www.facebook.com/humanoidchallenge>

IROS 2017 Autonomous Drone Racing in Mos Eisley Vancouver Arena

DESCRIPTION

The IROS 2017 ADR in Mos Eisley Vancouver Arena (Racing) is a technical challenge sponsored by IROS 2017 Organizing Committee aimed to provide worldwide robotic researchers a technology showroom for autonomous flight and to promote solutions for the agile autonomous flight of drones in daring environments. Participants will bring their own flying robots in Mos Eisley Vancouver Arena and be asked to fly them autonomously through designated tracks in the circuit. The technical challenges combine the time optimal path planning for drones, flight and tracking control, obstacle detection, localization, and fault detection and recovery. Two racing times will be recorded and scored by its best flight time through the start and the finish line. Prospective participants must submit the registration form (Form A, available online) via email to drone.racing.iros2017@gmail.com with the title of "Drone Racing Registration: Your team name" by 04/15/2017. Although we have not finalized the size of the grant, registered teams may be eligible for travel grant if submitted the travel grant application form

(Form B, available online) by 06/01/2017 to drone.racing.iros2017@gmail.com with the title of "Drone Racing Travel Grant Application: Your team name". Successfully registered teams must submit team information to the organizers via email by 09/01/2017. The conference registration policy for the competition-only participants will be announced later.

ORGANIZERS

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IMPORTANT DATES

- Orientation and familiarization of the environment
09/24/2017
- Dry-run
09/25/2017
- Main event
09/26/2017
- Award luncheon: (tentative)
09/27/2017
- Demonstration to public (top rankers, tentative)
09/27/2017

(Detailed timeline is subject to change and will be posted on the web as well as informed by the registered email.)

WEBSITE: <http://ris.skku.edu/iros2017racing/>

Conference Awards

IROS 2017 Awards Luncheon will be held in Ballrooms B, C and D, 12:00 – 13:45, on Wednesday September 27. Boxed lunch will be provided. The following is the list of awards to be announced.

JTCF Novel Technology Paper Award for Amusement Culture

This award recognizes practical technology contributing to toys, toy models, and amusement culture. Sponsored by the Japan Toy Culture Foundation.

RoboCup Best Paper Award

For work in localization, navigation, mobility, and teamwork technologies, with applications to areas such as team sports, search and rescue, personal and home robotics, education, and others. Sponsored by the RoboCup Federation.

IROS Best Paper Award on Cognitive Robotics Sponsored by KROS

To promote interdisciplinary research on cognition for technical systems and advancements of cognitive robotics in industry, home applications, and daily life

IROS Best Paper Award on Safety, Security, and Rescue Robotics

To promote advanced research on safety, security and rescue robotics (SSRR), in memory of Motohiro Kiso

ICROS Best Application Paper Award

Sponsored by the Institute of Control, Robotics, and Systems (ICROS), this award is to recognize excellent robot application

IROS 2017 ABB Best Student Paper Award

This award recognizes the most outstanding paper authored primarily by, and presented by, a student. Sponsored by ABB.

IROS 2017 Best Paper Award

This award recognizes the most outstanding paper presented at the conference.

Technical Tours

Overview

IROS 2017 will feature tours to many local companies around Vancouver and the surrounding area, known as the “Lower Mainland”. These will be grouped into tours of academic labs at two of the region’s largest Universities (The University of British Columbia and Simon Fraser University) as well as tours to local industry of interest to robotics researchers. IROS has organized bus transportation to each tour site, which is an excellent opportunity for participants to experience the beautiful city of Vancouver and its surroundings while *en route* to the interesting technical demonstrations.



Schedule

The IROS 2017 Technical Tour program will occur in the afternoons of September 25th – 27th. Precise times for each tour are still being resolved as of the printing of this Conference Digest. Therefore, participants are asked to consult the Conference Website and the Registration Site for further details and in order to participate in the tour program.



Academic/University Tours



THE UNIVERSITY OF BRITISH COLUMBIA

UBC – September 25th, 2:30pm departure

The University of British Columbia is a global centre for research and teaching, consistently ranked among the 40 best universities in the world. Since 1915, UBC's West Coast spirit has embraced innovation and challenged the status quo. Its entrepreneurial perspective encourages students, staff and faculty to challenge convention, lead discovery and explore new ways of learning. At UBC, bold thinking is given a place to develop into ideas that can change the world.

During the IROS 2017 Technical Tour to UBC, participants will visit many exciting labs and facilities across the campus. For example:

Collaborative Advanced Robotics and Intelligent Systems Laboratory (CARIS): Lead by Dr. Elizabeth Croft

In the CARIS lab we pursue world-class experimental research to advance the science of human-robot interaction (HRI). Our positioning within one of the top universities in Canada and indeed in the world, combined with our excellent research facilities, including a Willow Garage PR2 (the only one in Canada), two Barrett WAM™ 7DOF robot arms and grippers, a unique robotic virtual reality environment to study human balance, and a room-sized integrated force and motion capture system, among other advanced sensing, control and actuation equipment, allow us to examine and answer impactful and novel research questions in HRI.



SFU – September 26th, 2:30pm departure

In the place where innovative education, cutting-edge research and community outreach intersect, you'll find Simon Fraser University. Our vision? To be Canada's leading engaged university.

During the IROS 2017 Technical Tour to SFU, participants will visit many exciting labs and facilities across the campus. For example:

The SFU Autonomy Lab: Lead by Dr. Richard Vaughan

The Autonomy Lab builds life-like machines. Our goal is to increase the autonomy (i.e. self-control and self-maintenance) of robots and other machines. Our research interests include:

- Highly autonomous, long-lived robots
- Large-population multi-robot systems
- Human-robot interaction
- Behaviour and sensing for outdoor natural and semi-structured environments
- Robot and animal foraging behaviour
- Behaviour for UAVs
- Robot simulation, programming and research tools

Company Tours

ZABER



Our headquarters in Vancouver, BC, Canada

At Zaber, we design and manufacture precision positioning devices that are affordable, integrated, and easy to use. Our devices are used in many different applications and markets, such as photonics and optics, life sciences, microscopy, and industrial automation.

Zaber was founded in 1997 by a group of friends. Back then, precision linear actuators all used DC motors with gearbox and encoders, and

they required bulky controllers and a number of other accessories and supplies. Precision motion control was expensive and difficult to set up and use. Recognizing the need for affordable and integrated solutions for motion

control, Zaber released the world's first precision linear actuator with a built-in controller, the T-LA28 Series linear actuator. Based on a stepper motor instead of a combination of DC motor, gearbox, and encoder, the T-LA28 was the first device to feature all control and drive electronics in one compact package. The integration of all control and drive electronics in the same package became the foundation of Zaber's T-, A- and, later X-Series product lines.



ISTUARY

Istuary Innovation Group is a Canadian technology company with a mission to connect local technology to global markets for sustainable innovation. Istuary Robotics, a division of Istuary Innovation Labs, is dedicated to building robot software that is easy for everyone to use. Participants are invited to attend Istuary's Vancouver Head Office for an interactive site tour complete with presentations and live demonstrations including Human-Robot Interaction Methods and Live Portrait Drawing. Jean Su, VP of Engineering of Istuary Innovation Labs will be joined by robotics engineer Benjamin Blumer and machine learning analyst Eric Hsu.

The Istuary tour will include:

- Presentation Overview
- Live demonstrations including:
 - Human-robot interaction methods
 - Live portrait drawing
- Machine Learning:
 - Video Analytics
 - Deep Learning



Motion Metrics International Corp

At Motion Metrics, we employ the latest technologies to solve tough challenges for mines and quarries. We have

made it our mission to develop intelligent solutions to help them operate safely and efficiently.

With over 15 years of experience dedicated to perfecting rugged machine vision and sensor based solutions, we take pride in applying artificial intelligence and deep learning techniques to deliver advanced solutions with exceptional results. With 50+ employees across Canada, Chile and South Africa, we use technology and innovation to propel our business forward.



Dark Vision

Dark Vision Technologies Inc. was founded in 2013 by a group of experienced entrepreneurs that have expertise and a track record in developing and commercializing imaging technologies. The company has developed a new ultrasound-based imaging technology used to image the inside of oil and gas wells. With a clear picture of the inner working of their wells, oil and gas operators can make smart decisions that reduce operating costs, increase production, improve well integrity and minimize environmental impacts. Unlike camera technologies, DarkVision's high resolution ultrasound imaging system is able to image through opaque fluids that have inhibited the widespread use of cameras and optics as a downhole diagnostics tool.

The company's first field-ready tool uses a number of proprietary and patented technologies to go thousands of meters underground, bringing oil and gas operators incredibly high resolution 3D scans of their entire wells. DarkVision has already won numerous awards, including 1st prize in the 2014 NVBC competition for the top high-tech start-up in BC. With a number of North America's largest oil and gas companies already secured as early customers, DarkVision's flagship product is now making its debut in the field.

Kindred.ai

The company's central thesis is that human-like intelligence requires a human-like body. Since its founding in 2014, Kindred has been exploring and engineering systems that enable robots to understand and participate in our world,

with the ultimate goal of enabling a future where intelligent machines work together with people to create abundance shared by all.

Kindred has offices in San Francisco, Toronto, and Vancouver. Investors include Eclipse, GV, Data Collective, First Round Capital, AME Cloud Ventures, 11.2 Capital, Bold Capital Partners, Innovation Endeavors and Bloomberg Beta.



TRIUMF

TRIUMF is Canada's particle accelerator centre. From the hunt for the smallest particles in our universe, to research that advances the next generation of batteries or develops medical isotopes to diagnose and treat life-threatening disease, TRIUMF produces cutting-edge science that has a tangible impact on our daily lives. Founded in 1968 and located in Vancouver, our laboratory brings together some of the brightest, most innovative thinkers from across the country and around the world to further the frontiers of research. Areas of focus include the structure of matter, the origin of stars, the composition of quantum materials, and the development of new technologies for medicine. We also have a deep-seated commitment to the commercialization of our technologies. TRIUMF's multidisciplinary team of over 500 staff and 150 students collaborates with Canadian and international users who visit the laboratory to use our world-class facilities. From the abstract to the applied, we solve problems. We drive compelling research and develop ideas and innovations that benefit humanity.



D-Wave Systems Inc.

Despite the incredible power of today's supercomputers, there are many complex computing problems that can't be addressed by conventional systems. Our need to better understand everything, from the universe to our own DNA, leads us to seek new approaches to answer the most difficult questions.

While we are only at the beginning of this journey, quantum computing has the potential to help solve some of the most complex technical, scientific, national defense, and commercial problems that organizations face. We expect that quantum computing will lead to breakthroughs in science, engineering, modeling and simulation, healthcare, financial analysis, optimization, logistics, and national defense applications.

Founded in 1999, D-Wave Systems is the world's first quantum computing company and the leader in the development and delivery of quantum computing systems and software. Our mission is to unlock the power of quantum computing to solve the world's most challenging problems. Our systems are being used by world-class organizations and institutions including Lockheed Martin, Google, NASA, USC, USRA and Los Alamos National Laboratory. D-Wave has been granted over 140 U.S. patents and has published over 90 peer-reviewed papers in leading scientific journals.

D-Wave is a privately held company, with offices in Vancouver, British Columbia; Palo Alto, California; and Hanover, Maryland.

Workshops and Tutorials: Summaries

Full Day Workshop SuAW1

Sunday September 24, 09:00 – 17:30
Room 109&110

Human In-The-Loop Robotic Manipulation: On the Influence of the Human Role

Website: http://h2020sarafun.eu/iros2017_hr/

Organizers:

Yiannis Karayiannidis
Chalmers University of Technology, KTH, Sweden
Yasemin Bekiroglu
ABB Corporate Research, 156 Sweden
Anthony Remazeilles
Tecnalia Research and Innovation, Health division, Spain
Justus Piater
University of Innsbruck, Austria

Full Day Workshop SuAW2

Sunday September 24, 09:00 – 17:30
Room 111&112

Introspective Methods for Reliable Autonomy

Website: http://aass.oru.se/Agora/IROS2017_Introspection/

Organizers:

Tomasz Piotr Kucner, tomasz.kucner@oru.se
Orebro University – AASS
Sören Schwertfeger, oerensch@shanghaitech.edu.cn
ShanghaiTech University - STAR-Lab
Martin Magnusson, martin.magnusson@oru.se
Orebro University – AASS
Achim J. Lilenthal, achim.lilienthal@oru.se
Orebro University – AASS

Full Day Workshop SuAW3

Sunday September 24, 09:00 – 17:30
Room 116&117

Verification of Autonomous Systems Workshop

Website: <http://pwp.gatech.edu/iros2017-vasw/>

Organizers:

Stephen Balakirsky, Georgia Tech Research Institute, US
Robin D. Ashmore, DSTL, UK
Elizabeth Leonard, NRL, US

Constance Heitmeyer, NRL, US
Don Sofge, NRL, US
Signe Redfield, NRL, US
Calin Belta, Boston University, US
Craig Schlenoff, NIST, US
David Scheidt, Weather Gage Technologies, LLC, US
John Sustersic, Penn State, US
Marc Steinberg, ONR, US
David Sparrow, Poornima Madhavan, IDA, US

Full Day Workshop SuAW4

Sunday September 24, 09:00 – 17:30
Room 114&115

Shared Platforms for Medical Robotics Research

Website: http://aass.oru.se/Agora/IROS2017_Introspection/

Organizers:

Peter Kazanzides, pkaz@jhu.edu
Johns Hopkins University
Gregory S. Fischer, gfischer@wpi.edu
Worcester Polytechnic Institute
Simon DiMaio, simon.dimaio@intusurg.com
Intuitive Surgical, Inc.
Tamás Haidegger, haidegger@irob.uni-obuda.hu
Óbuda University
Blake Hannaford, blake@ee.washington.edu
University of Washington

Full Day Workshop SuAW5

Sunday September 24, 09:00 – 17:30
Room 118&120

Planning Legged and Aerial Locomotion with Dynamic Motion Primitives

Website: <https://sites.google.com/udel.edu/iros17-dynamic-planning/>

Organizers:

Ioannis Poulakakis
Associate Professor, University of Delaware
Katie Byl
Associate Professor, University of California Santa Barbara
Sushant Veer
PhD Candidate, University of Delaware

Half Day Workshop SuAW6

Sunday September 24, 09:00 – 12:30
Room 121

Workshop on Acoustic Based Navigation for Marine Robots

Website: <https://sites.google.com/site/mrw4iros17/home>

Organizers:

Hyun Choi, htchoi@kriso.re.kr / htchoiphd@gmail.com

Ph.D., Director, Ocean System Engineering Research Division, Korea Research Institute of Ships and Ocean Engineering (KRISO), Korea

Ryan N. Smith, rsmith@fortlewis.edu

Ph.D., Associate Professor, Physics and Engineering, Fort Lewis College, USA

Mandar Chitre, mandar@nus.edu.sg

Ph.D., Associate Professor, Department of Electrical & Computer Engineering, National University of Singapore, Singapore

Ayoung Kim, ayoungk@kaist.ac.kr

Ph.D., Assistant Professor, Civil and Environmental Engineering, Korea Advanced Institute of Science Technology (KAIST), Korea.

Half Day Workshop SuBW6

Sunday September 24, 14:00 – 17:30
Room 121

Robot-Assisted Therapy in Stroke Rehabilitation (Canceled)

Website: <https://aradrex.wixsite.com/ratsr-iros-workshop>

Organizer:

Alireza Rastegarpanah, a.rastegarpanah@ucl.ac.uk
Corresponding organizer, Research Associate, Aspire CREATE - Centre for Rehabilitation Engineering and Assistive Technology, UCL Institute of Orthopaedics and Musculoskeletal Sciences(IOMS), Royal National Orthopaedic Hospital (RNOH) Brockley Hill Stanmore, HA7 4LP

Full Day Workshop SuAW7

Sunday September 24, 09:00 – 17:30
Room 122

Biological Systems: A Challenging Handicap To Overcome

Website: <https://energeticeconomyrobotics.wordpress.com/organizers/>

Organizers:

Navvab Kashiri, Department of Advanced Robotics, Istituto Italiano di Tecnologia

Bram Vanderborght, Robotics & Multibody Mechanics research group, Vrije Universiteit Brussel

Jörn Malzahn, Department of Advanced Robotics, Istituto Italiano di Tecnologia

Monica Daley, Structure & Motion Laboratory, The Royal Veterinary College

Nikos Tsagarakis, Department of Advanced Robotics, Istituto Italiano di Tecnologia

Half Day Tutorial SuAW8

Sunday September 24, 09:00 – 12:30
Room 202&203

A* Planning and Model Predictive Control with Dynamics-based and Multiple Heuristics

Website: <https://www.ciscor.org/iros-2017>

Speakers:

Emmanuel Collins, ecollins@eng.famu.fsu.edu

Department of Mechanical Engineering, Florida

A&M University – Florida State University College of Engineering

Maximum Likhachev, maxim@cs.cmu.edu

Robotics Institute Carnegie Mellon University

Half Day Workshop SuBW8

Sunday September 24, 14:00 – 17:30
Room 202&203

Development of Benchmarking Protocols for Robot Manipulation

Website: <http://ycbbenchmarks.org/IROS2017workshop.html>

Organizers:

Dr. Berk Calli

Yale University, berk.calli@yale.edu

Prof. Aaron Dollar

Yale University, aaron.dollar@yale.edu

Prof. Siddhartha Srinivasa

Carnegie Mellon University, siddh@cmu.edu

Dr. Maximo Roa

German Aerospace Center (DLR), maximo.roa@dlr.de

Full Day Workshop SuAW9

Sunday September 24, 09:00 – 17:30

Room 204

Gravity Offload Testbeds for Space Robotic Mission Simulation

Website: <http://hq.wvrtc.com/iros2017/index.shtml>

Organizers:

CRAIG CARRIGAN

Space Systems Laboratory, Univ. of Maryland, College Park, MD, USA

GIACOMO MARANI

WVRTC, West Virginia Univ., WV, USA

ANDRÉ SCHIELE

ESA, Noordwijk, The Netherlands

Full Day Workshop SuAW10

Sunday September 24, 09:00 – 17:30

Room 205&206

Soft Morphological Design for Haptic Sensation, Interaction and Display

Website: <https://sites.google.com/site/iros17softhaptic/>

Organizers:

Hongbin Liu, King's College London, UK

Van Anh Ho, Japan Advanced Institute of Science and Technology (JAIST), Japan.

Full Day Workshop SuAW11

Sunday September 24, 09:00 – 17:30

Room 207

Towards an artist-in-the-lab Framework

Website: <http://www.roboticart.org/iros2017/>

Organizers:

David St-Onge, david.st-onge@polymtl.ca
Post-doctoral researcher at MIST, École Polytechnique de Montréal.

Damith Herath, Damith.Herath@canberra.edu.au
Assistant Professor, Centered Computing Laboratory
at the Faculty of Education, Science, Technology and
Mathematics.

William D. Smart, bill.smart@oregonstate.edu
Professor in the Robotics Program at the Oregon State
University, US.

Full Day Workshop SuAW12

Sunday September 24, 09:00 – 17:30
Room 208&209

**Continuum Robots in Medicine – Design, Integration,
and Applications**

Website: <https://sites.google.com/udel.edu/iros17-dynamic-planning/>

Organizers:

Mahdi Tavakoli, mahdi.tavakoli@ualberta.ca
Professor, PhD, P.Eng. Department of Electrical &
Computer Engineering, University of Alberta.

Rajni Patel, rvpatel@uwo.ca
Professor, PhD, P.Eng. Canadian Surgical Technologies
& Advanced Robotics (CSTAR), Electrical & Computer
Engineering Department, University of Western Ontario.

Sarthak Misra, s.misra@utwente.nl
Associate Professor, PhD, Department of Biomechanical
Engineering, University of Twente.

Michael Yip, yip@ece.ucsd.edu
Assistant Professor, PhD, Department of Electrical and
Computer Engineering, University of California San Diego.

Mohsen Khadem, mohsen.khadem@ualberta.ca
PhD, Department of Electrical & Computer Engineering,
University of Alberta.

Full Day Workshop SuAW13

Sunday September 24, 09:00 – 17:30
Room 211-214

**9th Workshop on Planning, Perception and Navigation
for Intelligent Vehicles**

Website: <http://ppniv17.irccyn.ec-nantes.fr/>

Organizers:

Professor Philippe Martinet, Philippe.Martinet@ircsyn.ec-nantes.fr

LS2N-CNRS Laboratory, Ecole Centrale de Nantes, 1 rue de la Noë, 44321 Nantes Cedex 03, France.

Research Director Christian Laugier, Christian.Laugier@inrialpes.fr

INRIA, Emotion project, INRIA Rhône-Alpes, 655 Avenue de l'Europe, 38334 Saint Ismier Cedex, France.

Professor Urbano Nunes, urbano@deec.uc.pt

Department of Electrical and Computer Engineering of the Faculty of Sciences and Technology of University of Coimbra, 3030-290 Coimbra, Portugal, GABINETE 3A.10.

Professor Christoph Stiller, stiller@kit.edu

Institut für Mess- und Regelungstechnik, Karlsruher Institut für Technologie (KIT), Engler-Bunte-Ring 21, Gebäude: 40.32, 76131 Karlsruhe, Germany.

Full Day Workshop SuAW14

Sunday September 24, 09:00 – 17:30

Room 217-219

Learning for Collaborative Robotics: Enabling Flexible, Redeployable and Agile Industrial Applications

Website: <http://www.mobilemanipulation.org/cobots-IROS-2017/>

Organizers:

Luca Colasanto, Robert Bosch LLC, Palo Alto USA
luca.colasanto@us.bosch.com

Juergen Hess, Robert Bosch LLC, Palo Alto USA
Juergen.Hess2@us.bosch.com

Lorenzo Riano, Robert Bosch LLC, Palo Alto USA
Lorenzo.Riano@us.bosch.com

Arash Ajoudani, Istituto Italiano di Tecnologia, Italy
Arash.Ajoudani@iit.it

Tadej Petric, Jozef Stefan Institute, Slovenia
tadej.petric@ijs.si

Clemens Eppner, Technische Universität Berlin, Germany
clemens.eppner@tu-berlin.de

Benjamin Rosman, Council for Scientific and Industrial Research, and University of Witwatersrand, South Africa
brozman@csir.co.za

Sylvain Calinon, Idiap Research Institute, Switzerland
sylvain.calinon@idiap.ch

Full Day Workshop SuAW15

Sunday September 24, 09:00 – 17:30

Room 215&216

Agile Robotics for Industrial Automation Competition (ARIAC) Workshop

Website: <https://www.nist.gov/el/intelligent-systems-division-73500/agile-robotics-industrial-automation-competition-ariac/>

Organizers:

Dr. Craig Schlenoff, craig.schlenoff@nist.gov
Competition Chair, National Institute of Standards and Technology (NIST) 100 Bureau Drive, Stop 8230
Gaithersburg, MD 20877

Anthony Downs, anthony.downs@nist.gov
Co-Organizers, National Institute of Standards and Technology (NIST) 100 Bureau Drive, Stop 8230
Gaithersburg, MD 20877

Dr. William Harrison, william.harrison@nist.gov
Co-Organizers, National Institute of Standards and Technology (NIST) 100 Bureau Drive, Stop 8230
Gaithersburg, MD 20877

Half Day Workshop SuAW16

Sunday September 24, 09:00 – 12:30

Room 220

Workshop on Perception and Planning for Robotic Inspection

Website:

Organizers:

Pratap Tokekar
Daniel Stilwell
Craig Woolsey
Ryan Williams
Matthew Hebdon

Half Day Workshop SuBW16

Sunday September 24, 14:00 – 17:30

Room 220

Micro-Data: The New Frontier of Robot Learning?

Website: <http://homepages.loria.fr/JBMouret/www-microdata>

Organizers:

Jean-Baptiste Mouret, jean-baptiste.mouret@inria.fr

Associate Researcher, Inria Larsen team

Freek Stulp

Head of Department, Department of Cognitive Robotics
Institute of Robotics and Mechatronics, DLR - Deutsches
Zentrum für Luft- und Raumfahrt e.V. (German Aerospace
Center)

Sylvain Calinon

Idiap / EPFL, Switzerland University

Full Day Workshop SuAW17

Sunday September 24, 09:00 – 17:30

Room 221&222

**2nd Workshop on Semantic Policy and Action
Representations for Autonomous Robots**

Website: <https://www.ics.ei.tum.de/workshop-iros-spar17/>

Organizers:

Karinne Ramirez-Amaro

Technische Universität München, Germany

Yezhou Yang

Arizona State University, USA

Neil T. Dantam

Rice University, USA

Eren Erdal Aksoy

Karlsruhe Institute of Technology, Germany

Gordon Cheng

Technische Universität München, Germany

Full Day Workshop SuAW18

Sunday September 24, 09:00 – 17:30

Room 223&224

**Human-Robot Interaction in Collaborative
Manufacturing Environments**

Website: <http://caris.mech.ubc.ca/iros-2017-workshop/>

Organizers:

Sara Sheikholeslami, s.sheikholeslami@alumni.ubc.ca

Researcher, Collaborative Advanced Robotics and
Intelligent Systems (CARIS) Laboratory, Department of
Mechanical Engineering, University of British Columbia

Ross Mead, ross@semio.ai

PhD, Founder and CEO, Semio

Prof. Elizabeth A. Croft, elizabeth.croft@ubc.ca

Director, Collaborative Advanced Robotics and Intelligent Systems (CARIS) Laboratory, Department of Mechanical Engineering, University of British Columbia

Florian Krebs, florian.krebs@dlr.de

Team Leader, Flexible Automation Systems, Institute for Structures and Design / Center for Lightweight Production Technology (ZLP), German Aerospace Center (DLR)

Manfred Schöenheits, manfred.schoenheits@dlr.de

Scientist, Institute for Structures and Design / Center for Lightweight Production Technology (ZLP), German Aerospace Center (DLR)

Full Day Workshop ThAW1

Thursday September 28, 09:00 – 17:30

Room 109 & 110

Vision-Based Agile Autonomous Navigation of UAVs

Website: <http://www.seas.upenn.edu/~loiannog/workshopIROS2017uav/index.html#organizers>

Organizers:

Giuseppe Loiano, University of Pennsylvania

Davide Scaramuzza, University of Zurich

Vijay Kumar, University of Pennsylvania

Full Day Workshop ThAW2

Thursday September 28, 09:00 – 17:30

Room 111 & 112

Workshop on Medical Imaging Robotics

Website: <http://robotic-imaging.com/>

Organizers:

Christoph Hennersperger

Danail Stoyanov

Alexandre Krupa

Full Day Workshop ThAW3

Thursday September 28, 09:00 – 17:30

Room 116 & 117

Folding in Robotics

Website: http://idealab.asu.edu/folding_in_robotics/

Organizers:

Samuel Felton, Northeastern University

Dan Aukes, Arizona State University

Mike Tolley, University of California, San Diego
Onur Ozcan Bilkent University
Kyujin Cho, Seoul National University
Jamie Paik, EPFI

Full Day Workshop ThAW4

Thursday September 28, 09:00 – 17:30
Room 114 & 115

International Workshop on Lines, Planes and Manhattan Models for 3-D Mapping

Website: <http://seis.bris.ac.uk/~csadc/LPM17/index.html>

Organizers:

Andrew Calway, University of Bristol, UK
Michael Kaess, Carnegie Mellon University, USA
Srikumar Ramalingam, University of Utah, USA

Half Day Workshop ThAW5

Thursday September 28, 09:00 – 12:30
Room 118 - 120

Smart Mechanics: Fusion of Softness and Rigidity in Robot Mechanism

Website: http://www.frlab.iit.tsukuba.ac.jp/IROS2017_SmartMechanics/

Organizers:

Hiromi Mochiyama, University of Tsukuba
Kenji Suzuki, University of Tsukuba
Yasumichi Aiyama, University of Tsukuba

Half Day Tutorial ThBW5

Thursday September 28, 14:00 – 17:30
Room 118 - 120

(Tutorial) HoloLens As a Perception Platform for Robotics

Website: https://developer.microsoft.com/en-us/windows/mixed-reality/event_-_using_hololens_for_perception_at_iros_2017

Organizers:

Marc Pollefeys

Full Day Workshop ThAW6

Thursday September 28, 09:00 – 17:30
Room 121

Adaptive Control Methods in Assistive Technologies

Website: <http://iros2017.mtu.edu/>

Organizers:

Houman Dallali, Michigan Technological University
Emel Demircan, California State University Long Beach
Mo Rastgaar, Michigan Technological University

Full Day Workshop ThAW7

Thursday September 28, 09:00 – 17:30
Room 122

Synergies between Learning and Interaction

Website: <https://sites.google.com/view/iros17sbli>

Organizers:

Barş Akgün, Koc University
Kalesha Bullard, Georgia Institute of Technology
Vivian Chu, Georgia Institute of Technology
Tesca Fitzgerald, Georgia Institute of Technology
Matthew Gombolay, MIT
Chien-Ming Huang, Yale University
Brian Scassellati, Yale University

Full Day Workshop ThAW8

Thursday September 28, 09:00 – 17:30
Room 202 & 203

Shared Autonomy - Joint Learning in Human-Robot Collaboration

Website: https://aiweb.techfak.uni-bielefeld.de/iros2017_workshop_shared_autonomy/program.html

Organizers:

Malte Schilling
Wolfram Burgard
Przemyslaw Lasota
Helge Ritter
Julie Shah
Britta Wrede

Full Day Workshop ThAW9

Thursday September 28, 09:00 – 17:30
Room 204

Best Practices in Designing Effective Roadmaps for Robotics Innovation

Website: <http://canadianroboticsnetwork.com/iros-workshop/>

Organizers:

Hallie Siegel
AJung Moon
Elizabeth A. Croft
Gregory Dudek
Clément Gosselin
Paul Johnston
Jonathan Kelly
Dana Kulić
Angela Schoellig

Full Day Workshop ThAW10

Thursday September 28, 09:00 – 17:30
Room 205 & 206

Robotics -Inspired Biology

Website: <http://gravishlab.ucsd.edu/iros2017/>

Organizers:

Nick Gravish, UCSD
Chen Li, Johns Hopkins
Hamid Marvi, ASU
Henry Astley, University of Akron
Kaushik Jayaram, Harvard University

Full Day Workshop ThAW11

Thursday September 28, 09:00 – 17:30
Room 207

Embodied Brain Systems Science –from Body Representation in Human Brain toward Rehabilitation Technology-

Website: http://www.robot.t.u-tokyo.ac.jp/~an/IROS2017_WS.html

Organizers:

Qi An
Jun Ota
Hajime Asama,
Toshiyuki Kondo

Full Day Workshop ThAW12

Thursday September 28, 09:00 – 17:30
Room 208 & 209

Assistance and Service Robotics in a Human Environment

Website: <http://www.lissi.fr/iros-ar2017/doku.php/start>

Organizers:

Francis COLAS, INRIA Nancy, France
Yacine AMIRAT, LISSI-UPEC, France
David DANEY, INRIA Bordeaux, France
Ren LUO, NTU University, Taiwan
Samer MOHAMMED, LISSI-UPEC, France

Half Day Workshop ThAW13

Thursday September 28, 09:00 – 12:30
Room 211 - 214

Agricultural Robotics: Learning from Industry 4.0 and Moving into the Future

Website: <https://agrifoodroboticsworkshop.com/>

Organizers:

Tsampikos Kounalakis, Aalborg University Copenhagen,
Frits van Evert, Wageningen Research
David Michael Ball, Robert Bosch Startup Deepfield
Robotics
Gert Kootstra, Wageningen University
Lazaros Nalpantidis, Aalborg University Copenhagen

Half Day Workshop ThBW13

Thursday September 28, 14:00 – 17:30
Room 211 - 214

Learning for Localization and Mapping

Website: <https://sites.google.com/site/learningforslam/home>

Organizers:

Cesar Cadena, ETH Zurich
Igor Gilitschenski, ETH Zurich
John Leonard, MIT
Sudeep Pillai, MIT
Fabio Ramos, University of Sydney
Niko Suenderhauf, QUT

Full Day Workshop ThAW14

Thursday September 28, 09:00 – 17:30
Room 217 - 219

Frontiers in Contact-Rich Robotic Interaction: Modeling, Optimization and Control Synthesis

Website: <https://contactrobotics.wordpress.com/>

Organizers:

Jiayi Zhou, Carnegie Mellon University
Matthew Mason, Carnegie Mellon University
Michael Posa, MIT

Full Day Workshop ThAW15

Thursday September 28, 09:00 – 17:30
Room 215 - 216

Complex Collaborative Systems: Closing the Loop, Learning, and Self-Confidence

Website: http://theairlab.org/iros2017_workshop/index.html

Organizers:

Zohaib Mian, United Technologies Research
Sebastian Scherer, Carnegie Mellon University
Sanjiban Choudhury, Carnegie Mellon University

Full Day Workshop ThAW16

Thursday September 28, 09:00 – 17:30
Room 220

Human Movement Understanding for Humanoids and Wearable Robots

Website: <https://iros2017wshumanmovementunderstanding.wordpress.com/>

Organizers:

Dana Kulić, University of Waterloo
Katja Mombaur, University of Heidelberg

Full Day Workshop ThAW17

Thursday September 28, 09:00 – 17:30
Room 221 & 222

Workshop on Physical Human-Robot and Human-Telerobot Interaction: From Theory to Application for Neuro-Rehabilitation

Website: <https://docs.google.com/document/d/1--sOHdnXbtwNzXQa5krpLNDqSy1n4DtqIHTmH9P12Uw/pub>

Organizers:

S. Farokh Atashzar, Western University
Mahya Shahbazi, Western University
Mahdi Tavakoli, University of Alberta
Rajni Patel, Western University

Full Day Workshop ThAW18

Thursday September 28, 09:00 – 17:30
Room 223 & 224

The 2nd Workshop on Machine Learning Methods for High-Level Cognitive Capabilities in Robotics

Website: <https://sites.google.com/site/mlh1cr2017/home>

Organizers:

Tetsunari Inamura, National Institute of Informatics
Hiroki Yokoyama, University of Tamagawa
Emre Ugur, Bogazici University
Xavier Hinaut, INRIA
Tadahiro Taniguchi, Ritsumeikan University / Panasonic

RSJ Tutorial

Monday September 25, 14:30 - 17:30
Room 301

Lecturer: Prof. Tetsuya Ogata (Faculty of Science and Engineering, Waseda University)

Deep Learning for Robotics toward Deep Cognitive Systems

Profile: Tetsuya Ogata received the B.S., M.S., and D.E. degrees in mechanical engineering from Waseda University, Tokyo, Japan, in 1993, 1995, and 2000, respectively. He was a Research Associate with Waseda University from 1999 to 2001. From 2001 to 2003, he was a Research Scientist with the RIKEN Brain Science Institute, Saitama, Japan. From 2003 to 2012, he was an Associate Professor with the Graduate School of Informatics, Kyoto University, Kyoto,

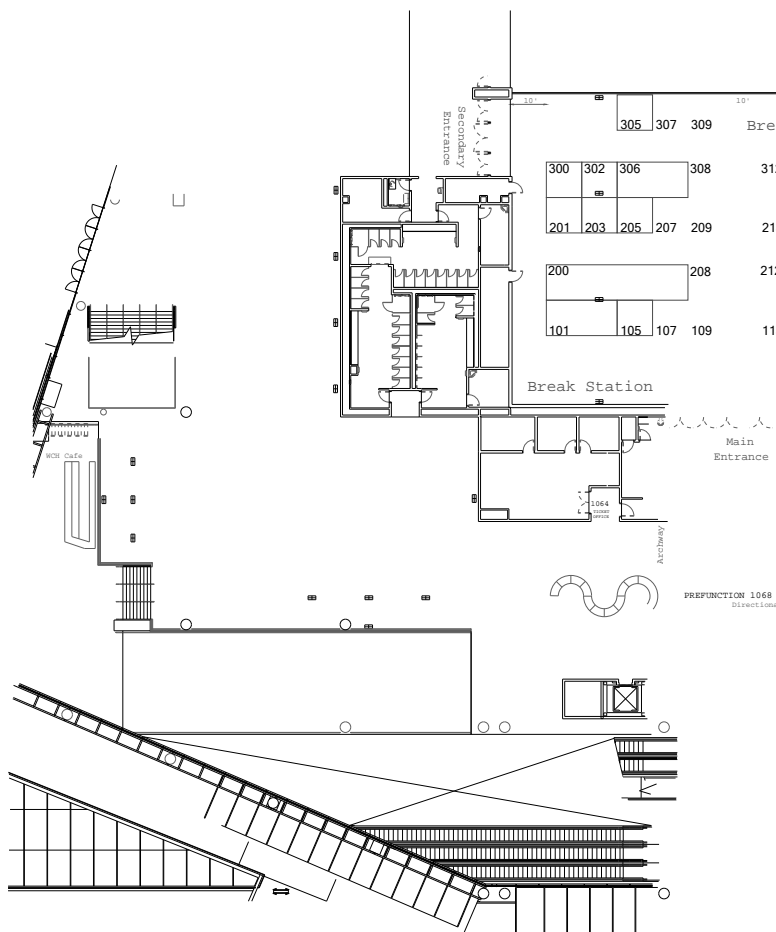
Japan. Since 2012, he has been a Professor with the Faculty of Science and Engineering, Waseda University. From 2009 to 2015, he was a JST (Japan Science and Technology Agency) PREST Researcher. He is currently an Invited Researcher with the Artificial Intelligence Research Center, National Institute of Advanced Industrial Science and Technology, Tokyo. His current research interests include deep learning for robot motion control, human–robot interaction, and dynamics of human–robot mutual adaptation.

Abstract: In recent years, image recognition, speech recognition, and language processing systems, etc., particularly systems using deep learning are developed, and their greatly improved performance, which is beyond what was previously possible, is attracting attention. However, most of these systems use large-scale data that is already in the computerized cloud, and application to the real world is at an embryonic stage. There are already examples of applications of deep learning in real world systems, such as robots, but these are mainly centered on only the use of image processing such as object recognition, position recognition, etc.

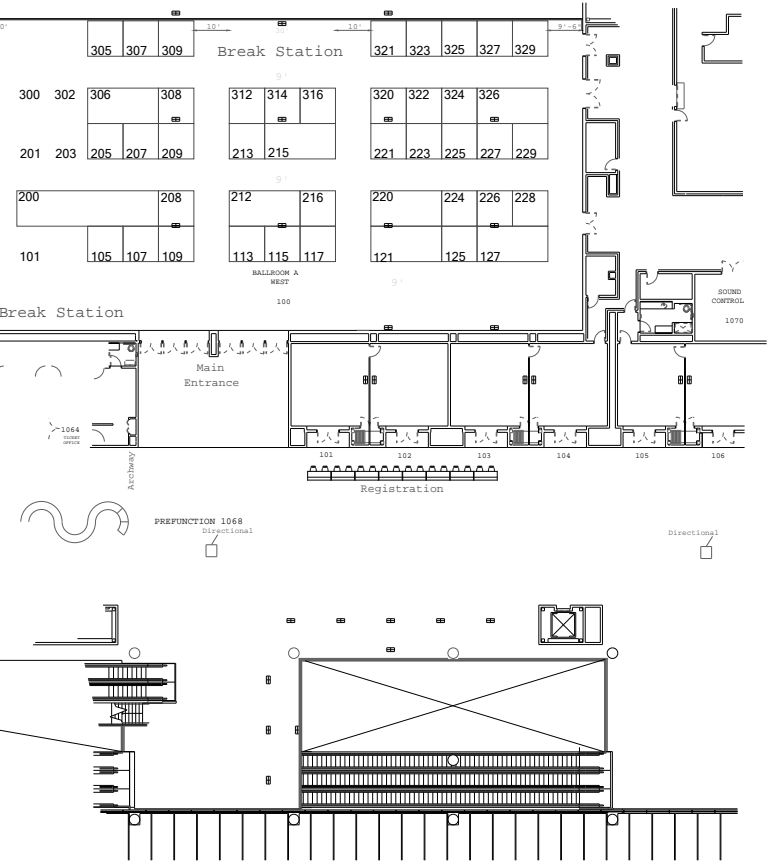
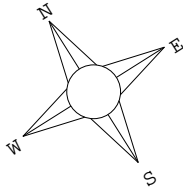
In this tutorial, we first outline the basic methods of deep learning and introduce some tools. In addition, after introducing examples of application in each field such as image recognition and speech recognition, we will explain the application of multi-modal application etc. In addition, we will introduce regarding the essential discussion of intelligence, the “cognitive developmental robotics” which is the process of development of a real-world cognition mechanism based on “embodiment” and a model explaining the cognition process of human beings.

Then we will show the concept of “deep cognitive system” which enhances the concept of “cognitive developmental robotics” with deep learning, with our robot’s studies such as a language learning model and the application to flexible object handling of humanoid robots etc.

Exhibitor Booth Map



Vancouver Convention
West Building



& Exhibition Centre

Level 1

Exhibitors

AAAS/Science, Robotics

Booth 209

<http://robotics.sciencemag.org>

Science Robotics published by the American Association for the Advancement of Science (AAAS)-now publishing the original, peer-reviewed, science and engineering-based research articles that advance the field of robotics bearing the quality hallmark of the Science family of journals.

AIRA

Booth 200

<http://aira.life>

Airalab concerns itself with putting the idea of robot economics into life. The team puts its heart and soul into the project AIRA (Autonomous Intelligent Robot Agent) which allows plugging robots into the liability market existing in Ethereum for direct data sales from robot sensors, service order of unmanned transport logistics and order of individual goods at a robot-based plant.

Amazon

Booth 127

<https://amazon.com>

Amazon strives to be Earth's most customer-centric company where people can find and discover virtually anything they want to buy online. The world's brightest technology minds come to Amazon.com to research and develop technology that improves the lives of shoppers, sellers and developers.

Applied Dexterity, Inc.

Booth 307

<http://applieddexterity.com>

Applied Dexterity was formed to commercialize the RAVEN-IITM surgical robot. This robot, currently placed at over eighteen research centers, is being sold as a test bed to facilitate research in robotically assisted surgery and to train both roboticists and surgeons. The low-level control software is open-source and interfaces seamlessly with ROS.

ATI Industrial Automation

Booth 109

<http://ati-ia.com>

ATI Industrial Automation is the world-leading engineering-

based developer of robotic accessories and robot arm tooling, including Automatic Tool Changers, Multi-Axis Force/Torque Sensing Systems, Utility Couplers, Robotic Deburring Tools, Robotic Collision Sensors, Manual Tool Changers, and Compliance Devices. Our end-effector products are found in thousands of successful applications around the world.

Barrett Technology LLC

Booth 314

<http://barrett.com>

Barrett Technology is a 20+ year leader in the robotics industry. Located just outside of Boston in Newton, MA, Barrett is known globally in leading academic robotics research programs and throughout industry for applications requiring close human-robot interactions. Barrett's core products include the 7DOF WAM, Barrett Hand, and P3 motor controller. Recently, Barrett launched BURT (Barrett Upper-extremity Robotic Trainer) to help patients retrain arm function in rehabilitation settings.

Cambridge University Press

Booth 207

<http://cambridge.org/academic>

Cambridge University Press' publishing in books and journals combines state-of-the-art content with the highest standards of scholarship, writing and production. Visit our stand to browse new titles, available at 20% discount, and to pick up sample copies of our journals. Visit our website to find out more about what we do: www.cambridge.org/academic

Cepton Technologies, Inc.

Booth 227

<http://cepton.com>

Cepton is a 3D sensing solutions provider that is shipping next generation LiDAR products for the automotive, industrial and mapping markets. Cepton's LiDAR technology delivers unrivaled performance and resolution at low cost, to enable perception for the smart machines of tomorrow. For more information, visit www.cepontech.com.

Clearpath Robotics

Booth 212

<https://clearpathrobotics.com>

Clearpath Robotics is a global leader in unmanned vehicle robotics for research and development, and provides hardware, software and services to enable self-driving vehicle development, deployment, and operation. Clearpath works with over 500 of the world's most innovative brands in over 40 countries, serving markets that span industrial materials handling, mining, military, agriculture, aerospace, and academia.

Elsevier B.V.

Booth 117

<http://elsevier.com/physical-sciences/computer-science>

Elsevier will be presenting key titles across Computer Science, Robotics and Systems Journals. Visit us at booth 117, meet the publishers and editors in person, and take the opportunity to ask any questions you may have about submitting research to our journals. In addition, learn more about our author services, open access options and content innovation.

FLIR Systems, Inc.

Booth 224

<http://flir.com/mv>

FLIR Integrated Imaging Solutions Inc., formerly Point Grey Research., is a global leader in the design and manufacture of innovative, high-performance digital cameras for industrial, medical and life science, traffic, biometric, GIS, and people counting applications.

Genesis Robotics

Booth

325

<http://genesis-robotics.com>

Genesis Robotics is a research and development company focused on inventing new solutions to some of the significant challenges of our time. Genesis Robotics has a team of 50+ individuals focused on the development of its LiveDrive technology. *LiveDrive is the world's highest performance direct-drive motor, powering the fastest, safest and most versatile robots.*

Haption SA

Booth 308

<http://haption.com/site/index.php/fr>

HAPTION designs, manufactures and sells haptic devices with professional quality, suited to the needs of its customers, both industrial and academic.

One of the big market is Tele-operation control command, we are compliant with ROS, or we develop direct interface. We develop solution for Research, Medical and also Nuclear.

From small to large workspace, from light to strong force.

Harmonic Drive LLC

Booth 107

<http://harmonicdrive.net>

Harmonic Drive designs and manufactures high precision servo actuators, gearheads and gear component sets. We work with companies of all sizes to provide the right solution, whether it is a standard catalog product, or fully customized integrated solution. Known for our expert engineering and manufacturing, Harmonic Drive products are relied upon every day throughout the robotics industry.

HEBI Robotics, Inc.

Booth 321

<http://hebirobotics.com>

HEBI Robotics is a spin-off from Carnegie Mellon University in Pittsburgh that produces Lego-like robotic building blocks. The HEBI platform consists of hardware and software that make it easy to create world class robots, of virtually any configuration, quickly and easily.

Hokuyo Automation Co. Ltd.

Booth 223

<https://hokuyo-aut.jp>

Founded in 1946 in Osaka, Japan, HOKUYO is a leading manufacturer of automatic control equipment, including photoelectric switches and optical data transmission devices for advanced technology industries. HOKUYO introduced several series of compact optical obstacle detection sensors for automated guided vehicles (AGV) for the first time in 1991. In 2004, HOKUYO created the smallest laser range finders series for object detection called "URG". Since then, HOKUYO laser range finders

have been gaining popularity among robotics researchers and companies around the world.

Honda Research Institute USA, Inc.

Booth 213

<http://usa.honda-ri.com>

Honda Research Institute provides excellence and expertise in the core technologies that are required for Honda to lead the transition to an Intelligent Cyber-Physical society. Our group of scientists and engineers in Japan, United States and Germany maintain a commitment to high quality and innovative research and promote partnerships with academia and industry.

iniLabs, GmbH

Booth 225

<https://inilabs.com>

iniLabs invents, produces and sells neuromorphic technologies for research. Our founders have invented some of the key foundations of the field, and we continue to lead the world in applications of neuromorphic engineering. iniLabs technologies are now in use at over 150 labs and companies around the world including aerospace, automotive, consumer electronics, industrial vision and security.

Intel Corporation

Booth 329

<http://intel.com>

Intel (NASDAQ: INTC) expands the boundaries of technology to make the most amazing experiences possible. Information about Intel can be found at newsroom.intel.com and intel.com.

Intuitive Surgical

Booth 121

<http://intuitivesurgical.com>

The idea of surgical robotics was little more than a curiosity until 1999, the year Intuitive Surgical introduced the da Vinci® Surgical System. Today, Intuitive Surgical is the global leader in the rapidly emerging field of robotic-assisted minimally invasive surgery.

The Company's da Vinci® Surgical System enables surgeons to operate minimally invasively through a few small incisions or the belly button from a nearby ergonomic console. The da Vinci System features a magnified 3D HD vision system and tiny wristed instruments that bend

and rotate far greater than the human hand. As a result of this technology, da Vinci enables surgeons to operate with enhanced vision, precision and control. Intuitive Surgical designed the da Vinci Xi System with the goal of further advancing the technology used in minimally invasive surgery for complex diseases and conditions.

IOP Publishing

Booth 208

<http://ioppublishing.org>

IOP Publishing provides a range of journals, books, websites, magazines, conference proceedings and services through which leading-edge scientific research is distributed worldwide. Extending to more than 20 journals IOP biosciences is dedicated to providing the essential content covering all areas of medical physics, biophysics and biomedical engineering. Visit iopscience.org/biosciences.

iRobot Corporation

Booth 228

<http://irobot.com>

iRobot Corporation, with a mission of “empowering people to do more” is at the forefront of the development of robotics and artificial intelligence technologies. iRobot has become one of the world’s preeminent specialist designers and builders of consumer robots. iRobot invests in the development and growth of its people, in a culture of empowerment, innovation and fun.

Khalifa University

Booth 309

<http://kustar.ac.ae>

The Mohamed Bin Zayed International Robotics Challenge (MBZIRC) is an international robotics competition, to be held every two years with the total prize and team sponsorship of USD 5 Million. Robotics has the potential to have an impact that is as transformative as the Internet, with robotics technology poised to fuel a broad range of next-generation products and applications in a diverse array of fields. Robotic competitions in the past few decades have been a catalyst that has accelerated the rate of technological advancements in the field of robotics and autonomous systems. MBZIRC aims to provide an ambitious, science-based, and technologically demanding set of challenges in Robotics, open to a large number of international teams. It is intended to demonstrate the current state of the art in robotics regarding scientific and

technological accomplishments and to inspire the future of robotics. Similar to other major competitions, the MBZIRC aims to provide an environment that harbors innovation and technical excellence, while encouraging spectacular performance with robotics technologies.

Kinova Robotics

Booth 306

<http://kinovarobotics.com>

Kinova is a Canadian company that designs and manufactures robotics platforms that are simple, sexy and safe. We work so that robots evolve from improving manufacturing capability to empowering people. Assistive Robotics empowers people with disabilities to push beyond their current boundaries. Innovation Robotics empowers people in industry and research to interact with their environment more efficiently and safely.

KUKA AG

Booth 215

<http://kuka.com>

KUKA is a global automation corporation with sales of around 3 billion euro and around 13,200 employees. As leading global supplier of intelligent automation solutions, KUKA offers its customers in the automotive, electronics, consumer goods, metalworking, logistics/e-commerce, healthcare, and service robotics industries everything they need from a single source: from components and cells to fully automated systems. The KUKA Group is headquartered in Augsburg.

MathWorks

Booth 316

<http://mathworks.com/robotics>

The MATLAB and Simulink product families are fundamental applied math and computational tools adopted by more than 5000 universities and colleges. MathWorks products help prepare students for careers in industry, where the tools are widely used for data analysis, mathematical modeling, and algorithm development in collaborative research and new product development.

MIT Press

Booth 205

<https://mitpress.mit.edu>

The MIT Press is the only university press in the United States whose list is based in science and technology.

Science and engineering are not all we publish: we are committed to the edges and frontiers of the world—to exploring new fields and new modes of inquiry. Our goal is to create content that is challenging, creative, attractive, and yet affordable to individual readers.

New Dexterity

Booth 201

<http://newdexterity.org>

Kia ora! New Dexterity provides robotics solutions to everyday life problems, modeling, designing and controlling novel robotics and bionics hardware (specializes on robot grippers and hands, robot grasping and dexterous, in-hand manipulation). The New Dexterity research team is affiliated with the Department of Mechanical Engineering at the University of Auckland, New Zealand. The goal of the team is to provide a new class of adaptive mechanisms that will help robots to interact.

NextAI

Booth 324

<http://nextai.com>

NextAI is a startup accelerator located in Toronto, Canada for entrepreneurs, researchers and scientists looking to launch AI-enabled ventures. We provide up to \$200K seed funding, dedicated workspace and in-depth business and technical education taught by award-winning global faculty and entrepreneurs. Come build your company in one of the global hotspots for AI research and commercialization.

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NVIDIA

Booth 302

<http://nvidia.com>

NVIDIA's invention of the GPU in 1999 sparked the growth of the PC gaming market, redefined modern computer graphics, and revolutionized parallel computing. More recently, GPU deep learning ignited modern AI — the next era of computing — with the GPU acting as the brain of computers, robots, and self-driving cars that can perceive and understand the world.

Occam Vision Group

Booth 115

<http://occamvisiongroup.com>

Occam Vision Group specializes in multi-sensor camera systems, including fully integrated omni-directional

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cameras, stereo cameras, and board level cameras designed for easy multi-sensor integrations. Come check out live demos of our Omni 60 (5-sensor omni-directional camera), Omni Stereo (10-sensor omni-directional stereo camera), and Array board cameras at our booth!

Office of Naval Research Global

Booth 101

<https://www.onr.navy.mil>

The Office of Naval Research Global (ONRG) acts as a bridge linking the Navy's research community to naval forces, international science and technology (S&T) communities, foreign military partners, and federal agencies. From research to technology transition, ONRG supports the Department of the Navy's research, development, test, and evaluation through its International Science, ScienceAdvisor and Naval S&T Cooperation Programs

OptiTrack

Booth 113

<http://optitrack.com>

OptiTrack, a Leyard Company, has established itself as the worldwide leader in 3D tracking systems by delivering the very best in 3D precision, low latency output, easy to use workflows, and a host of developer tools. Serving primary markets in Virtual Reality (VR) tracking, drone and ground robot tracking, movement science studies, and character animation for film and games.

Oxford Lasers, Inc.

Booth 300

<https://oxfordlasers.com>

Oxford Lasers provides high precision laser micromachining systems and services. With a wealth of knowledge and experience in the design and use of short pulse and ultra-short pulse laser systems (nano, pico and femtosecond pulses) Oxford Lasers systems are able to ablate material without debris, burr or heat affected zones, creating extremely precise features which are critical in manufacturing miniaturized components.

PAL Robotics

Booth 320

www.pal-robotics.com

PAL Robotics' designs, builds and manufactures collaborative service robots that have the power to improve our daily lives. From state of the art humanoid bipeds to

versatile mobile manipulators and inventory-taking robots, PAL Robotics builds robotic platforms that can work alongside humans in the home, at work, in shops and in warehouses to improve our quality of life.

PerceptIn, Inc.

Booth 305

<https://www.perceptin.io>

Founded in 2016, PerceptIn is a full-stack robotics artificial intelligence company, which develops scalable hardware/software integrated solutions for autonomous robotic systems. PerceptIn's accurate and efficient vision-based robotic systems enable different form factors of robots to perceive the environment with simultaneous localization and mapping, and to perform path planning, obstacle avoidance, and advanced scene understanding.

Phoenix Technologies Inc.

Booth 323

www.ptiphoenix.com

Phoenix Technologies Inc. manufactures the fastest active, real-time 3D motion-tracking systems currently available -sampling multiple markers with unique IDs at 10,000 Hz with a precision of 15 micrometers. Superior patented technology ensures maximum reliability and uniform data latency, which is essential for high quality dynamic feedback control performance.

Rethink Robotics

Booth 216

<http://www.rethinkrobotics.com>

Rethink Robotics has pioneered the development of smart, collaborative robots that can operate safely next to people in a wide range of manufacturing, production and research & education environments. Founded in 2008 by renowned roboticist Rodney Brooks, the company is successfully introducing robots into organizations and applications for which robots have historically been impractical.

ROBOTIS

Booth 220

<http://robotis.com>

ROBOTIS is a world leading robotics solution provider for all customer ranges. For children, teaching tools to develop on creativity, and for experts, the solution to materialize creative ideas into real robots. ROBOTIS products are

sold in over 60 countries globally, and is used for various field such as; Kinetic Art, STEAM Education, Robot Sports, Rescue/Surveillance, Medical/Military, etc.

Robotnik Automation

Booth 322

<http://robotnik.eu>

Robotnik is a company specialized in Mobile Service Robotics. Our main specialties are: Autonomous indoor/outdoor mobile robots and mobile manipulators. Field service robotics applications (logistics, inspection, educational). R&D Robotics projects. We offer high-quality services for national and international reach and are certified in: ISO 9001:08 - Design, manufacturing, and commercialization of products and systems based on robotics technology. UNE 166002:06 - R&D management”

SEAMOR Marine Ltd.

Booth 327

<http://seamor.com>

SEAMOR Marine designs top quality remotely operated vehicles (ROV) for industrial and research applications. Our ROVs are an ideal platform for underwater research. With many upgrades and customizations available, SEAMOR ROVs are easily (and cost-effectively) modified to meet new project demands. SEAMOR Marine serves the worldwide market as an industrial supplier providing custom integration and OEM parts for underwater robotics.

Shadow Robot Company

Booth 125

<http://shadowrobot.com>

Robots need to be able to pick up and hold a wide range of objects. Shadow has evolved the Smart Grasping System from 20 years R&D on hands for robots, and it makes picking up and handling objects easy and automatic. This will enable a new generation of robots to solve real commercial challenges.

SICK Sensors

Booth 312

<http://sick.com/us/en>

SICK - Leading industrial sensor intelligence for over 70 years. This year, SICK is going big on multi-layer 3D

LiDARs. Come see the broadest range of 2D and 3D LiDARs on the planet - from the small TiM 2D LiDAR, to the brand new mid-range 4-layer MRS1000, to the 300m 4-layer LD-MRS UAV, and beyond. <http://sick.com>

Springer Nature

Booth 105

<http://springernature.com>

Springer Nature is one of the world's leading global research, educational and professional publishers, home to an array of respected and trusted brands providing quality content through a range of innovative products and services. Springer Nature is the world's largest academic book publisher and numbers almost 13,000 staff in over 50 countries.

Swarm Technology

Booth 229

<http://swarmtechnology.us>

We invented intent-based robotics. Our architecture demonstrates the five principles of swarm intelligence in robotics: Awareness, Autonomy, Solidarity, Expandability, and Resiliency; those attributes are essential for collective behavior of decentralized, self-organized systems. Swarm Technology's IP portfolio covers: Intent-based Edge Processing and Multi-Agent Artificial Intelligence. We seek to partner with an established company poised to benefit from swarm intelligence technology.

Universal Robots USA, Inc.

Booth 203

<http://universal-robots.com>

Universal Robots (now part of Teradyne, Inc.) was co-founded in 2005 to make robot technology accessible to all industries by developing small, user-friendly, reasonably priced, flexible, industrial collaborative robots (cobots). When we say the UR robot can automate virtually anything we mean virtually anything – from assembly to painting, screw driving to labeling, injection molding to welding and packaging to polishing.

UVify Inc.

Booth 226

<http://UVify.com>

Developer of autonomous unmanned drones. The company is engaged in the design, research and development of unmanned drones to conduct real-time, image-based monitoring of the environment.

World Robot Summit

Booth 221

The World Robot Summit hosted by Japan is a “Challenge and Expo” that brings together Robot Excellence from around the world, to promote a world where robots and humans successfully live and work together. Participants from all over the world will come together in one location with the aim of accelerating the R&D and practical implementation of robots in society.

Technical Sessions
Monday September 25, 2017

SuFW1	109
Human In-The-Loop Manipulation: On the Influence of the Human Role (Workshop)	
Chair: Karayiannidis, Yiannis	Chalmers Univ. of Tech. & KTH Royal Institute of Tech
09:00-17:30	SuFW1.1
Karayiannidis, Yiannis (Chalmers Univ. of Tech. & KTH Royal Institute of Tech.), Bekiroglu, Yasemin (ABB Corp. Res.), Remazeilles, Anthony (Tecnalia Res. and Innovation), Piater, Justus (Univ. of Innsbruck)	
SuFW2	111
Introspective Methods for Reliable Autonomy (Workshop)	
Chair: Kucner, Tomasz Piotr	Örebro Univ
09:00-17:30	SuFW2.1
Kucner, Tomasz Piotr (Örebro Univ.), Schwertfeger, Sören (ShanghaiTech Univ.), Magnusson, Martin (Örebro Univ.), Lilienthal, Achim J. (Örebro Univ.)	
SuFW3	117
Verification of Autonomous Systems Workshop (Workshop)	
Chair: Balakirsky, Stephen	Georgia Tech
09:00-17:30	SuFW3.1
Balakirsky, Stephen (Georgia Tech.)	
SuFW4	114
Shared Platforms for Medical Robotics Research (Workshop)	
Chair: Kazanzides, Peter	Johns Hopkins Univ
09:00-17:30	SuFW4.1
Kazanzides, Peter (Johns Hopkins Univ.), Fischer, Gregory Scott (Worcester Pol. Inst. WPI), DiMaio, Simon P. (Intuitive Surgical Inc.), Haidegger, Tamas (Obuda Univ. (OU)), Hannaford, Blake (Univ. of Washington)	
SuFW5	118
Planning Legged and Aerial Locomotion with Dynamic Motion Primitives (Workshop)	
Chair: Poulakakis, Ioannis	Univ. of Delaware
09:00-17:30	SuFW5.1
Poulakakis, Ioannis (Univ. of Delaware), Byl, Katie (UCSB), Veer, Sushant (Univ. of Delaware)	
SuAW6	121
Workshop on Acoustic Based Navigation for Marine Robots (Workshop)	
Chair: Choi, Hyun-Taek	Korea Inst. of Oceans Science and Tech
09:00-12:30	SuAW6.1
Choi, Hyun-Taek (Korea Inst. of Oceans Science and Tech.)	

SuFW7	122
On the Energetic Economy of Robotics and Biological Systems: A Challenging Handicap to Overcome (Workshop)	
Chair: Kashiri, Navvab	Istituto Italiano Di Tecnologia
09:00-17:30	SuFW7.1
Kashiri, Navvab (Istituto Italiano di Tecnologia), Vanderborght, Bram (Vrije Univ. Brussel), Malzahn, Jörn (Istituto Italiano di Tecnologia), Daley, Monica (Royal Veterinary Coll. Structure and Motion Lab.), Tsagarakis, Nikos (Istituto Italiano di Tecnologia)	
SuAW8	202
A* Planning and Model Predictive Control with Dynamics-Based and Multiple Heuristics (Tutorial)	
Chair: Collins, Emmanuel	FAMU-FSU Coll. of Engineering
09:00-12:30	SuAW8.1
Collins, Emmanuel (FAMU-FSU Coll. of Engineering), Likhachev, Maxim (Carnegie Mellon Univ.)	
SuFW9	204
Gravity Offload Testbeds for Space Robotic Mission Simulation (Workshop)	
Chair: Carignan, Craig	Univ. of Maryland
09:00-17:30	SuFW9.1
Carignan, Craig (Univ. of Maryland), Schiele, Andre (European Space Agency), Marani, Giacomo (West Virginia Univ.)	
SuFW10	205
Soft Morphological Design for Haptic Sensation, Interaction and Display (Workshop)	
Chair: Liu, Hongbin	King's Coll. London
09:00-17:30	SuFW10.1
Liu, Hongbin (King's Coll. London), Ho, Van (Japan Advanced Inst. of Science and Tech.)	
SuFW11	207
Towards an Artist-In-The-Lab Framework (Workshop)	
Chair: St-Onge, David	Ec. Pol. De Montreal
09:00-17:30	SuFW11.1
St-Onge, David (Ec. Pol. de Montreal), Herath, Damitha Chandana (MARCS Auditory Lab.), Smart, William (Oregon State Univ.)	
SuFW12	208
Continuum Robots in Medicine – Design, Integration, and Applications (Workshop)	
Chair: Tavakoli, Mahdi	Univ. of Alberta
09:00-17:30	SuFW12.1

Tavakoli, Mahdi (Univ. of Alberta), Patel, Rajnikant V. (The Univ. of Western Ontario), Misra, Sarthak (Univ. of Twente), Yip, Michael C. (Univ. of California, San Diego), Khadem, Mohsen (Univ. of Alberta)

SuFW13	211
9th Workshop on Planning, Perception and Navigation for Intelligent Vehicles (Workshop)	

Chair: Martinet, Philippe	Ec. Centrale De Nantes
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09:00-17:30	SuFW13.1
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Martinet, Philippe (Ec. Centrale de Nantes), Laugier, Christian (INRIA), Stiller, Christoph (Karlsruhe Inst. of Tech.), Nunes, Urbano (Inst. de Sistemas e Robotica)

SuFW14	217
Learning for Collaborative Robotics: Enabling Flexible, Redeployable and Agile Industrial Applications (Workshop)	

09:00-17:30	SuFW14.1
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Colasanto, Luca (Robert Bosch LLC), Hess, Juergen Michael (Robert Bosch LLC), Riano, Lorenzo (Robert Bosch LLC), Ajoudani, Arash (Advanced Robotics Department), Petric, Tadej (Jozef Stefan Inst.), Calinon, Sylvain (Idiap Res. Inst.), Rosman, Benjamin (CSIR), Eppner, Clemens (Tech. Univ. Berlin)

SuFW15	215
Agile Robotics for Industrial Automation Competition (ARIAC) Workshop (Workshop)	

Chair: Schlenoff, Craig	NIST
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09:00-17:30	SuFW15.1
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Schlenoff, Craig (NIST), Harrison, William (Univ. of Michigan), Downs, Anthony (NIST)

SuAW16	220
Workshop on Perception and Planning for Robotic Inspection (Workshop)	

Chair: Tokekar, Pratap	Virginia Tech
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09:00-12:30	SuAW16.1
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Tokekar, Pratap (Virginia Tech.), Stilwell, Daniel (Virginia Tech.), Woolsey, Craig (Virginia Tech.), Williams, Ryan (Virginia Pol. Inst. and State Univ.), Hebdon, Matthew (Virginia Tech.)

SuFW17	221
2nd Workshop on Semantic Policy and Action Representations for Autonomous Robots (Workshop)	

Chair: Ramirez-Amaro, Karinne	Inst. for Cognitive Systems. Tech. Univ. München
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09:00-17:30	SuFW17.1
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Ramirez-Amaro, Karinne (Inst. for Cognitive Systems. Tech. Univ. München.), Yang, Yezhou (Arizona State Univ.), Dantam, Neil (Colorado School of Mines),

Aksoy, Eren Erdal (Karlsruhe Inst. of Tech. (KIT)), Cheng, Gordon (Tech. Univ. of Munich)

SuFW18	223
Human-Robot Interaction in Collaborative Manufacturing Environments (Workshop)	

Chair: Sheikholeslami, Sara	Univ. of British Columbia
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09:00-17:30	SuFW18.1
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Sheikholeslami, Sara (Univ. of British Columbia), Mead, Ross (Semio)

SuBW8	202
Development of Benchmarking Protocols for Robot Manipulation (Workshop)	

Chair: Calli, Berk	Yale Univ
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14:00-17:30	SuBW8.1
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Calli, Berk (Yale Univ.), Dollar, Aaron (Yale Univ.), Srinivasa, Siddhartha (Carnegie Mellon Univ.), Roa, Maximo A. (German Aerospace Center, DLR)

SuBW16	220
Micro-Data: The New Frontier of Robot Learning? (Workshop)	

Chair: Mouret, Jean-Baptiste	Inria
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14:00-17:30	SuBW16.1
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Mouret, Jean-Baptiste (Inria), Stulp, Freek (DLR - Deutsches Zentrum für Luft- und Raumfahrt e.V.), Calinon, Sylvain (Idiap Res. Inst.)

MoAT1	Room 109
Deep Learning in Robotics and Automation I	
Chair: Girdhar, Yogesh	Woods Hole Oceanographic Inst
Co-Chair: Liu, Ming	Hong Kong Univ. of Science and Tech
10:30-10:45	MoAT1.1
<i>Feature Discovery and Visualization of Robot Mission Data Using Convolutional Autoencoders and Bayesian Nonparametric Topic Modeling.</i>	
Flaspohler, Genevieve (Massachusetts Inst. of Tech), Roy, Nicholas (Massachusetts Inst. of Tech), Girdhar, Yogesh (Woods Hole Oceanographic Inst)	
10:45-11:00	MoAT1.2
<i>Only Look Once, Mining Distinctive Landmarks from ConvNet for Visual Place Recognition.</i>	
Chen, Zetao (ETH Zurich), Maffra, Fabiola (ETH), Sa, Inkyu (ETH Zurich), Chli, Margarita (ETH Zurich)	
11:00-11:15	MoAT1.3
<i>GeoCueDepth: Exploiting Geometric Structure Cues to Estimate Depth from a Single Image.</i>	
Zeng, Yiming (Inst. of Computing Tech. Chinese Acad. of Sciences), Hu, Yu (Inst. of Computing Tech. Chinese Acad. of Sciences), Liu, Shice (Inst. of Computing Tech. Chinese Acad. of Sciences), Tang, Qiankun (The Inst. of Computing Tech. of the Chinese Acad. Of), Ye, Jing (Inst. of Computing Tech. Chinese Acad. of Sciences), Li, Xiaowei (Inst. of Computing Tech. Chinese Acad. of Sciences)	
11:15-11:30	MoAT1.4
<i>Domain Randomization for Transferring Deep Neural Networks from Simulation to the Real World.</i>	
Tobin, Joshua (UC Berkeley), Schneider, Jonas (OpenAI), Zaremba, Wojciech (OpenAI), Abbeel, Pieter (UC Berkeley)	
11:30-11:45	MoAT1.5
<i>Virtual-To-Real Deep Reinforcement Learning: Continuous Control of Mobile Robots for Mapless Navigation.</i>	
Tai, Lei (City Univ. of Hong Kong), Paolo, Giuseppe (Department of Mechanical and Process Engineering, ETH Zurich), Liu, Ming (Hong Kong Univ. of Science and Tech)	
11:45-12:00	MoAT1.6
<i>Acquiring Social Interaction Behaviours for Telepresence Robots Via Deep Learning from Demonstration.</i>	
Shiariis, Kyriacos (Univ. of Amsterdam)	

MoAT2		Room 111
Learning and Adaptive Systems I		
Co-Chair: Mouret, Jean-Baptiste		Inria
10:30-10:45		MoAT2.1
<i>A Generative Model for Intention Recognition and Manipulation Assistance in Teleoperation.</i>		
Tanwani, Ajay Kumar (Idiap Res. Inst. Ec. Pol. Federale De Lausan), Calinon, Sylvain (Idiap Res. Inst)		
10:45-11:00		MoAT2.2
<i>Black-Box Data-Efficient Policy Search for Robotics.</i>		
Chatzilygeroudis, Konstantinos (Inria Nancy Grand-Est), Rama, Roberto (Inria Nancy Grand-Est), Kaushik, Rituraj (INRIA - Nancy Grand Est, France), Goepf, Dorian (INRIA Nancy - Grand Est), Vassiliades, Vassilis (Inria Nancy Grand-Est), Mouret, Jean-Baptiste (Inria)		
11:00-11:15		MoAT2.3
<i>Gaussian Mixture Regression on Symmetric Positive Definite Matrices Manifolds: Application to Wrist Motion Estimation with Semg.</i>		
Jaquier, Noémie (Idiap Res. Inst), Calinon, Sylvain (Idiap Res. Inst)		
11:15-11:30		MoAT2.4
<i>Active Learning with Query Paths for Tactile Object Shape Exploration.</i>		
Driess, Danny (Univ. of Stuttgart), Englert, Peter (U Stuttgart), Toussaint, Marc (Univ. of Stuttgart)		
11:30-11:45		MoAT2.5
<i>Learning Task-Space Synergies Using Riemannian Geometry.</i>		
Zeebraten, Martijn J.A. (Istituto Italiano Di Tecnologia), Havoutis, Ioannis (Univ. of Oxford), Calinon, Sylvain (Idiap Res. Inst), Caldwell, Darwin G. (Istituto Italiano Di Tecnologia)		
11:45-12:00		MoAT2.6
<i>Collective Robot Reinforcement Learning with Distributed Asynchronous Guided Policy Search.</i>		
Yahya, Ali (X), Li, Adrian (X), Kalakrishnan, Mrinal (Google Inc), Chebotar, Yevgen (Univ. of Southern California), Levine, Sergey (UC Berkeley)		

MoAT3	Room 116
Autonomous Agents I	
Chair: Merino, Luis	Pablo De Olavide Univ
Co-Chair: Wan, Weiwei	National Inst. of AIST
10:30-10:45	MoAT3.1
<i>Towards Real-Time Search Planning in Subsea Environments.</i>	
McMahon, James (The Naval Res. Lab), Yetkin, Harun (Virginia Tech), Wolek, Artur (Naval Res. Lab), Waters, Zachary (US Naval Res. Lab), Stilwell, Daniel (Virginia Tech)	
10:45-11:00	MoAT3.2
<i>Autonomous Skill-Centric Testing Using Deep Learning.</i>	
Hangl, Simon (Univ. of Innsbruck), Stabinger, Sebastian (Innsbruck Univ), Piater, Justus (Univ. of Innsbruck)	
11:00-11:15	MoAT3.3
<i>Programming Robotic Agents with Action Descriptions.</i>	
Kazhoyan, Gayane (Univ. of Bremen), Beetz, Michael (Univ. of Bremen)	
11:15-11:30	MoAT3.4
<i>Autonomous Mobile Robot Navigation in Uneven and Unstructured Indoor Environments.</i>	
Wang, Chaoqun (The Chinese Univ. of HongKong), Meng, Lili (Univ. of British Columbia), She, Sizhen (The Univ. of British Columbia), Mitchell, Ian (Univ. of British Columbia), Li, Teng (Univ. of British Columbia), Tung, Frederick (Univ. of British Columbia), Wan, Weiwei (National Inst. of AIST), Meng, Max Q.-H. (The Chinese Univ. of Hong Kong), de Silva, Clarence (The Univ. of British Columbia)	
11:30-11:45	MoAT3.5
<i>Approximating Reachable Belief Points in POMDPs.</i>	
Wray, Kyle (Univ. of Massachusetts Amherst), Zilberstein, Shlomo (Univ. of Massachusetts)	
11:45-12:00	MoAT3.6
<i>Online Information Gathering Using Sampling-Based Planners and GPs: An Information Theoretic Approach.</i>	
Viseras, Alberto (German Aerospace Center (DLR)), Shutin, Dmitriy (German Aerospace Center), Merino, Luis (Pablo De Olavide Univ)	

MoAT4	Room 114
Force and Tactile Sensing	
Chair: Cannata, Giorgio	Univ. of Genova
Co-Chair: Stoyanov, Danail	Univ. Coll. London
10:30-10:45	MoAT4.1
<i>A Novel Force Sensing Integrated into the Trocar for Minimally Invasive Robotic Surgery.</i>	
Fontanelli, Giuseppe Andrea (Univ. of Naples Federico II), Buonocore, Luca Rosario (Univ. Degli Studi Di Napoli Federico II), Ficuciello, Fanny (Univ. Di Napoli Federico II), Villani, Luigi (Univ. Di Napoli Federico II), Siciliano, Bruno (Univ. Napoli Federico II)	
10:45-11:00	MoAT4.2
<i>Improved GelSight Tactile Sensor for Measuring Geometry and Slip.</i>	
Dong, Siyuan (MIT), Yuan, Wenzhen (MIT), Adelson, Edward (MIT)	
11:00-11:15	MoAT4.3
<i>Body Wall Force Sensor for Simulated Minimally Invasive Surgery: Application to Fetal Surgery.</i>	
Javaux, Allan (KU Leuven), Esteveny, Laure (KU Leuven), Bouget, David (KU Leuven), Gruijthuijsen, Caspar (KU Leuven, Department of Mechanical Engineering), Stoyanov, Danail (Univ. Coll. London), Vercauteren, Tom (Univ. Coll. London (UCL)), Ourselin, Sebastien (Univ. Coll. London), Reynaerts, Dominiek (Div. Production Engineering, Machine Design Andautomation, K), Denis, Kathleen (KU Leuven), Deprest, Jan (Univ. Hospital Leuven), Vander Poorten, Emmanuel B (Katholieke Univ. Leuven)	
11:15-11:30	MoAT4.4
<i>Towards Autonomous Robotic Skin Spatial Calibration: A Framework Based on Vision and Self-Touch.</i>	
Albini, Alessandro (Univ. of Genova), Denei, Simone (Univ. of Genova), Cannata, Giorgio (Univ. of Genova)	
11:30-11:45	MoAT4.5
<i>Sight to Touch: 3D Diffeomorphic Deformation Recovery with Mixture Components for Perceiving Forces in Robotic-Assisted Surgery.</i>	
Aviles, Angelica I. (Univ. Pol. De Catalunya), Alsaleh, Samar (Department of Computer Science, George Washington Univ. Wa), Casals, Alicia (Inst. for Bioengineering of Catalonia and Univ)	
11:45-12:00	MoAT4.6
<i>Event-Driven Encoding of Off-The-Shelf Tactile Sensors for Compression and Latency Optimisation for Robotic Skin.</i>	
Bartolozzi, Chiara (Istituto Italiano Di Tecnologia), Motto Ros, Paolo (Istituto Italiano Di Tecnologia), Diotalevi, Francesco (Italian Inst. of Tech), Jamali, Nawid (Istituto Italiano Di Tecnologia), Natale, Lorenzo (Istituto Italiano Di Tecnologia), Crepaldi, Marco (Istituto Italiano Di Tecnologia), Demarchi, Danilo (Istituto Italiano Di Tecnologia@Pol. and Department of Electro)	

MoAT5	Room 118
Medical Robots I	
Chair: Hawkes, Elliot Wright	Univ. of California, Santa Barbara
Co-Chair: Iwata, Hiroyasu	Waseda Univ
10:30-10:45	MoAT5.1
<i>Design of a Soft Catheter for Low-Force and Constrained Surgery.</i>	
Slade, Patrick (Stanford Univ), Gruebele, Alexander (Stanford Univ), Hammond, Zachary (Stanford Univ), Raitor, Michael (Stanford Univ), Okamura, Allison M. (Stanford Univ), Hawkes, Elliot Wright (Univ. of California, Santa Barbara)	
10:45-11:00	MoAT5.2
<i>A Variable Stiffness Catheter Controlled with an External Magnetic Field.</i>	
Chautems, Christophe (ETH Zurich), Tonazzini, Alice (Ec. Pol. Federale De Lausanne (EPFL)), Floreano, Dario (Ec. Pol. Federal, Lausanne), Nelson, Bradley J. (ETH Zurich)	
11:00-11:15	MoAT5.3
<i>Insertion Method for Minimizing Fine Needle Deflection in Bowel Insertion Based on Experimental Analysis.</i>	
Tsumura, Ryosuke (Waseda Univ), Shitashima, Kai (Waseda Univ), Iwata, Hiroyasu (Waseda Univ)	
11:15-11:30	MoAT5.4
<i>Implicit Active Constraints for Concentric Tube Robots Based on Analysis of the Safe and Dexterous Workspace.</i>	
Leibrandt, Konrad (Imperial Coll. London), Bergeles, Christos (Univ. Coll. London), Yang, Guang-Zhong (Imperial Coll. London)	
11:30-11:45	MoAT5.5
<i>Shape Determination During Needle Insertion with Curvature Measurements.</i>	
Kim, Jin Seob (Johns Hopkins Univ), Guo, Jiangzhen (Beihang Univ), Chatrasingh, Maria (Mahidol Univ), Kim, Sungmin (Johns Hopkins Univ), Iordachita, Ioan Iulian (Johns Hopkins Univ)	
11:45-12:00	MoAT5.6
<i>Master Manipulator Designed for Highly Articulated Robotic Instruments in Single Access Surgery.</i>	
Wisanuvej, Piyamate (Imperial Coll. London), Gras, Gauthier (Imperial Coll. London), Leibrandt, Konrad (Imperial Coll. London), Giataganas, Petros (Imperial Coll. London), Seneci, Carlo Alberto (Imperial Coll. London), Liu, Jindong (Imperial Coll. London), Yang, Guang-Zhong (Imperial Coll. London)	

MoAT6	Room 121
CP Multiple Aerial Vehicles	
Chair: Schoellig, Angela P.	Univ. of Toronto
Co-Chair: de Croon, Guido	TU Delft / ESA
10:30-10:45	MoAT6.1
<i>Real-Time Trajectory Replanning for MAVs Using Uniform B-Splines and a 3D Circular Buffer.</i>	
Usenko, Vladyslav (TU Munich), von Stumberg, Lukas (Tech. Univ. München), Pangercic, Andrej (TU Munich), Cremers, Daniel (Tech. Univ. of Munich)	
10:45-11:00	MoAT6.2
<i>A Framework for Multi-Vehicle Navigation Using Feedback-Based Motion Primitives.</i>	
Vukosavljev, Marijan (Univ. of Toronto), Kroeze, Zachary (Univ. of Toronto), Broucke, Mireille (Univ. of Toronto), Schoellig, Angela P. (Univ. of Toronto)	
11:00-11:15	MoAT6.3
<i>Short and Full Horizon Motion Planning for Persistent Multi-UAV Surveillance with Energy and Communication Constraints.</i>	
Scherer, Jürgen (Klagenfurt Univ), Rinner, Bernhard (Klagenfurt Univ)	
11:15-11:30	MoAT6.4
<i>Robust Collision Avoidance for Multiple Micro Aerial Vehicles Using Nonlinear Model Predictive Control.</i>	
Kamel, Mina (Autonomous Systems Lab, ETH Zurich), Alonso-Mora, Javier (Delft Univ. of Tech), Siegwart, Roland (ETH Zurich), Nieto, Juan (ETH Zürich)	
11:30-11:45	MoAT6.5
<i>Towards Autonomous Navigation of Multiple Pocket-Drones in Real-World Environments.</i>	
McGuire, Kimberly (Delft Univ. of Tech), Coppola, Mario (Delft Univ. of Tech), de Croon, Guido (TU Delft / ESA), De Wagter, Christophe (Delft Univ. of Tech)	
11:45-12:00	MoAT6.6
<i>Downwash-Aware Trajectory Planning for Large Quadrotor Teams.</i>	
Preiss, James (USC), Hoenig, Wolfgang (Univ. of Southern California), Ayanian, Nora (Univ. of Southern California), Sukhatme, Gaurav (Univ. of Southern California)	

MoAT7	Room 122
Grasping I	
Chair: Brock, Oliver	Tech. Univ. Berlin
10:30-10:45	MoAT7.1
<i>Viewpoint Selection for Grasp Detection.</i>	
Gualtieri, Marcus (Northeastern Univ), Platt, Robert (Northeastern Univ)	
10:45-11:00	MoAT7.2
<i>On the Relevance of Grasp Metrics for Predicting Grasp Success.</i>	
Rubert, Carlos (Univ. Jaume I), Kappler, Daniel (Max-Planck Inst. for Intelligent Systems), Morales, Antonio (Univ. Jaume I), Bohg, Jeannette (Max-Planck Inst. for Intelligent Systems), Schaal, Stefan (MPI Intelligent Systems & Univ. of Southern California)	
11:00-11:15	MoAT7.3
<i>Visual Detection of Opportunities to Exploit Contact in Grasping Using Contextual Multi-Armed Bandits.</i>	
Eppner, Clemens (Tech. Univ. Berlin), Brock, Oliver (Tech. Univ. Berlin)	
11:15-11:30	MoAT7.4
<i>Automatic Page-Turning Mechanism with Near-Field Electroadhesive Force for Linearly Correctable Imaging.</i>	
Lee, Junseok (Yonsei Univ), Jeon, Wonseok (Yonsei Univ), Cha, Youngsu (Korea Inst. of Science and Tech), Yang, Hyunseok (Yonsei Univ)	
11:30-11:45	MoAT7.5
<i>Grasp Stability Assessment through the Fusion of Proprioception and Tactile Signals Using Convolutional Neural Networks.</i>	
Kwiatkowski, Jennifer (École De Tech. Supérieure), Cockburn, Deen Stephen (École De Tech. Supérieure), Duchaine, Vincent (Ec. De Tech. Supérieure)	
11:45-12:00	MoAT7.6
<i>Learning the Post-Contact Reconfiguration of the Hand Object System for Adaptive Grasping Mechanisms.</i>	
Liarokapis, Minas (The Univ. of Auckland), Dollar, Aaron (Yale Univ)	

MoAT8		Room 202
Underactuated Robots		
Chair: Fearing, Ronald	Univ. of California at Berkeley	
Co-Chair: Asano, Fumihiko	Japan Advanced Inst. of Science and Tech	
10:30-10:45	MoAT8.1	
<i>Design and Experimental Implementation of a Quasi-Direct-Drive Leg for Optimized Jumping.</i>		
Ding, Yanran (Univ. of Illinois at Urbana-Champaign), Park, Hae-Won (Univ. of Illinois at Urbana Champaign)		
10:45-11:00	MoAT8.2	
<i>Soft Actuation and Sensing towards Robot-Assisted Facial Rehabilitation.</i>		
Firouzeh, Amir (EPFL), Paik, Jamie (Ec. Pol. Federale De Lausanne)		
11:00-11:15	MoAT8.3	
<i>Dynamic Terrestrial Self-Righting with a Minimal Tail.</i>		
Casarez, Carlos (Univ. of California, Berkeley), Fearing, Ronald (Univ. of California at Berkeley)		
11:15-11:30	MoAT8.4	
<i>HERI Hand: A Quasi Dexterous and Powerful Hand with Asymmetrical Finger Dimensions and under Actuation.</i>		
Ren, Zeyu (Istituto Italiano Di Tecnologia), Zhou, Chengxu (Fondazione Istituto Italiano Di Tecnologia), Xin, Songyan (Istituto Italiano Di Tecnologia (IIT)), Tsagarakis, Nikos (Istituto Italiano Di Tecnologia)		
11:30-11:45	MoAT8.5	
<i>Influence of Fingertip and Object Shape on the Manipulation Ability of Underactuated Hands.</i>		
Ospina, Diego (Univ. of Calgary), Ramirez-Serrano, Alejandro (4Front Robotics)		
11:45-12:00	MoAT8.6	
<i>Control of Underactuated Rimless Wheel That Walks on Steep Slope.</i>		
Asano, Fumihiko (Japan Advanced Inst. of Science and Tech), KIKUCHI, Yasunori (Japan Advanced Inst. of Science and Tech), Xiao, Xuan (Tsinghua Univ)		

MoAT9	Room 204
Virtual Reality and Interfaces	
Chair: Croft, Elizabeth	Univ. of British Columbia
Co-Chair: Kurazume, Ryo	Kyushu Univ
10:30-10:45	MoAT9.1
<i>"Is This the Real Life? Is This Just Fantasy?": Human Proxemic Preferences for Recognizing Robot Gestures in Physical Reality and Virtual Reality.</i>	
El-Shawa, Sahba (Univ. of British Columbia), Kraemer, Noah (Univ. of Queensland), Sheikholeslami, Sara (Univ. of British Columbia), Mead, Ross (Semio), Croft, Elizabeth (Univ. of British Columbia)	
10:45-11:00	MoAT9.2
<i>Rendering 3D Virtual Objects in Mid-Air Using Controlled Magnetic Fields.</i>	
Adel, Alaa (German Univ. in Cairo), Abou Seif, Mohamed (German Univ. in Cairo), Hoelzl, Gerold (Univ. of Passau), Kranz, Matthias (Univ. of Passau), Abdennadher, Slim (German Univ. in Cairo), Khalil, Islam S.M. (German Univ. in Cairo)	
11:00-11:15	MoAT9.3
<i>Direct Hand Manipulation of Constrained Virtual Objects.</i>	
Kim, Jun-Sik (Korea Inst. of Science & Tech), Park, Jung-Min (Korea Inst. of Science and Tech)	
11:15-11:30	MoAT9.4
<i>ARK: Augmented Reality for Kilobots.</i>	
Reina, Andreagiiovanni (Univ. of Sheffield), Cope, Alexander (Univ. of Sheffield), Nikolaidis, Eleftherios (Alexander Tech. Inst. of Thessaloniki), Marshall, James A. R. (Univ. of Sheffield), Sabo, Chelsea (Univ. of Sheffield)	
11:30-11:45	MoAT9.5
<i>Previewed Reality: Near-Future Perception System.</i>	
Horikawa, Yuta (Kyushu Univ), Egashira, Asuka (Kyushu Univ), Nakashima, Kazuto (Kyushu Univ), Kawamura, Akihiro (Kyushu Univ), Kurazume, Ryo (Kyushu Univ)	
11:45-12:00	MoAT9.6
<i>Bipedal Oriented Whole Body Master-Slave System for Dynamic Secured Locomotion with LIP Safety Constraints.</i>	
Ishiguro, Yasuhiro (The Univ. of Tokyo), Kojima, Kunio (The Univ. of Tokyo), Sugai, Fumihito (The Univ. of Tokyo), Nozawa, Shunichi (The Univ. of Tokyo), Kakiuchi, Yohei (The Univ. of Tokyo), Okada, Kei (The Univ. of Tokyo), Inaba, Masayuki (The Univ. of Tokyo)	

MoAT10	Room 205
Micro/Nano Robotics I	
Chair: Khalil, Islam S.M.	German Univ. in Cairo
Co-Chair: Becker, Aaron	Univ. of Houston
10:30-10:45	MoAT10.1
<i>A Regularized On-Line Sequential Extreme Learning Machine with Forgetting Property for Fast Dynamic Hysteresis Modeling.</i>	
Tang, Hui (Guangdong Univ. of Tech), Wu, Zelong (Guangdong Univ. of Tech), He, Sifeng (Guangdong Univ. of Tech), Gao, Jian (Guangdong Univ. of Tech), Chen, Xin (Guangdong Univ. of Tech), Cui, Chengqiang (Guangdong Univ. of Tech), He, Yunbo (Guangdong Univ. of Tech), Zhang, Kai (Guangdong Univ. of Tech), Li, Huawei (Guangdong Univ. of Tech), Li, Yangmin (Univ. of Macau)	
10:45-11:00	MoAT10.2
<i>Calibration of Magnetic Platform Prototype for Vision-Based Drugs Delivery Inside Human Cochlea.</i>	
Zarrouk, Azaddien (INSA Centre Val De Loire), Belharet, Karim (Hautes Etudes D'ingénieur - HEI Campus Centre), Tahri, Omar (INSA Centre Val-De-Loire)	
11:00-11:15	MoAT10.3
<i>Design and Prototyping of a Magnetic Actuator Based Permanent Magnets for Microbead Navigation in Viscous Environment.</i>	
Amokrane, Walid (Hautes études D'ingénieur (HEI)), Belharet, Karim (Hautes Etudes D'ingénieur - HEI Campus Centre), souissi, mouna (Prisme-HEI), Bozorg Grayeli, Alexis (UMR-S 867 Inserm / Univ. Paris 7 Denis Diderot / AP-HP, Hôp), Ferreira, Antoine (INSA Centre Val De Loire)	
11:15-11:30	MoAT10.4
<i>The Hybrid System with a Large Workspace towards Magnetic Micromanipulation within the Human Head.</i>	
Manamanchaiyaporn, Laliphat (SHENZHEN Inst. OF ADVANCED Tech), Xu, Tiantian (Chinese Acad. of Sciences), Wu, Xinyu (CAS/CUHK)	
11:30-11:45	MoAT10.5
<i>1D Manipulation of a Micrometer Size Particle Actuated Via Thermocapillary Convective Flows.</i>	
Terrazas Mallea, Ronald (Univ. Libre De Bruxelles), Bolopion, Aude (Femto-St Inst), Beugnot, Jean-Charles (CNRS/FEMTO-ST), Lambert, Pierre (Univ. Libre De Bruxelles), Gauthier, Michael (FEMTO-ST Inst)	
11:45-12:00	MoAT10.6
<i>Path Planning and Aggregation for a Microrobot Swarm in Vascular Networks Using a Global Input.</i>	
Huang, Li (Univ. of Houston), Rogowski, Louis (Southern Methodist Univ), Kim, MinJun (Southern Methodist Univ), Becker, Aaron (Univ. of Houston)	

MoAT11	Room 207
Flexible Robots	
Chair: Xiao, Jing	UNC Charlotte
Co-Chair: Mochiyama, Hiromi	Univ. of Tsukuba
10:30-10:45	MoAT11.1
<i>Velocity Estimation for Ultra Lightweight Tendon Driven Series Elastic Robots.</i>	
Kirchhoff, Jérôme (Tech. Univ. Darmstadt), von Stryk, Oskar (Tech. Univ. Darmstadt)	
10:45-11:00	MoAT11.2
<i>Passivity-Based Control of Manipulator-Stage Systems on Vertical Flexible Beam.</i>	
Ha, ChangSu (Seoul National Univ), Kim, Hackchan (Seoul National Univ), Lee, Dongjun (Seoul National Univ)	
11:00-11:15	MoAT11.3
<i>A Wire-Driven Continuum Manipulator Model without Assuming Shape Curvature Constancy.</i>	
Hsiao, Kai-Wen (Univ. of Tsukuba), Mochiyama, Hiromi (Univ. of Tsukuba)	
11:15-11:30	MoAT11.4
<i>Adaptive Input Shaper Design for Flexible Robot Manipulators.</i>	
Solatges, Thomas (SITIA), Rubrecht, Sebastien (SITIA), ROGNANT, Mathieu (ONERA), Bidaud, Philippe (ONERA)	
11:30-11:45	MoAT11.5
<i>Design of a Spherical Tensegrity Robot for Dynamic Locomotion.</i>	
Kim, Kyunam (UC Berkeley), Moon, Deaho (UC Berkeley), Bin, Jae Young (UC Berkeley), Agogino, Alice (Univ. of California Berkeley)	
11:45-12:00	MoAT11.6
<i>Shape-Based Object Classification and Recognition through Continuum Manipulation.</i>	
Mao, Huitan (Univ. of North Carolina at Charlotte), Zhang, Mabel M. (Univ. of Pennsylvania), Xiao, Jing (UNC Charlotte), Daniilidis, Kostas (Univ. of Pennsylvania)	

MoAT12	Room 208
Soft Material Robotics I	
Chair: Zhao, Jianguo	Colorado State Univ
Co-Chair: Liu, Xinyu	McGill Univ
10:30-10:45	MoAT12.1
<i>Morphological Computation: The Good, the Bad, and the Ugly.</i>	
Ghazi-Zahedi, Keyan (Max Planck Inst. for Mathematics in the Sciences), Deimel, Raphael (TU Berlin), Montufar, Guido (Max Planck Inst. for Mathematics in the Sciences), Wall, Vincent (TU Berlin), Brock, Oliver (Tech. Univ. Berlin)	
10:45-11:00	MoAT12.2
<i>Active Suction Cup Actuated by ElectroHydroDynamics Phenomenon.</i>	
Ku wajima, Yu (Shibaura Inst. Tech), Shigemune, Hiroki (Waseda Univ), Cacucciolo, Vito (Scuola Superiore Sant'Anna), Cianchetti, Matteo (Scuola Superiore Sant'Anna), Laschi, Cecilia (Scuola Superiore Sant'Anna), Maeda, Shingo (Shibaura Inst. of Tech)	
11:00-11:15	MoAT12.3
<i>Soft Foam Robot with Caterpillar-Inspired Gait Regimes for Terrestrial Locomotion.</i>	
Donatelli, Cassandra M. (Tufts Univ), Serlin, Zachary (Boston Univ), Echols-Jones, Piers (Tufts Univ), Scibelli, Anthony (Tufts Univ), Cohen, Alexandra A (Tufts Univ), Musca, Jeanne-Marie (Tufts Univ), Rozen-Levy, Shane (Tufts Univ), Buckingham, David (Tufts Univ), White, Robert David (Tufts Univ), Trimmer, Barry (Tufts Univ)	
11:15-11:30	MoAT12.4
<i>Twisted and Coiled Sensor for Shape Estimation of Soft Robots.</i>	
Abbas, Ali (Colorado State Univ), Zhao, Jianguo (Colorado State Univ)	
11:30-11:45	MoAT12.5
<i>Regulating Surface Traction of a Soft Robot through Electrostatic Adhesion Control.</i>	
Wu, Qiyang (McGill Univ), Diaz Jimenez, Tomas (McGill Univ), Qu, Juntian (McGill Univ), Zhao, Chen (McGill Univ), Liu, Xinyu (McGill Univ)	
11:45-12:00	MoAT12.6
<i>Custom Soft Robotic Gripper Sensor Skins for Haptic Object Visualization.</i>	
Shih, Benjamin (Univ. of California, San Diego), Drotman, Dylan (Univ. of California, San Diego), Christianson, Caleb (UC San Diego), Huo, Zhaoyuan (Univ. of California, San Diego), White, Ruffin (Georgia Inst. of Tech), Christensen, Henrik Iskov (UC San Diego), Tolley, Michael Thomas (Univ. of California, San Diego)	

MoAT13	Room 211
Rehabilitation Robotics	
Chair: Arata, Jumpei	Kyushu Univ
Co-Chair: Tsuji, Toshiaki	Saitama Univ
10:30-10:45	MoAT13.1
<i>Nonlinear Model Predictive Control of an Upper Extremity Rehabilitation Robot Using a Two-Dimensional Human-Robot Interaction Model.</i>	
Ghannadi, Borna (Univ. of Waterloo), Mehrabi, Naser (Univ. of Waterloo), Sharif Razavian, Reza (Univ. of Waterloo), McPhee, John J. (Univ. of Waterloo)	
10:45-11:00	MoAT13.2
<i>NREL-Exo: A 4-DoFs Wearable Hip Exoskeleton for Walking and Balance Assistance in Locomotion.</i>	
Zhang, Ting (North Carolina State Univ), Tran, Minh (NCSU), Huang, He (North Carolina State Univ)	
11:00-11:15	MoAT13.3
<i>Low-Profile Two-Degree-Of-Freedom Wrist Exoskeleton Device Using Multiple Spring Blade.</i>	
Higuma, Tomohito (Kyushu Univ), Kiguchi, Kazuo (Kyushu Univ), Arata, Jumpei (Kyushu Univ)	
11:15-11:30	MoAT13.4
<i>Adaptive Walking Load Control for Training Physical Strength Using Cane-Type Robot.</i>	
Itadera, Shunki (Nagoya Univ), Hasegawa, Yasuhisa (Nagoya Univ), Fukuda, Toshio (Meijo Univ), Tanimoto, Masanori (National Center for Geriatrics and Gerontology), Izumi, Kondo (National Center for Geriatrics and Gerontology)	
11:30-11:45	MoAT13.5
<i>Home Rehabilitation Assist Robot to Facilitate Isolated Movements for Hemiplegia Patients.</i>	
Ogata, Kunihiro (National Inst. of Advanced Industrial Science and Tech), Hirabayashi, Yuto (Saitama Univ), Kubota, Keisuke (Saitama Prefectural Univ), Tsuji, Toshiaki (Saitama Univ)	
11:45-12:00	MoAT13.6
<i>A Novel, Soft, Bending Actuator for Use in Power Assist and Rehabilitation Exoskeletons.</i>	
Al-Fahaam, Hassanin (Univ), Davis, Steven (Univ. of Salford), Nefti-Meziani, Samia (Univ. of Salford)	

MoAT14	Room 217
Computer Vision for Automation I	
Chair: Bekris, Kostas E.	Rutgers, the State Univ. of New Jersey
Co-Chair: Kaneko, Alex Masuo	Hitachi, Ltd
10:30-10:45	MoAT14.1
<i>Silhouette-Based Pose Estimation for Deformable Organs Application to Surgical Augmented Reality.</i>	
ADAGOLODJO, Yinoussa (Univ. of Strasbourg), Trivisonne, Raffaella (Inria), Haouchine, Nazim (INRIA), Cotin, Stephane (INRIA), Courtecuisse, Hadrien (AVR, CNRS Strasbourg)	
10:45-11:00	MoAT14.2
<i>A Self-Supervised Learning System for Object Detection Using Physics Simulation and Multi-View Pose Estimation.</i>	
Mitash, Chaitanya (Rutgers Univ), Bekris, Kostas E. (Rutgers, the State Univ. of New Jersey), Boularias, Abdeslam (Carnegie Mellon Univ)	
11:00-11:15	MoAT14.3
<i>3D Object Instance Recognition and Pose Estimation Using Triplet Loss with Dynamic Margin.</i>	
Zakharov, Sergey (Tech. Univ. of Munich), Kehl, Wadim (Toyota Res. Inst), Planche, Benjamin (Siemens AG), Hutter, Andreas (Siemens AG), Ilic, Slobodan (Tech. Univ. Munchen)	
11:15-11:30	MoAT14.4
<i>Structured Prediction with Short/Long-Range Dependencies for Human Activity Recognition from Depth Skeleton Data.</i>	
Arzani, Mohammad Mahdi (Iran Univ. of Science and Tech), Fathy, Mahmood (Iran Univ. of Science and Tech), Aghajan, Hamid (Gent Univ), Akbari Azirani, Ahmad (Iran Univ. of Science and Tech), Raahemifar, Kaamran (Ryerson Univ), Adeli, Ehsan (Stanford Univ)	
11:30-11:45	MoAT14.5
<i>Solving Pose Ambiguity of Planar Visual Marker by Wavelike Two-Tone Patterns.</i>	
Tanaka, Hideyuki (National Inst. of AIST), Ogata, Kunihiro (National Inst. of Advanced Industrial Science and Tech), Matsumoto, Yoshio (AIST)	
11:45-12:00	MoAT14.6
<i>Monocular Depth Estimation by Two-Frame Triangulation Using Flat Surface Constraints.</i>	
Kaneko, Alex Masuo (Hitachi, Ltd), Yamamoto, Kenjiro (Hitachi, Ltd)	

MoAT15	Room 215
Semantic Scene Understanding	
Chair: He, Hongsheng	Univ. of Tennessee
Co-Chair: Magnusson, Martin	Örebro Univ
10:30-10:45	MoAT15.1
<i>SMSnet: Semantic Motion Segmentation Using Deep Convolutional Neural Networks.</i>	
Vertens, Johan (Univ. of Freiburg), Valada, Abhinav (Univ. of Freiburg), Burgard, Wolfram (Univ. of Freiburg)	
10:45-11:00	MoAT15.2
<i>Semantic 3D Occupancy Mapping through Efficient High Order CRFs.</i>	
Yang, Shichao (Carnegie Mellon Univ), Huang, Yulan (Carnegie Mellon Univ), Scherer, Sebastian (Carnegie Mellon Univ)	
11:00-11:15	MoAT15.3
<i>Multi-View Deep Learning for Consistent Semantic Mapping with RGB-D Cameras.</i>	
Ma, Lingni (Tech. Univ. München), Stückler, Jörg (RWTH Aachen Univ), Kerl, Christian (Tech. Univ. Munich), Cremers, Daniel (Tech. Univ. of Munich)	
11:15-11:30	MoAT15.4
<i>Incomplete 3D Motion Trajectory Segmentation and 2D-To-3D Label Transfer for Dynamic Scene Analysis.</i>	
Jiang, Cansen (Univ. of Burgundy), Paudel, Danda Pani (Univ. of Burgundy), Fougerolle, Yohan (Univ. of Burgundy, Le2i Lab. FRE CNRS 2005, 71200 Le), Fofi, David (Univ. of Burgundy), Demonceaux, Cédric (Univ. De Bourgogne)	
11:30-11:45	MoAT15.5
<i>Underwater 3D Structures As Semantic Landmarks in SONAR Mapping.</i>	
Guerneve, Thomas (Heriot Watt Univ), Subr, Kartic (The Univ. of Edinburgh), Petillot, Yvan R. (Heriot-Watt Univ)	
11:45-12:00	MoAT15.6
<i>Semi-Supervised 3D Place Categorisation by Descriptor Clustering.</i>	
Magnusson, Martin (Örebro Univ), Kucner, Tomasz Piotr (Örebro Univ), Gholami Shahbandi, Saeed (Halmstad Univ), Andreasson, Henrik (Örebro Univ), Lilienthal, Achim J. (Örebro Univ)	

MoAT16		Room 220
Mapping I		
Chair: Surmann, Hartmut	Univ. of Applied Science Gelsenkircehn	
Co-Chair: Dabeer, Onkar	Qualcomm Tech. Inc	
10:30-10:45		MoAT16.1
<i>3D Mapping for Multi Hybrid Robot Cooperation.</i>		
Surmann, Hartmut (Univ. of Applied Science Gelsenkircehn), Berninger, Nils (Fraunhofer IAIS), Worst, Rainer (Fraunhofer IAIS)		
10:45-11:00		MoAT16.2
<i>An End-To-End System for Crowdsourced 3d Maps for Autonomous Vehicles: The Mapping Component.</i>		
Dabeer, Onkar (Qualcomm Tech. Inc), Gowaiker, Radhika (Qualcomm Tech. Inc), Grzechnik, Slawomir (Qualcomm Tech. Inc), Lakshman, Mythreya (Qualcomm Tech. Inc), Reitmayr, Gerhard (Qualcomm Tech. Inc), Somasundaram, Kiran (Qualcomm Tech. Inc), Sukhavasi, Ravi Teja (Qualcomm), Wu, Xinzhou (Qualcomm Tech. Inc), Ding, Wei (Qualcomm), Sharma, Arunandan (Qualcomm), Lee, Sean (Qualcomm Tech. Inc)		
11:00-11:15		MoAT16.3
<i>Robot Localization with Sparse Scan-Based Maps.</i>		
Schiotka, Alexander (Univ. of Freiburg), Suger, Benjamin (Univ. of Freiburg), Burgard, Wolfram (Univ. of Freiburg)		
11:15-11:30		MoAT16.4
<i>Place Recognition of 3D Landmarks Based on Geometric Relations.</i>		
Lodi Rizzini, Dario (Univ. of Parma)		
11:30-11:45		MoAT16.5
<i>Context-Coherent Scenes of Objects for Camera Pose Estimation.</i>		
Li, Jimmy (McGill Univ), Meger, David Paul (McGill Univ), Dudek, Gregory (McGill Univ)		
11:45-12:00		MoAT16.6
<i>Semantic Segmentation of Urban Scenes with a Location Prior Map Using Lidar Measurements.</i>		
Wang, Jeonghyeon (KAIST), Kim, JinWhan (KAIST)		

MoAT17	Room 221
Humanoid	
Chair: De Luca, Alessandro	Sapienza Univ. of Rome
Co-Chair: Parmiggiani, Alberto	Fondazione Istituto Italiano Di Tecnologia (IIT)
10:30-10:45	MoAT17.1
<i>Walking Stabilization Using Step Timing and Location Adjustment on the Humanoid Robot, Atlas.</i>	
Griffin, Robert J. (Inst. for Human and Machine Cognition), Wiedebach, Georg (Inst. for Human and Machine Cognition), Bertrand, Sylvain (Inst. for Human and Machine Cognition), Leonessa, Alexander (Virginia Tech), Pratt, Jerry (Inst. for Human and Machine Cognition)	
10:45-11:00	MoAT17.2
<i>The Design and Validation of the R1 Personal Humanoid.</i>	
Parmiggiani, Alberto (Fondazione Istituto Italiano Di Tecnologia (IIT)), Fiorio, Luca (Istituto Italiano Di Tecnologia), Scalzo, Alessandro (Italian Inst. of Tech), Vazhapilli Sureshbabu, Anand (Istituto Italiano Di Tecnologia), Randazzo, Marco (Istituto Italiano Di Tecnologia), Maggiali, Marco (Italian Inst. of Tech), Pattacini, Ugo (Istituto Italiano Di Tecnologia), Lehmann, Hagen (Istituto Italiano Di Tecnologia (IIT)), Tikhonoff, Vadim (Italian Inst. of Tech), Domenichelli, Daniele E. (Istituto Italiano Di Tecnologia), Cardellino, Alberto (Italian Inst. of Technology), Congiu, Pierpaolo (Drop - Design for Innovation, Castella 33 Esc B2 2do 3era, 08018), Pagnin, Andrea (6punto14 Creative Licensing, Via P. Lomazzo 19 C/o JWT, 20154 Mi), Cingolani, Roberto (Fondazione Istituto Italiano Di Tecnologia (IIT)), Natale, Lorenzo (Istituto Italiano Di Tecnologia), Metta, Giorgio (Istituto Italiano Di Tecnologia (IIT))	
11:00-11:15	MoAT17.3
<i>A Parallel Kinematic Mechanism for the Torso of a Humanoid Robot: Design, Construction and Validation.</i>	
Fiorio, Luca (Istituto Italiano Di Tecnologia), Scalzo, Alessandro (Italian Inst. of Tech), Natale, Lorenzo (Istituto Italiano Di Tecnologia), Metta, Giorgio (Istituto Italiano Di Tecnologia (IIT)), Parmiggiani, Alberto (Fondazione Istituto Italiano Di Tecnologia (IIT))	
11:15-11:30	MoAT17.4
<i>Development of Life-Size Humanoid Robot Platform with Robustness for Falling Down, Long Time Working and Error Occurrence.</i>	
Kakiuchi, Yohei (The Univ. of Tokyo), Kamon, Masayuki (Kawasaki Heavy Industries, Ltd), Shimomura, Nobuyasu (Kawasaki Heavy Industries, Ltd), Yukizaki, Soh (Univ. of Tokyo), Takasugi, Noriaki (The Univ. of Tokyo), Nozawa, Shunichi (The Univ. of Tokyo), Okada, Kei (The Univ. of Tokyo), Inaba, Masayuki (The Univ. of Tokyo)	
11:30-11:45	MoAT17.5
<i>Multi-Contact Balancing of Humanoid Robots in Confined Spaces: Utilizing Knee Contacts.</i>	
Henze, Bernd (German Aerospace Center (DLR)), Dietrich, Alexander (German Aerospace Center (DLR)), Roa, Maximo A. (German Aerospace Center, DLR), Ott, Christian (German Aerospace Center (DLR))	
11:45-12:00	MoAT17.6
<i>Actuator Design of Compliant Walkers Via Optimal Control.</i>	
Buondonno, Gabriele (Sapienza Univ. of Rome), Carpentier, Justin (LAAS-CNRS), Saurel, Guilhem (LAAS-CNRS), Mansard, Nicolas (CNRS), De Luca, Alessandro (Sapienza Univ. of Rome), Laumond, Jean-Paul (LAAS-CNRS)	

MoAT18		Room 223
Software and Middleware		
Chair: Rickert, Markus	Fortiss, An-Inst. Tech. Univ. München	
Co-Chair: Millard, Alan Gregory		Univ. of York
10:30-10:45		MoAT18.1
<i>Dimensional Inconsistencies in Code and ROS Messages: A Study of 5.9M Lines of Code.</i>		
Ore, John-Paul (Univ. of Nebraska-Lincoln), Elbaum, Sebastian (Univ. of Nebraska - Lincoln), Detweiler, Carrick (Univ. of Nebraska-Lincoln)		
10:45-11:00		MoAT18.2
<i>FROST: Fast Robot Optimization and Simulation Toolkit.</i>		
Hereid, Ayonga (Univ. of Michigan), Ames, Aaron (California Inst. of Tech)		
11:00-11:15		MoAT18.3
<i>Behaviour-Data Relations Modelling Language for Multi-Robot Control Algorithms.</i>		
Pitonakova, Lenka (Univ. of Southampton), Crowder, Richard (Univ. of Southampton), Bullock, Seth (Univ. of Bristol)		
11:15-11:30		MoAT18.4
<i>Robotics Library: An Object-Oriented Approach to Robot Applications.</i>		
Rickert, Markus (Fortiss, An-Inst. Tech. Univ. München), Gaschler, Andre K. (Fortiss Tech. Univ. Muenchen)		
11:30-11:45		MoAT18.5
<i>The Pi-Puck Extension Board: A Raspberry Pi Interface for the E-Puck Robot Platform.</i>		
Millard, Alan Gregory (Univ. of York), Joyce, Russell (Univ. of York), Hilder, James (Univ. of York), Fleseriu, Cristian (Univ. of York), Newbrook, Leonard (Univ. of York), Li, Wei (Univ. of York), McDaid, Liam (Ulster Univ), Halliday, David (Univ. of York)		

MoBT1		Room 109
Deep Learning in Robotics and Automation II		
Chair: Najjaran, Homayoun		Univ. of British Columbia
Co-Chair: Pronobis, Andrzej		Univ. of Washington
14:30-14:45		MoBT1.1
<i>Car Detection for Autonomous Vehicle: LIDAR and Vision Fusion Approach through Deep Learning Framework.</i>		
DU, XINXIN (Singapore-MIT Alliance for Res. and Tech. (SMART)), Ang Jr, Marcelo H (National Univ. of Singapore), Rus, Daniela (MIT)		
14:45-15:00		MoBT1.2
<i>Learning Deep Generative Spatial Models for Mobile Robots.</i>		
Pronobis, Andrzej (Univ. of Washington), Rao, Rajesh P. N. (Univ. of Washington)		
15:00-15:15		MoBT1.3
<i>Deep Learning for 2D Scan Matching and Loop Closure.</i>		
Li, Jiaxin (National Univ. of Singapore), ZHAN, Huangying (The Univ. of Adelaide), Chen, Ben M. (National Univ. of Singapore), Reid, Ian (Univ. of Adelaide), Lee, Gim Hee (National Univ. of Singapore)		
15:15-15:30		MoBT1.4
<i>Robotic Grasp Detection Using Deep Convolutional Neural Networks.</i>		
Kumra, Sulabh (Rochester Inst. of Tech), Kanan, Christopher (Rochester Inst. of Tech)		
15:30-15:45		MoBT1.5
<i>Deep Learning Lane Marker Segmentation from Automatically Generated Labels.</i>		
Behrendt, Karsten (Robert Bosch LLC), Witt, Jonas (X, the Moonshot Factory (formerly Google X))		
15:45-16:00		MoBT1.6
<i>3D Object Classification with Point Convolution Network.</i>		
Chen, Xuzhan (Huazhong Univ. of Science and Tech), Chen, Youping (Huazhong Univ. of Science and Tech), Najjaran, Homayoun (Univ. of British Columbia)		

MoBT2		Room 111
Learning and Adaptive Systems II		
Chair: Oh, Songhwa		Seoul National Univ
Co-Chair: Inamura, Tetsunari		National Inst. of Informatics
14:30-14:45		MoBT2.1
<i>An Information-Theoretic On-Line Update Principle for Perception-Action Coupling.</i>		
Peng, Zhen (Max Planck Inst. for Biological Cybernetics), Genewein, Tim (Robert Bosch GmbH), Leibfried, Felix (Max Planck Inst. for Intelligent Systems), Braun, Daniel Alexander (Ulm Univ)		
14:45-15:00		MoBT2.2
<i>Design-Time Improvement Using a Functional Approach to Specify GraphSLAM with Deterministic Performance on an FPGA.</i>		
Appel, Robin (Univ. of Twente), Folmer, Hendrik (Univ. of Twente), Kuper, Jan (Univ. of Twente), Wester, Rinse (Univ. of Twente), Broenink, Jan (Univ. of Twente)		
15:00-15:15		MoBT2.3
<i>Simultaneous Active Parameter Estimation and Control Using Sampling-Based Bayesian Reinforcement Learning.</i>		
Slade, Patrick (Stanford Univ), Culbertson, Preston (Stanford Univ), Sunberg, Zachary (Stanford Univ), Kochenderfer, Mykel (Stanford Univ)		
15:15-15:30		MoBT2.4
<i>Online Spatial Concept and Lexical Acquisition with Simultaneous Localization and Mapping.</i>		
Taniguchi, Akira (Ritsumeikan Univ), Hagiwara, Yoshinobu (Ritsumeikan Univ), Taniguchi, Tadahiro (Ritsumeikan Univ), Inamura, Tetsunari (National Inst. of Informatics)		
15:30-15:45		MoBT2.5
<i>Deep Reinforcement Learning for High Precision Assembly Tasks.</i>		
Inoue, Tadanobu (IBM Japan), De Magistris, Giovanni (IBM Japan), Munawar, Asim (IBM Japan), Yokoya, Tsuyoshi (Yaskawa Electric Corp), Tachibana, Ryuki (IBM Japan)		
15:45-16:00		MoBT2.6
<i>Online Learning to Approach a Person with No-Regret.</i>		
Ahn, Hyemin (Seoul National Univ), Oh, Yoonseon (Seoul National Univ), Choi, Sungjoon (Seoul National Univ), Tomlin, Claire (UC Berkeley), Oh, Songhwa (Seoul National Univ)		

MoBT3	Room 116
Service Robots	
Chair: Bellotto, Nicola	Univ. of Lincoln
Co-Chair: Yim, Mark	Univ. of Pennsylvania
14:30-14:45	MoBT3.1
<i>Learning User Preferences for Robot-Human Handovers.</i>	
Huaman, Ana (Georgia Inst. of Tech), Martinson, Eric (Toyota InfoTechnology Center, USA), Oguchi, Kentaro (Toyota InfoTechnology Center, USA)	
14:45-15:00	MoBT3.2
<i>Evaluating Older Adults' Interaction with a Mobile Assistive Robot.</i>	
Rodrigues Mucchiani, Caio Cesar (Univ. of Pennsylvania), Sharma, Suneet (Univ. of Pennsylvania), Johnson, Megan (Univ. of Pennsylvania), Sefcik, Justine (Univ. of Pennsylvania), Vivio, Nicholas (Columbia Univ), Huang, Justin (Univ. of Washington), Cacchione, Pamela (Univ. of Pennsylvania), Johnson, Michelle J. (Univ. of Pennsylvania), Rai, Roshan (Univ. of Pennsylvania), Canoso, Adrian (Savioke Inc), Lau, Tessa (Savioke), Yim, Mark (Univ. of Pennsylvania)	
15:00-15:15	MoBT3.3
<i>Multidimensional Time Series Shapelets Reliably Detect and Classify Contact Events in Force Measurements of Wiping Actions.</i>	
Stelter, Simon (Univ. Bremen), Bartels, Georg (Univ. Bremen), Beetz, Michael (Univ. of Bremen)	
15:15-15:30	MoBT3.4
<i>Path Following with Authority Sharing between Humans and Passive Robotic Walkers Equipped with Low-Cost Actuators.</i>	
Andreetto, Marco (Univ. of Trento), Divan, Stefano (Univ), Fontanelli, Daniele (Univ. of Trento), Palopoli, Luigi (Univ. of Trento)	
15:30-15:45	MoBT3.5
<i>Online Learning for Human Classification in 3D LiDAR-Based Tracking.</i>	
Yan, Zhi (Univ. of Lincoln), Duckett, Tom (Univ. of Lincoln), Bellotto, Nicola (Univ. of Lincoln)	
15:45-16:00	MoBT3.6
<i>On-Line Adaptive Side-By-Side Human Robot Companion in Dynamic Urban Environments.</i>	
Repiso, Ely (Inst. De Robòtica I Informàtica Industrial, CSIC-UPC), Ferrer, Gonzalo (Univ. of Michigan), Sanfeliu, Alberto (Univ. Pol. De Catalunya)	

MoBT4	Room 114
Haptics and Haptic Interfaces	
Chair: Ryu, Jee-Hwan	Korea Univ. of Tech. and Education
Co-Chair: Choi, Hyouk Ryeol	Sungkyunkwan Univ
14:30-14:45	MoBT4.1
<i>A Tactile Shirt for Teaching Human Motion Tasks.</i>	
Balkcom, Devin (Dartmouth Coll), Kavathekar, Paritosh (Dartmouth Coll)	
14:45-15:00	MoBT4.2
<i>Interactive Haptic Display Based on Soft Actuator and Soft Sensor.</i>	
Phung, Hoa (Sungkyunkwan Univ), Hoang, Phi Tien (Sungkyunkwan Univ), Nguyen, Canh Toan (Sungkyunkwan Univ), Nguyen, Tien Dat (Sungkyunkwan Univ), Jung, Hosang (Sungkyunkwan Univ), Kim, Uikyum (Sungkyunkwan Univ), Choi, Hyouk Ryeol (Sungkyunkwan Univ)	
15:00-15:15	MoBT4.3
<i>User-Interface for Teleoperation with Mixed-Signal Haptic Feedback.</i>	
Thiem, Daniel B (Tech. Univ. Darmstadt), Neupert, Carsten (Tech. Univ. Darmstadt), Matich, Sebastian (Tech. Univ. Darmstadt), Hessinger, Markus (Tech. Univ. Darmstadt), Bilz, Johannes (Tech. Univ. Darmstadt), Polzin, Julian (Tech. Univ. Darmstadt), Werthschützky, Roland (Univ. of Tech. Darmstadt), Kupnik, Mario (Tech. Univ. Darmstadt), Schlaak, Helmut F. (Tech. Univ. Darmstadt), Kirschniak, Andreas (Univ. Hospital Tuebingen), Hatzfeld, Christian (Tech. Univ. Darmstadt, Germany)	
15:15-15:30	MoBT4.4
<i>A Novel Haptic Fmri Interface for Five-Axis Force and Motion Neuroimaging Experiments.</i>	
Menon, Samir (Stanford Univ), Soviche, Amaury (EPFL - Ec. Pol. Fédérale De Lausanne, Switzerland), Subbarao, Alok (San Jose State Univ), Mithrakumar, Jananan (Stanford Univ), Khatib, Oussama (Stanford Univ)	
15:30-15:45	MoBT4.5
<i>Development of an Inexpensive Tri-Axial Force Sensor for Minimally Invasive Surgery.</i>	
Li, Lu (Carnegie Mellon Univ), Yu, Bocheng (Carnegie Mellon Univ), Yang, Chen (1993), Vagdargi, Prasad (Carnegie Mellon Univ), Rangaprasad, Arun Srivatsan (Carnegie Mellon Univ), Choset, Howie (Carnegie Mellon Univ)	
15:45-16:00	MoBT4.6
<i>Realizing Low-Impedance Rendering in Admittance-Type Haptic Interfaces Using the Input-To-State Stable Approach.</i>	
Nabeel, Muhammad (Korea Univ. of Tech. and Education), Jafari, Aghil (Univ. of the West of England), Ryu, Jee-Hwan (Korea Univ. of Tech. and Education)	

MoBT5		Room 118
Medical Robots II		
Chair: Ren, Hongliang	Faculty of Engineering, National Univ. of Singapore	
Co-Chair: Kowalewski, Timothy	Univ. of Minnesota	
14:30-14:45	MoBT5.1	
<i>Pop-Up Tissue Retraction Mechanism for Endoscopic Surgery.</i>		
Becker, Samuel (Harvard Univ), Ranzani, Tommaso (Harvard School of Engineering and Applied Science, Wyss Inst), Russo, Sheila (Harvard Univ. School of Engineering and Applied Sciences), Wood, Robert (Harvard Univ)		
14:45-15:00	MoBT5.2	
<i>Design and Characterization of Stormram 4: An MRI-Compatible Robotic System for Breast Biopsy.</i>		
Groenhuis, Vincent (Univ. of Twente), Siepel, Françoise J (Univ. of Twente), Veltman, Jeroen (ZGT), Stramigioli, Stefano (Univ. of Twente)		
15:00-15:15	MoBT5.3	
<i>3D Bioprinting Directly Onto Moving Human Anatomy.</i>		
O'Neill, John (Univ. of Minnesota), Johnson, Reed (Univ. of Minnesota), Dockter, Rodney (Univ. of Minnesota), Kowalewski, Timothy (Univ. of Minnesota)		
15:15-15:30	MoBT5.4	
<i>Distributed Navigated Control for Active Instruments in a Real-Time Networked Operating Room.</i>		
Pfeiffer, Jonas H. (Tech. Univ. Munich), Moser, Tim Fabian (Tech. Univ. Munich), Dietz, Christian (Tech. Univ. München), Krieger, Yannick S. (Tech. Univ. München), Lueth, Tim C. (Tech. Univ. München)		
15:30-15:45	MoBT5.5	
<i>Shape Sensing of Small Continuum Robots Using Optical Fibers.</i>		
Schmitz, Andreas (Imperial Coll. London), Thompson, Alexander James (Imperial Coll. London), Berthet-Rayne, Pierre (Imperial Coll. London), Seneci, Carlo Alberto (Imperial Coll. London), Wisanuvej, Piyamate (Imperial Coll. London), Yang, Guang-Zhong (Imperial Coll. London)		
15:45-16:00	MoBT5.6	
<i>TTRE: A New Type of Error to Evaluate the Accuracy of a Paired-Point Rigid Registration.</i>		
Min, Zhe (The Chinese Univ. of Hong Kong), Ren, Hongliang (Faculty of Engineering, National Univ. of Singapore), Meng, Max Q.-H. (The Chinese Univ. of Hong Kong)		

MoBT6	Room 121
Aerial Systems Applications I	
Chair: Ollero, Anibal	Univ. of Seville
Co-Chair: Aoyama, Tadayoshi	Nagoya Univ
14:30-14:45	MoBT6.1
<i>Design and Implementation of Multirotor Aerial-Underwater Vehicles with Experimental Results.</i>	
Maia, Marco (Rutgers, the State Univ. of New Jersey), Mercado Ravell, Diego Alberto (UTC), Diez, F. Javier (Rutgers Univ)	
14:45-15:00	MoBT6.2
<i>A Distributed Algorithm for Aerial Data Collection from Wireless Sensors Networks by UAVs.</i>	
Olivieri de Souza, Bruno José (Pontifical Catholic Univ. of Rio De Janeiro), Endler, markus (PUC-Rio - Pontifical Catholic Univ. of Rio De Janeiro)	
15:00-15:15	MoBT6.3
<i>Development of a Power Line Inspection Robot with Hybrid Operation Modes.</i>	
Chang, Wenkai (Inst. of Automation Chinese Acad. of Sciences), Yang, Guodong (Inst. of Automation, Chinese Acad. of Sciences), Yu, Junzhi (Chinese Acad. of Sciences), liang, zize (Inst. of Automation, Chinese Acad. of Sciences), Cheng, Long (Chinese Acad. of Sciences), Zhou, Chao (Chinese Acad. of Sciences)	
15:15-15:30	MoBT6.4
<i>Quadrotor-UAV Optimal Coverage Path Planning in Cluttered Environment with a Limited Onboard Energy.</i>	
BOUZID, Yasser (Univ. D'evry Val D'essonne), Bestaoui, Yasmina (Univ. of Evry), SIGUERDIDJANE, Houria (CentraleSupélec)	
15:30-15:45	MoBT6.5
<i>Development of a 4-Joint 3-DOF Robotic Arm with Anti-Reaction Force Mechanism for a Multicopter.</i>	
Ohnishi, Yoshinori (Hiroshima Univ), Takaki, Takeshi (Hiroshima Univ), Aoyama, Tadayoshi (Nagoya Univ), Ishii, Idaku (Hiroshima Univ)	
15:45-16:00	MoBT6.6
<i>Anthropomorphic, Compliant and Lightweight Dual Arm System for Aerial Manipulation.</i>	
Suarez, Alejandro (Univ. of Seville), Ramon Soria, Pablo (Univ. of Seville), Heredia, Guillermo (Univ. of Seville), Arrue, Begoña C. (Univ. De Sevilla), Ollero, Anibal (Univ. of Seville)	

MoBT7 Slam I	Room 122
Chair: Markovic, Ivan	Univ. of Zagreb, Faculty of Electrical Engineering and Computing
Co-Chair: Yang, Ming	Shanghai Jiao Tong Univ
14:30-14:45	MoBT7.1
<i>Gaussian Mixture Model-Signature Quadratic Form Distance Based Point Set Registration.</i>	
Li, Liang (Shanghai Jiaotong Univ), Yang, Ming (Shanghai Jiao Tong Univ), Wang, Chunxiang (Shanghai Jiaotong Univ), Wang, Bing (Shanghai Jiao Tong Univ)	
14:45-15:00	MoBT7.2
<i>An Online Multi-Robot SLAM System for 3D LiDARs.</i>	
Dubé, Renaud (ETH Zürich), Gavel, Abel Roman (Autonomous Systems Lab, ETH Zurich), Sommer, Hannes (ETH Zürich), Nieto, Juan (ETH Zürich), Siegwart, Roland (ETH Zurich), Cadena Lerma, Cesar (ETH Zurich)	
15:00-15:15	MoBT7.3
<i>Revival of Filtering Based SLAM? Exactly Sparse Delayed State Filter on Lie Groups.</i>	
Lenac, Kruno (Univ. of Zagreb, Faculty of Electrical Engineering and Comp), Cestic, Josip (Univ. of Zagreb, Faculty of Electrical Engineering and Comp), Markovic, Ivan (Univ. of Zagreb, Faculty of Electrical Engineering and Comp), Cvišić, Igor (Univ. of Zagreb, Faculty of Electrical Engineering and Comp), Petrovic, Ivan (Univ. of Zagreb)	
15:15-15:30	MoBT7.4
<i>Multi-Trajectory Pose Correspondences Using Scale-Dependent Topological Analysis of Pose-Graphs.</i>	
Datta, Sayantan (International Inst. of Information Tech. Hyderabad), Sharma, Avinash (International Inst. of Information Tech), Krishna, Madhava (IIIT Hyderabad)	
15:30-15:45	MoBT7.5
<i>Joint Perception and Planning for Efficient Obstacle Avoidance Using Stereo Vision.</i>	
Ghosh, Sourish (Indian Inst. of Tech. Kharagpur), Biswas, Joydeep (Univ. of Massachusetts Amherst)	
15:45-16:00	MoBT7.6
<i>Cartan-Sync: Fast and Global SE(d)-Synchronization.</i>	
Briales, Jesus (Univ. of Málaga), González-Jiménez, Javier (Univ. of Málaga)	

MoBT8	Room 202
Wearable Robots I	
Chair: Bae, Joonbum	UNIST
Co-Chair: Choi, Byung June	Samsung Advanced Inst. of Tech
14:30-14:45	MoBT8.1
<i>A Pneumatic Power Source Using a Sodium Bicarbonate and Citric Acid Reaction with Pressure Booster for Use in Mobile Devices.</i>	
Okui, Manabu (Chuo Univ), Nagura, Yuki (Chuo Univ), Iikawa, Shingo (Chuo Univ), Yamada, Yasuyuki (Chuo Univ), Nakamura, Taro (Chuo Univ)	
14:45-15:00	MoBT8.2
<i>External Control of Walking Direction, Using Cross-Wire Mobile Assist Suit.</i>	
Murakami, Kenta (Panasonic Corp), John, Stephen William (Panasonic Corp), Komatsu, Mayumi (Panasonic Corp), Adachi, Shinobu (Panasonic Corp)	
15:00-15:15	MoBT8.3
<i>A Wearable Hand System for Virtual Reality.</i>	
Park, Yeon gyu (UNIST(Ulsan National Inst. of Science and Tech), Jo, Inseong (UNIST), Lee, Jeongsoo (UNIST), Bae, Joonbum (UNIST)	
15:15-15:30	MoBT8.4
<i>A Flexible Exoskeleton for Hip Assistance.</i>	
Lee, Younbaek (Samsung Electronics Co., Ltd), Roh, Se-gon (Samsung Electronics Co., Ltd), Lee, Minhyung (Samsung Advanced Inst. of Tech), Choi, Byung June (Samsung Advanced Inst. of Tech), Lee, Jongwon (Samsung Advanced Inst. of Tech), Kim, Jeonghun (Samsung Advanced Inst. of Tech), Choi, Hyundo (Samsung Electronics), Shim, Youngbo (Samsung Electronics), Kim, Yong-Jae (Korea Univ. of Tech. and Education)	
15:30-15:45	MoBT8.5
<i>Design, Development, and Bench-Top Testing of a Powered Polycentric Ankle Prosthesis.</i>	
Cempini, Marco (Rehabilitation Inst. of Chicago), Hargrove, Levi (Rehabilitation Inst. of Chicago), Lenzi, Tommaso (Univ. of Utah)	
15:45-16:00	MoBT8.6
<i>A 3D-Printed Soft Robotic Glove with Enhanced Ergonomics and Force Capability.</i>	
Yi, Juan (The Univ. of Hong Kong), Chen, Xiaojiao (The Univ. of Hong Kong), Wang, Zheng (The Univ. of Hong Kong)	

MoBT9		Room 204
Multi-Robots I		
Chair: Secchi, Cristian	Univ. of Modena & Reggio Emilia	
Co-Chair: Becker, Aaron	Univ. of Houston	
14:30-14:45		MoBT9.1
<i>Infinitesimally Shape-Similar Motions Using Relative Angle Measurements.</i>		
Buckley, Ian (Georgia Inst. of Tech), Egerstedt, Magnus (Georgia Inst. of Tech)		
14:45-15:00		MoBT9.2
<i>Optimized Simultaneous Conflict-Free Task Assignment and Path Planning for Multi-AGV Systems.</i>		
Sabattini, Lorenzo (Univ. of Modena and Reggio Emilia), Digani, Valerio (Elettric80 Spa), Secchi, Cristian (Univ. of Modena & Reggio Emilia), Fantuzzi, Cesare (Univ. Di Modena E Reggio Emilia)		
15:00-15:15		MoBT9.3
<i>PRVO: Probabilistic Reciprocal Velocity Obstacle for Multi Robot Navigation under Uncertainty.</i>		
Singh, Arun Kumar (NTU, Singapore), GOPALAKRISHNAN, BHARATH (IIT Hyderabad), Kaushik, Meha (International Inst. of Information Tech), Krishna, Madhava (IIT Hyderabad), Manocha, Dinesh (Univ. of North Carolina at Chapel Hill)		
15:15-15:30		MoBT9.4
<i>Mapping and Coverage with a Particle Swarm Controlled by Uniform Inputs.</i>		
Mahadev, Arun (Univ. of Houston), Krupke, Dominik Michael (TU Braunschweig), Fekete, Sándor (Tech. Univ. Braunschweig), Becker, Aaron (Univ. of Houston)		
15:30-15:45		MoBT9.5
<i>Market-Based Coordination in Dynamic Environments Based on the Hoplités Framework.</i>		
Talebpour, Zeynab (École Pol. Fédérale De Lausanne), Savarè, Stefano (EPFL), Martinoli, Alcherio (EPFL)		
15:45-16:00		MoBT9.6
<i>Intra-Robot Replanning to Enable Team Member Conditions.</i>		
Cooksey, Philip (Carnegie Mellon Univ), Veloso, Manuela (Carnegie Mellon Univ)		

MoBT10	Room 205
Automation at Micro-Nano Scale	
Chair: Arai, Fumihito	Nagoya Univ
Co-Chair: Sun, Dong	City Univ. of Hong Kong
14:30-14:45	MoBT10.1
<i>Parallel Self-Assembly of Polyominoes under Uniform Control Inputs.</i>	
Manzoor, Sheryl (Univ. of Houston), Sheckman, Sam (Southern Methodist Univ), Lonsford, Jarrett (Univ. of Houston), Kim, Hoyeon (Southern Methodist Univ), Kim, MinJun (Southern Methodist Univ), Becker, Aaron (Univ. of Houston)	
14:45-15:00	MoBT10.2
<i>Self-Initialization and Recovery for Uninterrupted Tracking in Vision-Guided Micromanipulation.</i>	
Yang, Liangjing (Massachusetts Inst. of Tech), Paranawithana, Ishara (Singapore Univ. of Tech. & Design), Youcef-Toumi, Kamal (Massachusetts Inst. of Tech), Tan, U-Xuan (Singapore Univ. of Tech. and Design)	
15:00-15:15	MoBT10.3
<i>Full 3D Rotation Estimation in Scanning Electron Microscope.</i>	
Kudryavtsev, Andrey V. (FEMTO-ST Inst), Dombéle, Sounkalo (Univ. of Franche Comté), Lefort-Piat, Nadine (Lab. D'automatique De Besançon)	
15:15-15:30	MoBT10.4
<i>View Expansion System for Microscope Photography Based on Viewpoint Movement Using Galvano Mirror.</i>	
Aoyama, Tadayoshi (Nagoya Univ), Kaneishi, Mamoru (Hiroshima Univ), Takaki, Takeshi (Hiroshima Univ), Ishii, Idaku (Hiroshima Univ)	
15:30-15:45	MoBT10.5
<i>Design of an Automated Controller with Collision-Avoidance Capability for In-Vivo Transportation of Biological Cells.</i>	
Li, Xiaoqian (City Univ. of Hong Kong), Chen, Shuxun (City Univ. of Hong Kong), Wang, Yong (Univ. of Science and Tech. of China), Sun, Dong (City Univ. of Hong Kong)	
15:45-16:00	MoBT10.6
<i>Large Indentation Method to Measure Elasticity of Cell in Robot Integrated Microfluidic Chip.</i>	
Sugiura, Hirotaka (Nagoya Univ), Sakuma, Shinya (Nagoya Univ), Kaneko, Makoto (Osaka Univ), Arai, Fumihito (Nagoya Univ)	

MoBT11	Room 207
Gripper and Other End-Effectors	
Chair: Thakor, Nitish	National Univ. of Singapore
14:30-14:45	MoBT11.1
<i>Design of a Stewart Platform-Inspired Dexterous Hand for 6-DOF Within-Hand Manipulation.</i>	
McCann, Connor (Yale Univ), Dollar, Aaron (Yale Univ)	
14:45-15:00	MoBT11.2
<i>A Three-Fingered Hand with a Suction Gripping System for Picking Various Objects in Cluttered Narrow Space.</i>	
Hasegawa, Shun (The Univ. of Tokyo), Wada, Kentaro (The Univ. of Tokyo), Niitani, Yusuke (The Univ. of Tokyo), Okada, Kei (The Univ. of Tokyo), Inaba, Masayuki (The Univ. of Tokyo)	
15:00-15:15	MoBT11.3
<i>An Electrostatic Gripper for Flexible Objects.</i>	
Schaler, Ethan W. (Univ. of California, Berkeley), Ruffatto III, Donald (Illinois Inst. of Tech), Glick, Paul (UCSD Bioinspired Robotics and Design Lab), White, Victor (Jet Propulsion Labs), Parness, Aaron (Nasa Jet Propulsion Lab)	
15:15-15:30	MoBT11.4
<i>A Bidirectional Soft Pneumatic Fabric-Based Actuator for Grasping Applications.</i>	
Low, Jin Huat (National Univ. of Singapore), Cheng, Nicholas (National Univ. of Singapore), Khin, Phone May (National Univ. of Singapore), Thakor, Nitish (National Univ. of Singapore), Kukreja, Sunil, L. (National Univ. of Singapore), Ren, Hongliang (Faculty of Engineering, National Univ. of Singapore), Yeow, Chen-Hua (National Univ. of Singapore)	
15:30-15:45	MoBT11.5
<i>High-Power, Flexible, Robust Hand: Development of Musculoskeletal Hand Using Machined Springs and Realization of Self-Weight Supporting Motion with Humanoid.</i>	
Makino, Shogo (The Univ. of Tokyo), Kawaharazuka, Kento (The Univ. of Tokyo), Kawamura, Masaya (The Univ. of Tokyo), Asano, Yuki (The Univ. of Tokyo), Okada, Kei (The Univ. of Tokyo), Inaba, Masayuki (The Univ. of Tokyo)	
15:45-16:00	MoBT11.6
<i>Design of Passive Joint of Underactuated Modular Soft Hands for Fingertip Trajectory Tracking.</i>	
Salviotti, Gionata (Univ. of Siena), Hussain, Irfan (Univ. of Siena, SIRS Lab), Malvezzi, Monica (Univ. of Siena), Prattichizzo, Domenico (Univ. Di Siena)	

MoBT12	Room 208
Soft Material Robotics II	
Chair: Yeow, Chen-Hua	National Univ. of Singapore
Co-Chair: Deimel, Raphael	TU Berlin
14:30-14:45	MoBT12.1
<i>Designing Systems of Fiber Reinforced Pneumatic Actuators Using a Pseudo-Rigid Body Model.</i>	
Satheeshbabu, Sreeshankar (Univ. of Illinois Urbana Champaign), Krishnan, Girish (Univ. of Illinois Urbana Champaign)	
14:45-15:00	MoBT12.2
<i>Toward a New Force Sensor for Twisted String Actuator: A Study about the Force on Separator.</i>	
Gu, Yunjin (KTH Royal Inst. of Tech), Ingvast, Johan (Bioservo Tech. AB), Wikander, Jan (Royal Inst. of Tech. -KTH)	
15:00-15:15	MoBT12.3
<i>Automated Co-Design of Soft Hand Morphology and Control Strategy for Grasping.</i>	
Deimel, Raphael (TU Berlin), Irmisch, Patrick (Tech. Univ. Berlin), Wall, Vincent (TU Berlin), Brock, Oliver (Tech. Univ. Berlin)	
15:15-15:30	MoBT12.4
<i>Print-It-Yourself (PIY) Glove: A Fully 3D Printed Soft Robotic Hand Rehabilitative and Assistive Exoskeleton for Stroke Patients.</i>	
Ang, Benjamin Wee Keong (NUS), Yeow, Chen-Hua (National Univ. of Singapore)	
15:30-15:45	MoBT12.5
<i>Practical Control Methods for Vacuum Driven Soft Actuator Modules.</i>	
Robertson, Matthew (EPFL), Paik, Jamie (Ec. Pol. Federale De Lausanne)	
15:45-16:00	MoBT12.6
<i>Fatigue Strength of Laser Sintered Flexure Hinge Structures for Soft Robotic Applications.</i>	
Krieger, Yannick S. (Tech. Univ. München), Kuball, Clara-Maria (Tech. Univ. München), Rumschoettel, Dominik (Tech. Univ. München), Dietz, Christian (Tech. Univ. München), Pfeiffer, Jonas H. (Tech. Univ. Munich), Roppenecker, Daniel B. (Tech. Univ. München), Lueth, Tim C. (Tech. Univ. München)	

MoBT13	Room 211
Dexterous Manipulation	
Chair: Watanabe, Tetsuyou	Kanazawa Univ
Co-Chair: Smith, Claes Christian	KTH Royal Inst. of Tech
14:30-14:45	MoBT13.1
<i>Thin Plate Manipulation by an Under-Actuated Robotic Soft Gripper Utilizing the Environment.</i>	
Nishimura, Toshihiro (Kanazawa Univ), Mizushima, Kaori (Kanazawa Univ), Suzuki, Yosuke (Kanazawa Univ), Tsuji, Tokuo (Kanazawa Univ), Watanabe, Tetsuyou (Kanazawa Univ)	
14:45-15:00	MoBT13.2
<i>In-Hand Manipulation Using Three-Stages Open Loop Pivoting.</i>	
Cruciani, Silvia (KTH Royal Inst. of Tech), Smith, Claes Christian (KTH Royal Inst. of Tech)	
15:00-15:15	MoBT13.3
<i>Feedback Motion Planning for Liquid Pouring.</i>	
Pan, Zherong (The Univ. of North Carolina at Chapel Hill), Manocha, Dinesh (Univ. of North Carolina at Chapel Hill)	
15:15-15:30	MoBT13.4
<i>Precise Dispensing of Liquids Using Visual Feedback.</i>	
Kennedy, Monroe (Univ. of Pennsylvania), Queen, Kendall (Univ. of Pennsylvania), Thakur, Dinesh (Univ. of Pennsylvania), Daniilidis, Kostas (Univ. of Pennsylvania), Kumar, Vijay (Univ. of Pennsylvania)	
15:30-15:45	MoBT13.5
<i>Real-Time Robust Finger Gaits Planning under Object Shape and Dynamics Uncertainties.</i>	
Fan, Yongxiang (Univ. of California, Berkeley), Tang, Te (Univ. of California, Berkeley), Lin, Hsien-Chung (Univ. of California, Berkeley), Zhao, Yu (Univ. of California, Berkeley), Tomizuka, Masayoshi (Univ. of California)	
15:45-16:00	MoBT13.6
<i>Covering a Robot Fingertip with Uskin: A Soft Electronic Skin with Distributed 3-Axis Force Sensitive Elements for Robot Hands.</i>	
Tomo, Tito Pradhono (Waseda Univ), Schmitz, Alexander (Waseda Univ), Wong, Wai Keat (Waseda Univ), Kristanto, Harris (Waseda Univ), Somlor, Sophon (Waseda Univ), Hwang, Jinsun (Waseda Univ), Jamone, Lorenzo (Queen Mary Univ. London), Sugano, Shigeki (Waseda Univ)	

MoBT14		Room 217
Visual-Based Navigation		
Chair: Bauer-Wersing, Ute	Frankfurt Univ. of Applied Sciences	
Co-Chair: Kakogawa, Atsushi	Ritsumeikan Univ	
14:30-14:45		MoBT14.1
<i>Visual Homing by Robust Interpolation for Sparse Motion Flow.</i>		
Zhao, Ji (ReadSense Ltd), Ma, Jiayi (Wuhan Univ)		
14:45-15:00		MoBT14.2
<i>Combining Points and Lines for Camera Pose Estimation and Optimization in Monocular Visual Odometry.</i>		
Li, Haoang (Wuhan Univ), Yao, Jian (Wuhan Univ), Lu, Xiaohu (Wuhan Univ), Wu, Junlin (Wuhan Univ)		
15:00-15:15		MoBT14.3
<i>Robust Edge-Based Visual Odometry Using Machine-Learned Edges.</i>		
Schenk, Fabian (Graz Univ. of Tech), Fraundorfer, Friedrich (Graz Univ. of Tech)		
15:15-15:30		MoBT14.4
<i>Anisotropic Shadow-Based Operation Assistant for a Pipeline-Inspection Robot Using a Single Illuminator and Camera.</i>		
Kakogawa, Atsushi (Ritsumeikan Univ), Komurasaki, Yuki (Ritsumeikan Univ), Ma, Shugen (Ritsumeikan Univ)		
15:30-15:45		MoBT14.5
<i>Efficient Navigation Using Slow Feature Gradients.</i>		
Metka, Benjamin (Frankfurt Univ. of Applied Sciences), Franzius, Mathias (Honda Res. Inst. Europe (HRI-EU)), Bauer-Wersing, Ute (Frankfurt Univ. of Applied Sciences)		
15:45-16:00		MoBT14.6
<i>Omnidirectional Visual-Inertial Odometry Using Multi-State Constraint Kalman Filter.</i>		
Ramezani, Milad (The Univ. of Melbourne), Khoshelham, Kourosh (The Univ. of Melbourne), Kneip, Laurent (ANU)		

MoBT15		Room 215
Collision Avoidance		
Co-Chair: Liu, Miao		IBM
14:30-14:45		MoBT15.1
<i>DROAN – Disparity-Space Representation for Obstacle Avoidance.</i>		
Dubey, Geetesh (Carnegie Mellon Univ), Arora, Sankalp (Carnegie Mellon Univ), Scherer, Sebastian (Carnegie Mellon Univ)		
14:45-15:00		MoBT15.2
<i>Tentacle-Based Moving Obstacle Avoidance for Omnidirectional Robots with Visibility Constraints.</i>		
KHELLOUFI, Abdellah (Centre De Développement Des Tech. Avancées CDTA), Achour, Nouara (USTHB), Passama, Robin (LIRMM (CNRS, Univ. Montpellier 2)), Cherubini, Andrea (LIRMM - Univ. De Montpellier CNRS)		
15:00-15:15		MoBT15.3
<i>Real-Time Pose Estimation on Elevation Maps for Wheeled Vehicles.</i>		
Jordan, Julian (Univ. of Tuebingen), Zell, Andreas (Univ. of Tübingen)		
15:15-15:30		MoBT15.4
<i>Socially Aware Motion Planning with Deep Reinforcement Learning.</i>		
Chen, Yufan (Massachusetts Inst. of Tech), Everett, Michael (Massachusetts Inst. of Tech), Liu, Miao (MIT), How, Jonathan Patrick (Massachusetts Inst. of Tech)		
15:30-15:45		MoBT15.5
<i>Provably Safe Motion of Mobile Robots in Human Environments.</i>		
Liu, Stefan Bosen (Tech. Univ. München), Roehm, Hendrik (Robert Bosch GmbH), Heinzemann, Christian (Robert Bosch GmbH), Lütkebohle, Ingo (Robert Bosch GmbH), Oehlerking, Jens (Robert Bosch GmbH), Althoff, Matthias (Tech. Univ. München)		
15:45-16:00		MoBT15.6
<i>Aggressive Collision Avoidance with Limited Field-Of-View Sensing.</i>		
Lopez, Brett (Massachusetts Inst. of Tech), How, Jonathan Patrick (Massachusetts Inst. of Tech)		

MoBT16	Room 220
Mapping II	
Chair: Vidal-Calleja, Teresa A.	Univ. of Tech. Sydney
Co-Chair: Lilienthal, Achim J.	Örebro Univ
14:30-14:45	MoBT16.1
<i>Voxblox: Incremental 3D Euclidean Signed Distance Fields for On-Board MAV Planning.</i>	
Oleynikova, Helen (ETH Zürich), Taylor, Zachary Jeremy (ETH Zürich), Fehr, Marius (ETH Zürich), Siegwart, Roland (ETH Zurich), Nieto, Juan (ETH Zürich)	
14:45-15:00	MoBT16.2
<i>Building Maps for Autonomous Navigation Using Sparse Visual SLAM Features.</i>	
Ling, Yonggen (The Hong Kong Univ. of Science and Tech), Shen, Shaojie (Hong Kong Univ. of Science and Tech)	
15:00-15:15	MoBT16.3
<i>Multiresolution Mapping and Informative Path Planning for UAV-Based Terrain Monitoring.</i>	
Popovic, Marija (ETH Zurich), Vidal-Calleja, Teresa A. (Univ. of Tech. Sydney), Hitz, Gregory (ETH Zurich), Sa, Inkyu (ETH Zurich), Siegwart, Roland (ETH Zurich), Nieto, Juan (ETH Zürich)	
15:15-15:30	MoBT16.4
<i>Incorporating Ego-Motion Uncertainty Estimates in Range Data Registration.</i>	
Andreasson, Henrik (Örebro Univ), Adolfsson, Daniel (Örebro Univ), Stoyanov, Todor (Örebro Univ), Magnusson, Martin (Örebro Univ), Lilienthal, Achim J. (Örebro Univ)	
15:30-15:45	MoBT16.5
<i>Autonomous Robotic Exploration Based on Multiple Rapidly-Exploring Randomized Trees.</i>	
Umari, Hassan (American Univ. of Sharjah), Mukhopadhyay, Shayok (American Univ. of Sharjah)	
15:45-16:00	MoBT16.6
<i>Mapping under Changing Trajectory Estimates.</i>	
Llofriu, Martin (Univ. of South Florida), Fong, Philip (Irobot), Karapetyan, Vazgen (Irobot), Munich, Mario Enrique (Irobot)	

MoBT17		Room 221
Humanoid Sensing		
Co-Chair: Fantacci, Claudio	Istituto Italiano Di Tecnologia	
14:30-14:45	MoBT17.1	
<i>Visual End-Effector Tracking Using a 3D Model-Aided Particle Filter for Humanoid Robot Platforms.</i>		
Fantacci, Claudio (Istituto Italiano Di Tecnologia), Pattacini, Ugo (Istituto Italiano Di Tecnologia), Tikhonoff, Vadim (Italian Inst. of Tech), Natale, Lorenzo (Istituto Italiano Di Tecnologia)		
14:45-15:00	MoBT17.2	
<i>Direct Visual SLAM Fusing Proprioception for a Humanoid Robot.</i>		
Scona, Raluca (Univ. of Edinburgh), Nobili, Simona (Univ. of Edinburgh), Petillot, Yvan R. (Heriot-Watt Univ), Fallon, Maurice (Univ. of Edinburgh)		
15:00-15:15	MoBT17.3	
<i>Autonomous View Selection and Gaze Stabilization for Humanoid Robots.</i>		
Grotz, Markus (Karlsruhe Inst. of Tech. (KIT)), Habra, Timothee (UCL), Ronsse, Renaud (Univ. Catholique De Louvain), Asfour, Tamim (Karlsruhe Inst. of Tech. (KIT))		
15:15-15:30	MoBT17.4	
<i>A Torque-Controlled Humanoid Robot Riding on a Two-Wheeled Mobile Platform.</i>		
Xin, Songyan (Istituto Italiano Di Tecnologia (IIT)), You, Yangwei (Istituto Italiano Di Tecnologia), Zhou, Chengxu (Fondazione Istituto Italiano Di Tecnologia), Fang, Cheng (Fondazione Istituto Italiano Di Tecnologia), Tsagarakis, Nikos (Istituto Italiano Di Tecnologia)		
15:30-15:45	MoBT17.5	
<i>A Method for Robust Robotic Bipedal Walking on Rough Terrain: L1-Optimal Event-Based Feedback Controller.</i>		
Lee, Jongwoo (Korea Inst. of Science and Tech), Kim, Jung Hoon (Korea Inst. of Science and Tech), Oh, Yonghwan (Korea Inst. of Science & Tech. (KIST))		
15:45-16:00	MoBT17.6	
<i>Real-Time Path Planning in Unknown Environments for Bipedal Robots.</i>		
Hildebrandt, Arne-Christoph (Tech. Univ. München), Klischat, Moritz (Tech. Univ. of Munich), Wahrmann, Daniel (Tech. Univ. München), Wittmann, Robert (Tech. Univ. München), Sygulla, Felix (Tech. Univ. of Munich), Seiwald, Philipp (Tech. Univ. of Munich), Rixen, Daniel (Tech. Univ. München), Buschmann, Thomas (Google, Inc)		

MoBT18	Room 223
Calibration I	
Chair: Waslander, Steven Lake	Univ. of Waterloo
Co-Chair: Siciliano, Bruno	Univ. Napoli Federico II
14:30-14:45	MoBT18.1
<i>Mirror-Assisted Calibration of a Multi-Modal Sensing Array with a Ground Penetrating Radar and a Camera.</i>	
Chou, Chieh (Texas A&M Univ), Yeh, Shu-Hao (Texas A&M Univ), Song, Dezhen (Texas A&M Univ)	
14:45-15:00	MoBT18.2
<i>Modelling and Identification of the Da Vinci Research Kit Robotic Arms.</i>	
Fontanelli, Giuseppe Andrea (Univ. of Naples Federico II), Ficuciello, Fanny (Univ. Di Napoli Federico II), Villani, Luigi (Univ. Di Napoli Federico II), Siciliano, Bruno (Univ. Napoli Federico II)	
15:00-15:15	MoBT18.3
<i>Simultaneous Hand-Eye Calibration and Reconstruction.</i>	
Zhi, Xiangyang (ShanghaiTech Univ), Schwertfeger, Sören (ShanghaiTech Univ)	
15:15-15:30	MoBT18.4
<i>New Method for Decoupling the Articular Stiffness Identification : Application to an Industrial Robot with Double Encoding System on Its 3 First Axis.</i>	
Ambiehl, Alexandre (Univ. of Nantes/IRCCyN), Garnier, Sébastien (LS2N/Univ. of Nantes), Subrin, Kévin (Univ. De Nantes / LS2N), Furet, Benoît (IRCCyN)	
15:30-15:45	MoBT18.5
<i>Autonomous Active Calibration of a Dynamic Camera Cluster Using Next-Best-View.</i>	
Rebello, Jason (Univ. of Waterloo), Das, Arun (Univ. of Waterloo), Waslander, Steven Lake (Univ. of Waterloo)	
15:45-16:00	MoBT18.6
<i>Extrinsic Multi-Sensor Calibration for Mobile Robots Using the Gauss-Helmert Model.</i>	
Huang, Kaihong (Univ. of Bonn), Stachniss, Cyrill (Univ. of Bonn)	

MoCT1		Room 109
Deep Learning in Robotics and Automation III		
Chair: Khorrami, Farshad	New York Univ. Tandon School of Engineering	
Co-Chair: Ryoo, Michael S.	Indiana Univ. Bloomington	
16:30-16:45	MoCT1.1	
<i>Learning Robot Activities from First-Person Human Videos Using Convolutional Future Regression.</i>		
Lee, Jangwon (Indiana Univ), Ryoo, Michael S. (Indiana Univ. Bloomington)		
16:45-17:00	MoCT1.2	
<i>Joint Prediction of Depths, Normals and Surface Curvature from RGB Images Using CNNs.</i>		
Dharmasiri, Thanuja (Monash Univ), Spek, Andrew (Monash Univ), Drummond, Tom (Monash Univ)		
17:00-17:15	MoCT1.3	
<i>3D Fully Convolutional Network for Vehicle Detection in Point Cloud.</i>		
Li, Bo (Trunk Inc)		
17:15-17:30	MoCT1.4	
<i>Recursive Neural Network Based Semantic Navigation of an Autonomous Mobile Robot through Understanding Human Verbal Instructions.</i>		
Luo, Ren (National Taiwan Univ), Chen, Chang-Jiun (National Taiwan Univ)		
17:30-17:45	MoCT1.5	
<i>Deep Regression for Monocular Camera-Based 6-DoF Global Localization in Outdoor Environments.</i>		
Naseer, Tayyab (Univ. of Freiburg), Burgard, Wolfram (Univ. of Freiburg)		
17:45-18:00	MoCT1.6	
<i>Sensor Modality Fusion with CNNs for UGV Autonomous Driving in Indoor Environments.</i>		
Patel, Naman (New York Univ. Tandon School of Engineering), Choromanska, Anna (New York Univ. Tandon School of Engineering), Krishnamurthy, Prashanth (New York Univ. Tandon School of Engineering), Khorrami, Farshad (New York Univ. Tandon School of Engineering)		

MoCT2		Room 111
Learning and Adaptive Systems III		
Chair: Smart, William		Oregon State Univ
Co-Chair: Clavera, Ignasi		Univ. of California, Berkeley
16:30-16:45		MoCT2.1
<i>Policy Transfer Via Modularity and Reward Guiding.</i>		
Clavera, Ignasi (Univ. of California, Berkeley), Held, David (Univ. of California, Berkeley), Abbeel, Pieter (UC Berkeley)		
16:45-17:00		MoCT2.2
<i>Deep Dynamic Policy Programming for Robot Control with Raw Images.</i>		
Tsurumine, Yoshihisa (Nara Inst. of Science and Tech), CUI, Yunduan (Nara Inst. of Science and Tech), Uchibe, Eiji (ATR Computational Neuroscience Labs), Matsubara, Takamitsu (NAIST/ATR)		
17:00-17:15		MoCT2.3
<i>Addressing Appearance Change in Outdoor Robotics with Adversarial Domain Adaptation.</i>		
Wulfmeier, Markus (Univ. of Oxford), Bewley, Alex (Univ. of Oxford), Posner, Ingmar (Oxford Univ)		
17:15-17:30		MoCT2.4
<i>Autoencoders for Incremental Dimensionality Reduced Reinforcement Learning.</i>		
Curran, William (Oregon State Univ), Pocius, Rey (Oregon State Univ), Smart, William (Oregon State Univ)		
17:30-17:45		MoCT2.5
<i>Object Recall Using an Experience Database to Accelerate Robot Action Planning.</i>		
Redpath, Richard (Univ. of York), Timmis, Jon (Univ. of York), Trefzer, Martin (Univ. of York)		
17:45-18:00		MoCT2.6
<i>Tactile Motion Recognition with Convolutional Neural Networks.</i>		
Wu, Haoying (Wuhan Univ. of Tech), Jiang, Daimin (Wuhan Univ. of Tech), Gao, Hao (Wuhan Univ. of Tech)		

MoCT3	Room 116
Slam Iii	
Chair: Liu, Yong	Zhejiang Univ
Co-Chair: Chen, Jian	Zhejiang Univ
16:30-16:45	MoCT3.1
<i>An Invariant-EKF VINS Algorithm for Improving Consistency.</i>	
WU, KANZHI (Univ. of Tech. Sydney), Zhang, Teng (Univ. of Tech. Sydney), Su, Daobilige (Univ. of Sydney), Huang, Shoudong (Univ. of Tech. Sydney), Dissanayake, Gamini (Univ. of Tech. Sydney)	
16:45-17:00	MoCT3.2
<i>Large-Scale, Drift-Free SLAM Using Highly Robustified Building Model Constraints.</i>	
Salehi, Achkan (Commissariat à L'énergie Atomique), GAY-BELLILE, VINCENT (Cea List), BOURGEOIS, STEVE (Cea List), Allezard, Nicolas (Cea List), CHAUSSE, Frédéric (Inst. Pascal)	
17:00-17:15	MoCT3.3
<i>SPLoDE: Semi-Probabilistic Point and Line Odometry with Depth Estimation from RGB-D Camera Motion.</i>	
Proença, Pedro F. (Univ. of Surrey), Gao, Yang (Univ. of Surrey)	
17:15-17:30	MoCT3.4
<i>Ultra-Wideband Aided Fast Localization and Mapping System.</i>	
Wang, Chen (Nanyang Tech. Univ), Zhang, Handuo (Nanyang Tech. Univ), Nguyen, Thien-Minh (Nanyang Tech. Univ), Xie, Lihua (Nanyang Technological Univ)	
17:30-17:45	MoCT3.5
<i>A 2-Point Pose Estimation Algorithm for Monocular Visual Odometry of Ground Vehicles.</i>	
Gao, Yanyan (Zhejiang Univ), Chen, Jian (Zhejiang Univ), Zhang, Kaixiang (Zhejiang Univ), Jia, Bingxi (Zhejiang Univ)	
17:45-18:00	MoCT3.6
<i>Exploring the Effect of Meta-Structural Information on the Global Consistency of SLAM.</i>	
Henein, Mina (Australian National Univ), Abello, Montiel Gerardo (Australian National Univ), Ila, Viorela (Australian National Univ), Mahony, Robert (Australian National Univ)	

MoCT4	Room 114
Industrial Robots	
Chair: Maciejewski, Anthony A.	Colorado State Univ
Co-Chair: Guan, Yisheng	Guangdong Univ. of Tech
16:30-16:45	MoCT4.1
<i>Design of a Collaborative Architecture for Human-Robot Assembly Tasks.</i>	
El Makrini, Ilias (Vrije Univ. Brussel), Merckaert, Kelly (Vrije Univ. Brussel (VUB)), Lefeber, Dirk (Vrije Univ. Brussel - VUB), Vanderborcht, Bram (Vrije Univ. Brussel)	
16:45-17:00	MoCT4.2
<i>Adjustable Interaction Control Using Genetic Algorithm for Enhanced Coupled Dynamics in Tool-Part Contact.</i>	
Giardini Lahr, Gustavo Jose (Univ. of Sao Paulo), Garcia, Henrique Borges (Univ. of Sao Paulo), Savazzi, Jose Otavio (EMBRAER), Moretti, Caio Benatti (Univ. of Sao Paulo), Aroca, Rafael (Federal Univ. of São Carlos), Pedro, Leonardo Marquez (Federal Univ. of São Carlos), Franco Barbosa, Gustavo (Federal Univ. of Sao Carlos), Caurin, Glauco Augusto de Paula (Eesc - Usp)	
17:00-17:15	MoCT4.3
<i>Inverse Model Command Shaper for a Flexible Gantry Robot.</i>	
Tekles, Nikolas (German Aerospace Center), Krebs, Florian (German Aerospace Center), Reiner, Matthias (German Aerospace Center)	
17:15-17:30	MoCT4.4
<i>Robust Recognition of Tactile Gestures for Intuitive Robot Programming.</i>	
Kubus, Daniel (Tech. Univ. Braunschweig), Muxfeldt, Arne (Tech. Univ. Braunschweig), Kissener, Konrad (Tech. Univ. Braunschweig), Haus, Jan Niklas (Tech. Univ. Braunschweig), Steil, Jochen J. (Tech. Univ. Braunschweig)	
17:30-17:45	MoCT4.5
<i>Cooperative Robotic Soldering of Flexible PCBs.</i>	
Li, Xiang (The Chinese Univ. of Hong Kong), Su, Xing (The Chinese Univ. of Hong Kong), Liu, Yunhui (Chinese Univ. of Hong Kong)	
17:45-18:00	MoCT4.6
<i>Algebraic Estimation and Control of Single-Link Flexible Joint Robots.</i>	
Assanimoghaddam, Mehran (DLR, German Aerospace Center), Acquatella, Paul (DLR, German Aerospace Center)	

MoCT5	Room 118
Medical Robots and Systems I	
Chair: Kazanzides, Peter	Johns Hopkins Univ
Co-Chair: Desai, Jaydev P.	Georgia Inst. of Tech
16:30-16:45	MoCT5.1
<i>An Online System for Tracking the Performance of Parkinson's Patients.</i>	
Kuhner, Andreas (Univ. Freiburg), Schubert, Tobias (AIS Univ. Freiburg), Maurer, Christoph (Univ. of Freiburg Medical Center), Burgard, Wolfram (Univ. of Freiburg)	
16:45-17:00	MoCT5.2
<i>Development of a Double Arm Endoscopic Mini-Manipulator System for Transurethral Resection of Bladder Tumors (TURBT).</i>	
Coemert, Suat (Tech. Univ. of Munich), Kollmer, Markus (Tech. Univ. München), Olmeda, Mar (Tech. Univ. München), Krieger, Yannick S. (Tech. Univ. München), Brecht, Sandra V. (Tech. Univ. München), Lueth, Tim C. (Tech. Univ. München)	
17:00-17:15	MoCT5.3
<i>Mechanical Validation of an MRI Compatible Stereotactic Neurosurgery Robot in Preparation for Pre-Clinical Trials.</i>	
Nycz, Christopher J (Worcester Pol. Inst), Gondokaryono, Radian (Worcester Pol. Inst), Carvalho, Paulo (Worcester Pol. Inst), Patel, Niravkumar (WORCESTER Pol. Inst), Wartenberg, Marek (Worcester Pol. Inst), Pilitsis, Julie (Albany Medical Center), Fischer, Gregory Scott (Worcester Pol. Inst. WPI)	
17:15-17:30	MoCT5.4
<i>Design and Analysis of a Remotely-Actuated Cable-Driven Neurosurgical Robot.</i>	
Cheng, Shing Shin (Univ. of Maryland Coll. Park), Wang, Xuefeng (Georgia Inst. of Tech), Desai, Jaydev P. (Georgia Inst. of Tech)	
17:30-17:45	MoCT5.5
<i>Vision-Based Calibration of Dual RCM-Based Robot Arms in Human-Robot Collaborative Minimally Invasive Surgery.</i>	
Wang, Zerui (The Chinese Univ. of Hong Kong), Liu, Ziwei (The Chinese Univ. of Hong Kong), Ma, Qianli (The Johns Hopkins Univ), Cheng, Alexis (Johns Hopkins Univ), Liu, Yunhui (Chinese Univ. of Hong Kong), Kim, Sungmin (Johns Hopkins Univ), Deguet, Anton (Johns Hopkins Univ), Reiter, Austin (Johns Hopkins Univ), Kazanzides, Peter (Johns Hopkins Univ), Taylor, Russell H. (The Johns Hopkins Univ)	
17:45-18:00	MoCT5.6
<i>Improved Assistive Profile Tracking of Soft Exosuits for Walking and Jogging with Off-Board Actuation.</i>	
Lee, Giuk (Harvard Univ), Ding, Ye (Harvard Univ), Galiana, Ignacio (Harvard Univ), Karavas, Nikolaos (Harvard Univ), Zhou, Yu Meng (Harvard Univ), Walsh, Conor James (Harvard Univ)	

MoCT6	Room 121
Aerial Systems Applications II	
Chair: Iarrieu, Nicolas	Enac
Co-Chair: Ollero, Anibal	Univ. of Seville
16:30-16:45	MoCT6.1
<i>Design of a Robust Controller/Observer for TCP/AQM Network: First Application to Intrusion Detection Systems for Drone Fleet.</i>	
Iarrieu, Nicolas (Enac), Condomines, Jean-Philippe (ENAC Univ), Miquel, Thierry (ENAC), CHEMALI, Riad (Ec. Nationale De L'aviation Civile)	
16:45-17:00	MoCT6.2
<i>Tethered Flight Control of a Small Quadrotor Robot for Stippling.</i>	
Kry, Paul G. (McGill Univ. School of Computer Science), Galea, Brendan (McGill Univ)	
17:00-17:15	MoCT6.3
<i>Locally Optimal Trajectory Planning for Aerial Manipulation in Constrained Environments.</i>	
Seo, Hoseong (Seoul National Univ), Kim, Suseong (Seoul National Univ), Kim, H. Jin (Seoul National Univ)	
17:15-17:30	MoCT6.4
<i>REDBEE: A Visual-Inertial Drone System for Real-Time Moving Object Detection.</i>	
Huang, Chong (Univ. of California, Santa Barbara), Chen, Peng (Zhejiang Univ. of Tech), Yang, Xin (Huazhong Univ. of Science and Tech), Cheng, Kwang-Ting (Tim) (Hong Kong Univ. of Science and Tech)	
17:30-17:45	MoCT6.5
<i>An Autonomous Vision-Based Target Tracking System for Rotorcraft Unmanned Aerial Vehicles.</i>	
Cheng, Hui (Sun Yat-Sen Univ), Lin, Lishan (Sun Yet-Sen Univ), Zheng, Zhuoqi (Sun Yat-Sen Univ), Guan, Yuwei (Sun Yet-Sen Univ), Liu, Zhongchang (Sun Yat-Sen Univ)	
17:45-18:00	MoCT6.6
<i>Energy-Efficient Trajectory Generation with Spline Curves Considering Environmental and Dynamic Constraints for Small UAS.</i>	
Rodriguez Salazar, Leopoldo (Univ. De Sevilla), Balampanis, Fotios (Univ. De Sevilla), Cobano, Jose A. (Univ. of Seville), Maza, Ivan (Univ. of Seville), Ollero, Anibal (Univ. of Seville)	

MoCT7	Room 122
Slam II	
Chair: Civera, Javier	Univ. De Zaragoza
Co-Chair: Yang, Ming	Shanghai Jiao Tong Univ
16:30-16:45	MoCT7.1
<i>Direct Visual Odometry for a Fisheye-Stereo Camera.</i>	
Liu, Peidong (ETH Zurich), Heng, Lionel (DSO National Lab), Sattler, Torsten (ETH Zurich), Geiger, Andreas (Max Planck Inst. for Intelligent Systems, Tübingen), Pollefeys, Marc (ETH Zurich)	
16:45-17:00	MoCT7.2
<i>Single-View and Multi-View Depth Fusion.</i>	
Fácil, José M. (Univ. De Zaragoza), Concha, Alejo (Univ. De Zaragoza), Montesano, Luis (Univ. De Zaragoza), Civera, Javier (Univ. De Zaragoza)	
17:00-17:15	MoCT7.3
<i>Depth Enhanced Visual-Inertial Odometry Based on Multi-State Constraint Kalman Filter.</i>	
Pang, Fumin (Segway Robotics Inc), Chen, Zichong (Segway Robotics Inc), Pu, Li (Segway Robotics Inc), Wang, Tianmiao (Beihang Univ)	
17:15-17:30	MoCT7.4
<i>Shape Priors for Real-Time Monocular Object Localization in Dynamic Environments.</i>	
Jatavallabhula, Krishna Murthy (International Inst. of Information Tech. Hyderabad), Sharma, Sarthak (International Inst. of Information Tech), Krishna, Madhava (IIIT Hyderabad)	
17:30-17:45	MoCT7.5
<i>Robust Visual SLAM with Point and Line Features.</i>	
Zuo, Xingxing (Zhejiang Univ), Xie, Xiaojia (Zhejiang Univ), Liu, Yong (Zhejiang Univ), Huang, Guoquan (Univ. of Delaware)	
17:45-18:00	MoCT7.6
<i>Model-Aided Monocular Visual-Inertial State Estimation and Dense Mapping.</i>	
Qiu, Kejie (The Hong Kong Univ. of Science and Tech), Shen, Shaojie (Hong Kong Univ. of Science and Tech)	

MoCT8	Room 202
Wearable Robots II	
Chair: Tan, Jindong	Univ. of Tennessee, Knoxville
Co-Chair: Hessinger, Markus	Tech. Univ. Darmstadt
16:30-16:45	MoCT8.1
<i>Development of Adjustable Knee Joint for Walking Assistance Devices.</i>	
Choi, Byung June (Samsung Advanced Inst. of Tech), Lee, Younbaek (Samsung Electronics Co., Ltd), Kim, Yong-Jae (Korea Univ. of Tech. and Education), Lee, Jongwon (Samsung Advanced Inst. of Tech), Lee, Minhyung (Samsung Advanced Inst. of Tech), Roh, Se-gon (Samsung Electronics Co., Ltd), Park, Young Jin (Samsung Advanced Inst. of Tech. (SAIT)), Kim, Kyungrock (Samsung Advanced Inst. of Tech. (SAIT)), Shim, Youngbo (Samsung Electronics)	
16:45-17:00	MoCT8.2
<i>Hybrid Carbon Fiber-Textile Compliant Force Sensors for High-Load Sensing in Soft Exosuits.</i>	
Araromi, Oluwaseun Adelowo (Harvard Univ), Walsh, Conor James (Harvard Univ), Wood, Robert (Harvard Univ)	
17:00-17:15	MoCT8.3
<i>A Multi-Functional Ankle Exoskeleton for Mobility Enhancement of Gait-Impaired Individuals and Seniors.</i>	
Choi, Hyundo (Samsung Electronics), Park, Young Jin (Samsung Advanced Inst. of Tech. (SAIT)), Seo, Keehong (Samsung Electronics Co., Ltd), Lee, Jusuk (Samsung Electronics Co., Ltd), Lee, Sang-Eui (Samsung Advanced Inst. of Tech), Shim, Youngbo (Samsung Electronics)	
17:15-17:30	MoCT8.4
<i>A Facial Wearable Robot for Supporting Eye Opening and Closure Movement.</i>	
Kozaki, Yuta (Univ. of Tsukuba), Suzuki, Kenji (Univ. of Tsukuba)	
17:30-17:45	MoCT8.5
<i>Kinematic Chain Based Multi-Joint Capturing Using Monocular Visual-Inertial Measurements.</i>	
Zhang, Yinlong (Shenyang Inst. of Automation, Chinese Acad. of Sciences), Wei, Liang (Shenyang Inst. of Automation, Chinese Acad. of Sciences), He, Hongsheng (Univ. of Tennessee), Tan, Jindong (Univ. of Tennessee, Knoxville)	
17:45-18:00	MoCT8.6
<i>Hybrid Position/Force Control of an Upper-Limb Exoskeleton for Assisted Drilling.</i>	
Hessinger, Markus (Tech. Univ. Darmstadt), Pingsmann, Markus (Tech. Univ. Darmstadt), Perry, Joel C. (Univ. of Idaho), Werthschützky, Roland (Univ. of Tech. Darmstadt), Kupnik, Mario (Tech. Univ. Darmstadt)	

MoCT9	Room 204
Multi-Robots II	
Chair: Prorok, Amanda	Univ. of Pennsylvania
Co-Chair: Rekleitis, Ioannis	Univ. of South Carolina
16:30-16:45	MoCT9.1
<i>Intrusion Detection for Stochastic Task Allocation in Robot Swarms.</i>	
Maushart, Florian (EPFL), Prorok, Amanda (Univ. of Pennsylvania), Hsieh, M. Ani (Univ. of Pennsylvania), Kumar, Vijay (Univ. of Pennsylvania)	
16:45-17:00	MoCT9.2
<i>Cooperative Coverage for Surveillance of 3D Structures.</i>	
Adaldo, Antonio (KTH Royal Inst. of Tech), Sharif Mansouri, Sina (Lulea Univ), Kanellakis, Christoforos (LTU), Dimarogonas, Dimos V. (KTH Royal Inst. of Tech), Johansson, Karl H. (Royal Inst. of Tech), Nikolakopoulos, George (Lulea Univ. of Tech)	
17:00-17:15	MoCT9.3
<i>Efficient Multi-Robot Coverage of a Known Environment.</i>	
Karapetyan, Nare (Univ. of South Carolina), Benson, Kelly (Univ. of South Carolina), McKinney, Chris (Univ. of South Carolina), Taslakian, Perouz (American Univ. of Armenia), Rekleitis, Ioannis (Univ. of South Carolina)	
17:15-17:30	MoCT9.4
<i>Learning for Multi-Robot Cooperation in Partially Observable Stochastic Environments with Macro-Actions.</i>	
Liu, Miao (MIT), Sivakumar, Kavinayan (Princeton Univ), Omidshafiei, Shayegan (Massachusetts Inst. of Tech), Amato, Christopher (Northeastern Univ), How, Jonathan Patrick (Massachusetts Inst. of Tech)	
17:30-17:45	MoCT9.5
<i>Simultaneous Task Allocation, Data Routing, and Transmission Scheduling in Mobile Multi-Robot Teams.</i>	
FEO, EDUARDO (DALLE MOLLE Inst. FOR ARTIFICIAL INTELLIGENCE (IDSIA)), Gambardella, Luca (USI-SUPSI), Di Caro, Gianni (Carnegie Mellon Univ. (CMU))	
17:45-18:00	MoCT9.6
<i>Privacy-Preserving Vehicle Assignment for Mobility-On-Demand Systems.</i>	
Prorok, Amanda (Univ. of Pennsylvania), Kumar, Vijay (Univ. of Pennsylvania)	

MoCT10	Room 205
Micro/Nano Robotics II	
Chair: Régnier, Stéphane	Univ. Pierre Et Marie Curie
Co-Chair: Yoon, Jungwon	Gyeongsang National Univ
16:30-16:45	MoCT10.1
<i>3D Closed-Loop Motion Control of Swimmer with Flexible Flagella at Low Reynolds Numbers.</i>	
Oulmas, Ali (Univ. of Pierre and Marie Curie), Andreff, Nicolas (Univ. De Franche Comté), Régnier, Stéphane (Univ. Pierre Et Marie Curie)	
16:45-17:00	MoCT10.2
<i>Image-Based Visual Servoing of Helical Microswimmers for Arbitrary Planar Path Following at Low Reynolds Numbers.</i>	
Guan, Yanming (Shenzhen Inst. of Advanced Tech. Chinese Acad. of Sc), Xu, Tiantian (Chinese Acad. of Sciences), Liu, Jia (ShenZhen Inst. of Advanced Tech. Chinese Acad. of S), Wu, Xinyu (CAS/CUHK)	
17:00-17:15	MoCT10.3
<i>High-Bandwidth 3D Force Feedback Optical Tweezers for Interactive Bio-Manipulation.</i>	
Yin, Munan (Univ. Pierre Et Marie Curie), Gerena, Edison (Univ. Pierre Et Mairie Curie), Pacoret, Cécile (Univ. Paris 6), HALIYO, Dogan Sinan (Univ. Pierre Et Marie Curie - Paris 6 - CNRS), Régnier, Stéphane (Univ. Pierre Et Marie Curie)	
17:15-17:30	MoCT10.4
<i>Development of a Real-Time 2D Magnetic Particle Imaging for Targeted Drug Delivery.</i>	
Lê, Tuấn Anh (School of Mechanical Engineering Gyeongsang National Univ), zhang, xingming (School of Mechanical Engineering Gyeongsang National Univ), Kafash Hoshier, Ali (Gyeongsang National Univ), Yoon, Jungwon (Gyeongsang National Univ)	
17:30-17:45	MoCT10.5
<i>Rotational Nanorobotic Manipulation System for Multi-Directional Defect Characterization Inside SEM.</i>	
wan, wenfeng (City Univ. of Hong Kong), Lu, Haojian (City Univ. of Hong Kong), Shen, Yajing (City Univ. of Hong Kong)	
17:45-18:00	MoCT10.6
<i>Swimming in Low Reynolds Numbers Using Planar and Helical Flagellar Waves.</i>	
Khalil, Islam S.M. (German Univ. in Cairo), Tabak, Ahmet Fatih (Max Planck Inst. for Intelligent Systems - Stuttgart), Abou Seif, Mohamed (German Univ. in Cairo), Klingner, Anke (German Univ. in Cairo), Adel, Barbara (German Univ. in Cairo), Sitti, Metin (Max-Planck Inst. for Intelligent Systems)	

MoCT11	Room 207
Grasping II	
Chair: Liarokapis, Minas	The Univ. of Auckland
Co-Chair: Cannella, Ferdinando	Istituto Italiano Di Tecnologia
16:30-16:45	MoCT11.1
<i>Dexterous Manipulation with Compliant Grasps and External Contacts.</i>	
Almeida, Diogo (Royal Inst. of Tech. KTH), Karayiannidis, Yiannis (Chalmers Univ. of Tech. & KTH Royal Insitute of Tech)	
16:45-17:00	MoCT11.2
<i>Surface Texture of Deformable Robotic Fingertips for a Stable Grasp under Both Dry and Wet Conditions.</i>	
Mizushima, Kaori (Kanazawa Univ), Nishimura, Toshihiro (Kanazawa Univ), Suzuki, Yosuke (Kanazawa Univ), Tsuji, Tokuo (Kanazawa Univ), Watanabe, Tetsuyou (Kanazawa Univ)	
17:00-17:15	MoCT11.3
<i>Regrasp Planning Using 10, 000s of Grasps.</i>	
Wan, Weiwei (National Inst. of AIST), Harada, Kensuke (Osaka Univ)	
17:15-17:30	MoCT11.4
<i>Analysis of Precision Grip Force for Ugripp (Underactuated Gripper for Power and Precision Grasp).</i>	
Kobayashi, Akinari (Tohoku Univ), Yamaguchi, Kengo (Tohoku Univ), Kinugawa, Jun (Tohoku Univ), Arai, Shogo (Tohoku Univ), Hirata, Yasuhisa (Tohoku Univ), Kosuge, Kazuhiro (Tohoku Univ)	
17:30-17:45	MoCT11.5
<i>Dexclar: A Gripper Platform for Payload-Centric Manipulation and Dexterous Applications.</i>	
Rahman, Nahian (Istituto Italiano Di Tecnologia), Carbonari, Luca (Univ. Pol. Delle Marche), Canali, Carlo (Department of Advanced Robotics, Istituto Italiano Di Tecnologia), Caldwell, Darwin G. (Istituto Italiano Di Tecnologia), Cannella, Ferdinando (Istituto Italiano Di Tecnologia)	
17:45-18:00	MoCT11.6
<i>Deriving Dexterous, In-Hand Manipulation Primitives for Adaptive Robot Hands.</i>	
Liarokapis, Minas (The Univ. of Auckland), Dollar, Aaron (Yale Univ)	

MoCT12		Room 208
Kinematics and Mechanisms		
Chair: Felton, Samuel		Northeastern Univ
Co-Chair: Markovic, Ivan		Univ. of Zagreb, Faculty of Electrical Engineering and Computing
16:30-16:45		MoCT12.1
<i>Sensor Concept for Solving the Direct Kinematics Problem of the Stewart-Gough Platform.</i>		
Schulz, Stefan (Hamburg Univ. of Tech), Seibel, Arthur (Hamburg Univ. of Tech), Schreiber, Daniel (Hamburg Univ. of Tech), Schlattmann, Josef (Hamburg Univ. of Tech)		
16:45-17:00		MoCT12.2
<i>Human Motion Estimation on Lie Groups Using IMU Measurements.</i>		
Joukov, Vladimir (Univ. of Waterloo), Cestic, Josip (Univ. of Zagreb, Faculty of Electrical Engineering and Comp), Westermann, Kevin (Univ. of Waterloo), Markovic, Ivan (Univ. of Zagreb, Faculty of Electrical Engineering and Comp), Kulic, Dana (Univ. of Waterloo), Petrovic, Ivan (Univ. of Zagreb)		
17:00-17:15		MoCT12.3
<i>An Analytic Approach to Converting POE Parameters into D-H Parameters for Serial-Link Robots.</i>		
Wu, Liao (Queensland Univ. of Tech), Crawford, Ross (Queensland Univ. of Tech), Roberts, Jonathan (Queensland Univ. of Tech)		
17:15-17:30		MoCT12.4
<i>A Self-Folding Robot Arm for Load-Bearing Operations.</i>		
Liu, Chang (Northeastern Univ), Felton, Samuel (Northeastern Univ)		
17:30-17:45		MoCT12.5
<i>Design and Analysis of the Bearingless Planetary Gearbox.</i>		
Georgiev, Nikola (Caltech), Burdick, Joel (California Inst. of Tech)		
17:45-18:00		MoCT12.6
<i>Planar Omnidirectional Crawler Mobile Mechanism - Development of Actual Mechanical Prototype and Basic Experiments -.</i>		
Tadakuma, Kenjiro (Tohoku Univ), Takane, Eri (Tohoku Univ), Fujita, Masahiro (Tohoku Univ), Komatsu, Hirone (Tohoku Univ), Nomura, Akito (Tohoku Univ), Konyo, Masashi (Tohoku Univ), Tadokoro, Satoshi (Tohoku Univ)		

MoCT13	Room 211
Motion and Path Planning I	
Chair: Bhattacharya, Sourabh	Iowa State Univ
Co-Chair: Seegmiller, Neal A.	Argo AI
16:30-16:45	MoCT13.1
<i>Efficient Sampling-Based Bottleneck Pathfinding Over Cost Maps.</i>	
Solovey, Kiril (Tel Aviv Univ), Halperin, Dan (Tel Aviv Univ)	
16:45-17:00	MoCT13.2
<i>RCAMP: A Resilient Communication-Aware Motion Planner for Mobile Robots with Autonomous Repair of Wireless Connectivity.</i>	
Caccamo, Sergio (KTH Royal Inst. of Tech), Parasuraman, Ramviyas (Purdue Univ), Freda, Luigi (Univ. of Rome "La Sapienza"), Gianni, Mario (La Sapienza Univ. of Rome), Ogren, Petter (Royal Inst. of Tech. (KTH))	
17:00-17:15	MoCT13.3
<i>The Maverick Planner: An Efficient Hierarchical Planner for Autonomous Vehicles in Unstructured Environments.</i>	
Seegmiller, Neal A. (Southwest Res. Inst), Johnson, Elliot (Northwestern Univ), Gassaway, Jason (Southwest Res. Inst), Towler, Jerry (Southwest Res. Inst)	
17:15-17:30	MoCT13.4
<i>Planning Energy-Efficient Trajectories in Strong Disturbances.</i>	
Jones, Dylan (Oregon State Univ), Hollinger, Geoffrey (Oregon State Univ)	
17:30-17:45	MoCT13.5
<i>Legged Motion Planning in Complex 3D Environments.</i>	
Short, Andrew (Univ. of Wollongong), Bandyopadhyay, Tirthankar (CSIRO)	
17:45-18:00	MoCT13.6
<i>Visibility-Based Target-Tracking Game: Bounds and Tracking Strategies.</i>	
Emadi, Hamid (Iowa State Univ), Gao, Tianshuang (Iowa State Univ), Bhattacharya, Sourabh (Iowa State Univ)	

MoCT14	Room 217
Motion Control I	
Chair: Lou, Yunjiang	Harbin Inst. of Tech. Shenzhen Graduate School
Co-Chair: Missura, Marcell	Univ. of Bonn
16:30-16:45	MoCT14.1
<i>Visual Feedback Control of Tensegrity Robotic Systems.</i>	
Karman, Haresh (Texas A&M Univ), Goyal, Raman (Texas A&M Univ), Majji, Manoranjan (Texas A&M Univ), Skelton, Robert E. (Univ. of California, San Diego), Singla, Puneet (State Univ. of New York at Buffalo)	
16:45-17:00	MoCT14.2
<i>Propagation of Joint Space Quantization Error to Operational Space Coordinates and Their Derivatives.</i>	
Colonnese, Nick (Oculus Res), Okamura, Allison M. (Stanford Univ)	
17:00-17:15	MoCT14.3
<i>Contouring Error Vector and Cross-Coupled Control of Multi-Axis Servo System.</i>	
Shi, Ran (School of Mechatronics Engineering and Automation, Harbin Inst), Lou, Yunjiang (Harbin Inst. of Tech. Shenzhen Graduate School), Zhang, Xiang (Harbin Inst. of Tech. Shenzhen)	
17:15-17:30	MoCT14.4
<i>Acceleration Control for Dynamic Manipulation of a Robot Turning Over Objects.</i>	
Tsuji, Toshiaki (Saitama Univ), Kutsuzawa, Kyo (Saitama Univ), Sakaino, Sho (Saitama Univ)	
17:30-17:45	MoCT14.5
<i>The Synchronized Holonomic Model: A Framework for Efficient Generation of Motion.</i>	
Missura, Marcell (Univ. of Bonn), Lee, Daniel D. (Univ. of Pennsylvania), von Stryk, Oskar (Tech. Univ. Darmstadt), Bennewitz, Maren (Univ. of Bonn)	
17:45-18:00	MoCT14.6
<i>Adaptive Trajectory Tracking Control for the Ball-Pendulum System with Time-Varying Uncertainties.</i>	
Bai, Yang (Kyushu Univ), Svinin, Mikhail (Ritsumeikan Univ), Yamamoto, Motoji (Kyushu Univ)	

MoCT15	Room 215
Biologically-Inspired Robots I	
Chair: Onal, Cagdas	WPI
Co-Chair: Kurabayashi, Daisuke	Tokyo Inst. of Tech
16:30-16:45	MoCT15.1
<i>Active-Braid, a Bio-Inspired Continuum Manipulator.</i>	
Hassan, Taimoor (Scuola Superiore Sant'Anna), Cianchetti, Matteo (Scuola Superiore Sant'Anna), Mazzolai, Barbara (Istituto Italiano Di Tecnologia), Laschi, Cecilia (Scuola Superiore Sant'Anna), Dario, Paolo (Scuola Superiore Sant'Anna)	
16:45-17:00	MoCT15.2
<i>Design and Analysis of an Origami Continuum Manipulation Module with Torsional Strength.</i>	
Santoso, Junius (WPI), Skorina, Erik (Worcester Pol. Inst), Luo, Ming (Worcester Pol. Inst), Yan, Ruibo (Worcester Pol. Inst), Onal, Cagdas (WPI)	
17:00-17:15	MoCT15.3
<i>Index Finger of a Human-Like Robotic Hand Using Thin Soft Muscles.</i>	
Mohd Faudzi, Ahmad Athif (Univ. Teknologi Malaysia), Ooga, Jun'ichiro (Toshiba Corp), GOTO, TATSUHIKO (Toshiba Corp), Takeichi, Masashi (Tokyo Inst. of Tech), Suzumori, Koichi (Tokyo Inst. of Tech)	
17:15-17:30	MoCT15.4
<i>Time-Varying Moth-Inspired Algorithm for Chemical Plume Tracing in Turbulent Environment.</i>	
Shigaki, Shunsuke (Tokyo Inst. of Tech), Sakurai, Takeshi (The Univ. of Tokyo), Ando, Noriyasu (Univ. of Tokyo), Kurabayashi, Daisuke (Tokyo Inst. of Tech), Kanzaki, Ryohei (The Univ. of Tokyo)	
17:30-17:45	MoCT15.5
<i>The Effect of Spine Morphology on Rapid Acceleration in Quadruped Robots.</i>	
Fisher, Callen (Univ. of Cape Town), Shield, Stacey Leigh (Univ. of Cape Town), Patel, Amir (Univ. of Cape Town)	
17:45-18:00	MoCT15.6
<i>Discrete Binary Muscle-Inspired Actuation with Motor Unit Overpowering and Binary Control Strategy.</i>	
Mathijssen, Glenn (Vrije Univ. Brussel), Furnémont, Raphaël (Vrije Univ. Brussel), Saerens, Elias (Vrije Univ. Brussel), Lefeber, Dirk (Vrije Univ. Brussel), Vanderborght, Bram (Vrije Univ. Brussel)	

MoCT16		Room 220
Autonomous Vehicle Navigation I		
Chair: Richards, Arthur		Univ. of Bristol
Co-Chair: Wickenheiser, Adam		The George Washington Univ
16:30-16:45		MoCT16.1
<i>Rapid Exploration with Multi-Rotors: A Frontier Selection Method for High Speed Flight.</i>		
Cieslewski, Titus (Univ. of Zurich), Kaufmann, Elia Marc (ETH Zürich), Scaramuzza, Davide (Univ. of Zurich)		
16:45-17:00		MoCT16.2
<i>Alignment of 3D Point Clouds with a Dominant Ground Plane.</i>		
Pandey, Gaurav (IIT - Kanpur), Giri, Shashank (Indian Inst. of Tech. Kanpur), McBride, James (Ford Motor Company)		
17:00-17:15		MoCT16.3
<i>Reactive Trajectory Generation in an Unknown Environment.</i>		
Cole, Kenan (The George Washington Univ), Wickenheiser, Adam (The George Washington Univ)		
17:15-17:30		MoCT16.4
<i>Cooperative Transport of a Buoyant Load: A Differential Geometric Approach.</i>		
Hajjighrarry, Hadi (Drexel Univ), Kularatne, Dhanushka (Drexel Univ), Hsieh, M. Ani (Univ. of Pennsylvania)		
17:30-17:45		MoCT16.5
<i>An Aerodynamic Model-Aided State Estimator for Multi-Rotor UAVs.</i>		
wang, Rongzhi (Shang Hai Jiao Tong Univ), Zou, Danping (Shanghai Jiao Tong Univ), xu, changqing (Shang Hai Jiao Tong Univ), Pei, Ling (Shanghai Jiao Tong Univ), Liu, Peilin (Shanghai Jiao Tong Univ), Yu, Wenxian (Shanghai Jiao Tong Univ)		
17:45-18:00		MoCT16.6
<i>Robot Navigation Using Convex Model Predictive Control and Approximate Operating Region Optimization.</i>		
Bali, Csaba (Univ. of Bristol), Richards, Arthur (Univ. of Bristol)		

MoCT17		Room 221
Force Control		
Co-Chair: Ryu, Jee-Hwan	Korea Univ. of Tech. and Education	
16:30-16:45	MoCT17.1	
<i>New Passivity Observers for Improved Robot Force Control.</i>		
Jorda, Mikael (Stanford Univ), Balachandran, Ribin (DLR), Ryu, Jee-Hwan (Korea Univ. of Tech. and Education), Khatib, Oussama (Stanford Univ)		
16:45-17:00	MoCT17.2	
<i>Momentum Control of Humanoid Robots with Series Elastic Actuators.</i>		
Nava, Gabriele (Istituto Italiano Di Tecnologia), Pucci, Daniele (Italian Inst. of Tech), Nori, Francesco (Istituto Italiano Di Tecnologia)		
17:00-17:15	MoCT17.3	
<i>Enhancing the Performance of Adaptive Iterative Learning Control with Reinforcement Learning.</i>		
Nemec, Bojan (Jozef Stefan Inst), Simonič, Mihael (Univ. of Tübingen), Likar, Nejc (Jozef Stefan Inst), Ude, Ales (Jozef Stefan Inst)		
17:15-17:30	MoCT17.4	
<i>Robot Self-Protection by Virtual Actuator Fatigue: Application to Tendon-Driven Dexterous Hands During Grasping.</i>		
Walck, Guillaume (Bielefeld Univ), Haschke, Robert (Bielefeld Univ), Meier, Martin (Bielefeld Univ), Ritter, Helge Joachim (Bielefeld Univ)		
17:30-17:45	MoCT17.5	
<i>A Robust Force Controller Design for Series Elastic Actuators.</i>		
SARIYILDIZ, Emre (Univ. of Wollongong), Yu, Haoyong (National Univ. of Singapore)		
17:45-18:00	MoCT17.6	
<i>BLDC Motor Current Control Using Filtered Single DC Link Current Based on Adaptive Extended Kalman Filter.</i>		
Oh, Jaesung (KAIST), Bae, HyoIn (KAIST, HuboLab), Jeong, Hyobin (KAIST), Lee, Kang Kyu (KAIST Hubolab), Oh, Jun Ho (Korea Advanced Inst. of Sci. and Tech)		

MoCT18		Room 223
Calibration II		
Chair: Behnke, Sven		Univ. of Bonn
Co-Chair: Ajoudani, Arash		Advanced Robotics Department
16:30-16:45		MoCT18.1
<i>A Low-Cost System for High-Rate, High-Accuracy Temporal Calibration for LIDARs and Cameras.</i>		
Sommer, Hannes (ETH Zürich), Khanna, Raghav (ETH Zurich), Gilitschenski, Igor (ETH Zurich), Taylor, Zachary Jeremy (ETH Zürich), Siegwart, Roland (ETH Zurich), Nieto, Juan (ETH Zürich)		
16:45-17:00		MoCT18.2
<i>Online Depth Calibration for RGB-D Cameras Using Visual SLAM.</i>		
Quenzel, Jan (Univ. of Bonn), Rosu, Radu Alexandru (Univ. of Bonn), Houben, Sebastian (Univ. of Bonn), Behnke, Sven (Univ. of Bonn)		
17:00-17:15		MoCT18.3
<i>Automatic Extrinsic Calibration of Depth Sensors with Ambiguous Environments and Restricted Motion.</i>		
Holtz, Jarrett (Univ. of Massachusetts, Amherst), Biswas, Joydeep (Univ. of Massachusetts Amherst)		
17:15-17:30		MoCT18.4
<i>Simultaneous Self-Calibration of Nonorthogonality and Nonlinearity of Cost-Effective Multi-Axis Inertially Stabilized Gimbal Systems.</i>		
Zhang, Fu (Hong Kong Univ. of Science and Tech)		
17:30-17:45		MoCT18.5
<i>Generalized Hebbian Algorithm for Wearable Sensor Rotation Estimation.</i>		
Joukov, Vladimir (Univ. of Waterloo), Lin, Jonathan (Univ. of Waterloo), Kulic, Dana (Univ. of Waterloo)		
17:45-18:00		MoCT18.6
<i>Online Model Based Estimation of Complete Joint Stiffness of Human Arm.</i>		
Fang, Cheng (Fondazione Istituto Italiano Di Tecnologia), Ajoudani, Arash (Advanced Robotics Department), Bicchi, Antonio (Istituto Italiano Di Tecnologia), Tsagarakis, Nikos (Istituto Italiano Di Tecnologia)		

MoAmPo	Ballroom Foyer
Monday Posters AM	
Chair: Lim, Angelica	SoftBank Robotics Europe
10:00-10:30	MoAmPo.1
<i>Haptic-Laparo Surgical Training System.</i>	
Nillahoot, Nantida (Mahidol Univ), Suthakorn, Jackrit (Mahidol Univ)	
10:00-10:30	MoAmPo.2
<i>Motion Segmentation Based on On-Line Non-Parametric Learning Using RGB-D Data.</i>	
Sun, Yuxiang (The Chinese Univ. of Hong Kong), Meng, Max Q.-H. (The Chinese Univ. of Hong Kong)	
10:00-10:30	MoAmPo.3
<i>Single Actuator Steerable Hexapod Robot with One-Way Bearing Transmission.</i>	
Jaeyoung, Jung (Yeungnam Univ), Junyeong, Jo (Yeungnam Univ), Kangmok, Lee (Yeungnam Univ), Suwon, Lee (Yeungnam Univ), Hongmin, Lee (Yeungnam Univ), Wonseok, Choi (Yeungnam Univ), Seo, TaeWon (Yeungnam Univ)	
10:00-10:30	MoAmPo.4
<i>Internal Transition of a Wall-Climbing Robot Using Detachable Connection.</i>	
Changmin, Park (Yeungnam Univ), Si Jun, Ryu (Yeungnam Univ), Liu, Yanheng (Yeungnam Univ), Hyeyun, Jeong (Yeungnam Univ), Seolgi, Song (Yeungnam Univ), Sangdo, Woo (Yeungnam Univ), Seo, TaeWon (Yeungnam Univ)	
10:00-10:30	MoAmPo.5
<i>Sparse Tracking and Dense Mapping in a Cloud Framework.</i>	
Zheng, Yali (Univ. of Electronic Science and Tech. of China), Chen, Shinan (UESTC), Cheng, Hong (Univ. of Electronic Science and Tech), Wang, Yang (UESTC)	
10:00-10:30	MoAmPo.6
<i>An Orientation-Independent, Soft Branch Climbing Robot Based Off Manduca Sexta.</i>	
Rozen-Levy, Shane (Tufts Univ), Trimmer, Barry (Tufts Univ)	
10:00-10:30	MoAmPo.7
<i>Active Position-Pose Estimation of Nuts Using a Monocular Eye-In-Hand System.</i>	
Feng, Junbing (Shandong Univ), Ma, Xin (Shandong Univ), Tan, Jindong (Univ. of Tennessee, Knoxville), Tian, Guohui (Shandong Univ), Gu, Jason (Dalhousie Univ), Li, Yibin (Shandong Univ)	
10:00-10:30	MoAmPo.8
<i>Design of a Smart Passive Compliance Device with a Displacement Measurement Function for Robotic Assembly.</i>	
Kim, Hwi-su (Korea Inst. of Machinery & Materials), Park, Dongil (Korea Inst. of Machinery and Materials (KIMM)), Park, Chanhun (KIMM)	
10:00-10:30	MoAmPo.9
<i>A Robot Motion Planning Algorithm in the Human Robot Coexisting Environment.</i>	
Chi, Wenzheng (The Chinese Univ. of Hong Kong), Meng, Max Q.-H. (The	

Chinese Univ. of Hong Kong)	
10:00-10:30	MoAmPo.10
<i>Fast Motion on Cartesian Paths by Exploiting Robot Redundancy at the Acceleration Level.</i>	
Al Khudir, Khaled (Sapienza Univ. of Rome), Gaz, Claudio Roberto (Sapienza Univ. of Rome), De Luca, Alessandro (Sapienza Univ. of Rome)	
10:00-10:30	MoAmPo.11
<i>Intuitive and Safe Teaching Device for Efficient Human-Robot Collaboration.</i>	
Do, Hyun Min (Korea Inst. of Machinery and Materials), Kim, Hwi-su (Korea Inst. of Machinery & Materials), Park, Dongil (Korea Inst. of Machinery and Materials (KIMM)), Choi, Taeyong (KIMM), Park, Chanhun (KIMM)	
10:00-10:30	MoAmPo.12
<i>A Methodology for Enabling Autonomy in Small-Scale Underwater Vehicles.</i>	
Tan, Yu Heng (National Univ. of Singapore), LIU, XIAODONG (Univ. of Singapore), Chen, Ben M. (National Univ. of Singapore)	
10:00-10:30	MoAmPo.13
<i>Experimental Evaluation of Aerial Attitude Control Unit with Reaction Wheels for Hopping Robots.</i>	
Nomura, Yurika (Tokyo Denki Univ), Ishikawa, Jun (Tokyo Denki Univ)	
10:00-10:30	MoAmPo.14
<i>TaskForce: A Framework for Task Design and Execution.</i>	
Strawser, Philip (NASA), Farrell, Logan (NASA: Johnson Space Center), Hambuchen, Kimberly (NASA Johnson Space Center), Goza, S. Michael (Nasa - Jsc), Azimi, Shaun (NASA), Badger, Julia (NASA Johnson Space Center)	
10:00-10:30	MoAmPo.15
<i>Autonomous Photometric 3D Surface Construction by Potential Field Motion Planning.</i>	
Um, Dugan (Texas A&M Univ. - CC), Grant, Darion (Univ. of East London), Shin, Jeongsik (The Univ. of Texas at Arlington), Lee, W.-H. (Corusen)	
10:00-10:30	MoAmPo.16
<i>CT Image-Based Urinary System Virtual Endoscopy.</i>	
Dai, Yu (Nankai Univ), Zhang, Jianxun (Nankai Univ)	
10:00-10:30	MoAmPo.17
<i>Subspace Projection-Based Collision Detection for Collaborative Robots While Conducting Interaction Tasks.</i>	
Ahn, Kuk Hyun (Korea Univ), Lee, Sang-Duck (Korea Univ), Song, Jae-Bok (Korea Univ)	
10:00-10:30	MoAmPo.18
<i>Surface Component Ratio Histogram for RGB-D SLAM in Indoor Environments with Low-Textured Scenes.</i>	
Chae, Hee-Won (Korea Univ), Yu, Hyejun (Korea Univ. Intelligent Robotics Lab), Song, Jae-Bok (Korea Univ)	
10:00-10:30	MoAmPo.19
<i>Roll It Up! a New Design Process for Miniaturized Force/Torque Sensors.</i>	
Hessinger, Markus (Tech. Univ. Darmstadt), Matich, Sebastian (Tech. Univ. Darmstadt), Werthschützky, Roland (Univ. of Tech. Darmstadt), Kupnik, Mario (Tech. Univ. Darmstadt), Hatzfeld, Christian (Tech. Univ. Darmstadt,	

Germany)	
10:00-10:30	MoAmPo.20
<i>Keypoint Matching with 3D3P Histogram Voting for Outlier Removal.</i>	
ZHENG, Fan (The Chinese Univ. of Hong Kong), Liu, Yunhui (Chinese Univ. of Hong Kong)	
10:00-10:30	MoAmPo.21
<i>A Use Case of Telepresence Robots for Science Communication.</i>	
Makita, Satoshi (National Inst. of Tech. Sasebo Coll), Maeda, Takano bu (National Inst. of Tech. Sasebo Coll)	
10:00-10:30	MoAmPo.22
<i>BRECCIA: Unified Probabilistic Dynamic Geospatial Intelligence.</i>	
Sacharny, David (Univ. of Utah), Henderson, Thomas C. (Univ. of Utah), Simmons, Robert (Univ. of Utah), Mitiche, Amar (Inst. National De La Recherche Scientifique (INRS)), Fan, Xiuyi (Nanyang Tech. Univ), Welker, Taylor (Univ. of Utah)	
10:00-10:30	MoAmPo.23
<i>Model-Free Policy Gradients for Multi-Agent Shape Formation.</i>	
Boroson, Elizabeth (Univ. of Southern California), Sha, Fei (Univ. of Southern California), Ayanian, Nora (Univ. of Southern California)	
10:00-10:30	MoAmPo.24
<i>A Collaborative Visual Assistant for Robot Operations in Unstructured or Confined Environments.</i>	
Xiao, Xuesu (Texas A&M Univ), Murphy, Robin (Texas A&M)	
10:00-10:30	MoAmPo.25
<i>Robotic Interventions in CERN Accelerators Harsh Environments.</i>	
DI CASTRO, Mario (CERN, European Organization for Nuclear Res), Masi, Alessandro (CERN (European Organization for Nuclear Res), Gilardoni, Simone (CERN (European Organization for Nuclear Res)	
10:00-10:30	MoAmPo.26
<i>Visual Shape Servoing of Deformable Objects: The Fundamentals.</i>	
Navarro-Alarcon, David (The Hong Kong Pol. Univ)	
10:00-10:30	MoAmPo.27
<i>Comparison of Mixed Linear Complementarity Problem Solvers in Multibody Simulations with Contact.</i>	
Enzenhofer, Andreas (McGill Univ), Andrews, Sheldon (McGill Univ), Teichmann, Marek (CMLabs Simulations Inc), Kovacs, Jozsef (McGill Univ)	
10:00-10:30	MoAmPo.28
<i>Kinematics Features for 3D Action Recognition Using CNN.</i>	
Wang, Jiangliu (The Chinese Univ. of Hong Kong), Liu, Yunhui (Chinese Univ. of Hong Kong)	
10:00-10:30	MoAmPo.29
<i>Change Detection in 3D Models Based on Camera Images.</i>	
Palazzolo, Emanuele (Univ. of Bonn), Stachniss, Cyrill (Univ. of Bonn)	
10:00-10:30	MoAmPo.30
<i>Networked Soft Actuators with Programmable Deformations.</i>	
Chen, Feifei (National Univ. of Singapore), Cao, Jiawei (NUS), Wang, Michael Yu (Hong Kong Univ. of Science & Tech), ZHU, Jian (National Univ. of	

Singapore), Zhang, Yunfeng (National Univ. of Singapore)	
10:00-10:30	MoAmPo.31
<i>Bidding for Attention: The Role of Mutual Gaze in Human-Humanoid Joint Attention.</i>	
Kompatsiari, Kyveli (Istituto Italiano Di Tecnologia), Tikhonoff, Vadim (Italian Inst. of Tech), Ciardo, Francesca (Istituto Italiano Di Tecnologia), Metta, Giorgio (Istituto Italiano Di Tecnologia (IIT)), Wykowska, Agnieszka (Ludwig-Maximilians-Univ. München and Tech. Univ)	
10:00-10:30	MoAmPo.32
<i>Dynamic Localization of Ambiguous Sounds by Drones.</i>	
Basiri, Meysam (IST-ID, Inst. Superior Tecnico), Floreano, Dario (Ec. Pol. Federal, Lausanne), Lima, Pedro U. (Inst. Superior Técnico - Inst. for Systems and Robotics)	
10:00-10:30	MoAmPo.33
<i>Exploring DeepQ Learning for Micro UAV Tree Avoidance.</i>	
Schmittle, Matt (Univ. of Delaware), Rasmussen, Christopher (Univ. of Delaware)	
10:00-10:30	MoAmPo.34
<i>Reducing the Risk of Slip While Transporting an Object in a Micro-Gravity Environment.</i>	
Carabis, David (1991), Wen, John (Rensselaer Pol. Inst)	
10:00-10:30	MoAmPo.35
<i>Discretized Caging Set of Three Dimensional Arbitrary Rigid Bodies and Multifingered Hands.</i>	
Makita, Satoshi (National Inst. of Tech. Sasebo Coll), Otsubo, Takuya (National Inst. of Tech. Sasebo Coll)	
10:00-10:30	MoAmPo.36
<i>Reinforcement Learning with Functional Module Network for Human Robot Interaction.</i>	
Ren, Haibing (Intel Labs China), Chen, Hu (Intel Labs China), Liu, Zhongxuan (Intel Labs China), Zhang, Yimin (Intel Corp)	
10:00-10:30	MoAmPo.37
<i>Design of a Large-Scale Soft Tactile Skin Using CNT-Coated Porous PDMS with a Trench Structure.</i>	
park, kyungseo (KAIST), Lee, Hyosang (KAIST), Kim, Jung (KAIST)	
10:00-10:30	MoAmPo.38
<i>Multi-Directional Controlled Actuator for Industrial and Bio-Medical Applications.</i>	
Gul, Jahan Zeb (Jeju National Univ), Choi, Kyung (Jeju National Univ)	
10:00-10:30	MoAmPo.39
<i>Development of the Inspection Robots for Power Transmission Lines from CASIA.</i>	
Yang, Guodong (Inst. of Automation, Chinese Acad. of Sciences), Chang, Wenkai (Inst. of Automation Chinese Acad. of Sciences), li, en (Inst. of Automation, Chinese Acad. of Sciences), liang, zize (Inst. of Automation, Chinese Acad. of Sciences)	
10:00-10:30	MoAmPo.40
<i>Development of Autonomous Palm-Sized Drone System for Chemical Leakage Source Search.</i>	

Shigaki, Shunsuke (Tokyo Inst. of Tech), Fikri, Muhamad Rausyan (Tokyo Inst. of Tech), Kurabayashi, Daisuke (Tokyo Inst. of Tech)	
10:00-10:30	MoAmPo.41
<i>Friendly Robotic Arms Which Controlled by Electroencephalography.</i>	
Wei, Yifan (Farragut High School), Jing, Yuchen (Farragut High School), Tan, Jindong (Univ. of Tennessee, Knoxville)	
10:00-10:30	MoAmPo.42
<i>Large Scale Deep Learning Based Camera Re-Localization Guided by Human's Map.</i>	
Liu, Zhongxuan (Intel Labs China)	
10:00-10:30	MoAmPo.43
<i>A Ring-Type Tactile Display with a Compact Pneumatic Drive Unit for a Laparoscopic Palpation System.</i>	
Fukuda, Tomohiro (Nagoya Inst. of Tech), Tanaka, Yoshihiro (Nagoya Inst. of Tech), Fujiwara, Michitaka (Nagoya Univ. Graduate School of Medicine), Sano, Akihito (Nagoya Inst. of Tech)	
10:00-10:30	MoAmPo.44
<i>Development of a Robot System Operated by Task-Level Commands for Power Distribution Line Maintenance.</i>	
Tatsuno, Kyoichi (Meijo Univ)	
10:00-10:30	MoAmPo.45
<i>Studying Effect of Expressive Light Animation on Human Perception and Behavior of Human-Machine Interaction.</i>	
Song, Sichao (The Graduate Univ. for Advanced Studies (SOKENDAI)), Yamada, Seiji (National Inst. of Informatics)	
10:00-10:30	MoAmPo.46
<i>Mechanism of a Wheel-Chair Type Mobility Robot Adapted to Escalators and Low-Floor Buses.</i>	
Takahata, Tomoyuki (The Univ. of Tokyo), Shimoyama, Isao (Univ. of Tokyo)	

MoPmPo	Ballroom Foyer
Monday Posters PM	
Chair: Lim, Angelica	SoftBank Robotics Europe
16:00-16:30	MoPmPo.1
<i>Robot Programming Using Tactile Gestures - a Preliminary Performance Comparison with MCP Programming.</i>	
Muxfeldt, Arne (Tech. Univ. Braunschweig), Kubus, Daniel (Tech. Univ. Braunschweig), Kissener, Konrad (Tech. Univ. Braunschweig), Steil, Jochen J. (Tech. Univ. Braunschweig)	
16:00-16:30	MoPmPo.2
<i>Extended Abstract: Visual Relocalization under Substantial Appearance Changes Using Hashing.</i>	
Vysotska, Olga (Univ. of Bonn), Stachniss, Cyrill (Univ. of Bonn)	
16:00-16:30	MoPmPo.3
<i>Multi-Modal Adaptive Person Identification.</i>	
Zhang, Pei (Intel), Duan, Fei (Intel), Sun, Hongmei (Intel), Zhang, Yimin (Intel Corp)	
16:00-16:30	MoPmPo.4
<i>Indoor Quadrotor Teleoperation: On-Board State-Estimation and Obstacle Avoidance.</i>	
Odelga, Marcin (Max Planck Inst. for Biological Cybernetics; Univ. of T), Stegagno, Paolo (Univ. of Rhode Island), Kochanek, Nicholas (Harvard Univ), Buelthoff, Heinrich H. (Max Planck Inst. for Biol. Cybernetics)	
16:00-16:30	MoPmPo.5
<i>Design and Control of a Squatting Assistance Knee Exoskeleton with Foot Pressure Sensors and Polycentric Joint.</i>	
Chen, Sung-Hua (Taiwan Univ), Chang, Jie-Min (National Chung-Shan Inst. of Science and Tech. Taiwan), Chang, Hsiao-Chung (National Chung-Shan Inst. of Science and Tech. Taiwan), Wang, Ting-Kuo (National Chung-Shan Inst. of Science and Tech. Taiwan)	
16:00-16:30	MoPmPo.6
<i>Wheeled Hopping Robot with Combustion Powered Actuator.</i>	
Mo, Jixue (Shenzhen Graduate School, Harbin Inst. of Tech), Miao, Zhihui (Shenzhen Graduate School, Harbin Inst. of Tech), Li, Bing (Shenzhen Graduate School, Harbin Inst. of Tech), HU, Ying (Shenzhen Inst. of Advanced Tech. ShenZhen, China)	
16:00-16:30	MoPmPo.7
<i>Real-Time Video Stabilization for UAVs Based Only on IMU Data.</i>	
Odelga, Marcin (Max Planck Inst. for Biological Cybernetics; Univ. of T), Kochanek, Nicholas (Harvard Univ), Buelthoff, Heinrich H. (Max Planck Inst. for Biol. Cybernetics)	
16:00-16:30	MoPmPo.8
<i>Observations of Feedback-Based Minimum Jerk Trajectories in Swing Gait Control.</i>	
Quinn, Nathan (Univ. of New Brunswick), Carretero, Juan A. (Univ. of New Brunswick), Sensinger, Jonathon (Univ. of New Brunswick)	
16:00-16:30	MoPmPo.9

<i>Design of a Multifingered Robotic Hand with a Large Thenar Link for a Special Power Grip.</i>	
Yoneda, Tomoo (Ritsumeikan Univ), Morihiro, Daiki (Ritsumeikan Univ), Ozawa, Ryuta (Ritsumeikan Univ)	
16:00-16:30	MoPmPo.10
<i>After You: Social Door Negotiation for Human-Human, Human-Robot and Robot-Robot Interaction.</i>	
Thomas, Jack (Simon Fraser Univ), Vaughan, Richard (Simon Fraser Univ)	
16:00-16:30	MoPmPo.11
<i>Collaborative Manipulation with Multiple Dual-Arm Robots under Human Guidance.</i>	
Peng, Yuan-Chih (Rensselaer Pol. Inst), Carabis, David (1991), Wen, John (Rensselaer Pol. Inst)	
16:00-16:30	MoPmPo.12
<i>Active Hearing and Automatic Speech Recognition for the MiRo Robot.</i>	
Mokaram, Saeid (The Univ. of Sheffield), Fernando, Samuel (The Univ. of Sheffield), Kerdegari, Hamideh (The Univ. of Sheffield), Barker, Jon (Univ. of Sheffield), Christensen, Heidi (Univ. of Sheffield), Prescott, Tony J (Univ. of Sheffield)	
16:00-16:30	MoPmPo.13
<i>Laser Micro-Machining As a Fabrication Method for Micro-Robots.</i>	
Ferguson, Alan (Oxford Lasers Ltd), Teitelman, Ted (Oxford Lasers, Inc), Coscia, Brian (Oxford Lasers Inc), Knowles, Martyn Richard Huw (Oxford Lasers Ltd)	
16:00-16:30	MoPmPo.14
<i>Flying Face Engagement: Aligning a UAV to Directly Face a Moving Uninstrumented User.</i>	
Nagy, Geoff (Simon Fraser Univ), Vaughan, Richard (Simon Fraser Univ)	
16:00-16:30	MoPmPo.15
<i>Information Model of Task Difficulty towards Intuitive Unstructured Human-In-Loop Robot Control.</i>	
Wang, Ziheng (The Univ. of Texas at Dallas), Majewicz, Ann (Univ. of Texas at Dallas)	
16:00-16:30	MoPmPo.16
<i>Online Detection of Needle Buckling During Robotic Needle Steering.</i>	
Narayan, Meenakshi (The Univ. of Texas at Dallas), Majewicz, Ann (Univ. of Texas at Dallas)	
16:00-16:30	MoPmPo.17
<i>A Robotic Framework to Overcome Sensory Overload in Children on the Autism Spectrum: A Pilot Study.</i>	
Javed, Hifza (George Washington Univ), Bevill, Rachael (The George Washington Univ), Jeon, Myounghoon (Michigan Tech. Univ), Howard, Ayanna (Georgia Inst. of Tech), Park, Chung Hyuk (George Washington Univ)	
16:00-16:30	MoPmPo.18
<i>Direct Sparse Depth Based Object Classification Method for Loop Closure Detection and Localization.</i>	
Yang, Eun-Sung (Chungbuk National Univ), Kim, Gon-Woo (Chungbuk National Univ)	

16:00-16:30	MoPmPo.19
<i>A Reduced Model for Dynamic Multi-Contact Locomotion of Humanoid Robots.</i>	
Seiwald, Philipp (Tech. Univ. of Munich), Hildebrandt, Arne-Christoph (Tech. Univ. München), Sygulla, Felix (Tech. Univ. of Munich), Rixen, Daniel (Tech. Univ. München)	
16:00-16:30	MoPmPo.20
<i>Learning Oriented 3D Object Proposals in RGBD Scenes.</i>	
Gao, Ge (Univ. of Hamburg), Lauri, Mikko (Univ. of Hamburg), Görner, Michael (Univ. of Hamburg), Zhang, Jianwei (Univ. of Hamburg), Frintrop, Simone (Univ. of Hamburg)	
16:00-16:30	MoPmPo.21
<i>A Reconfigurable Robot with Adaptive Shape Based on Tetrahedral Cells.</i>	
Pieber, Michael (Univ. Innsbruck), Gerstmayr, Johannes (Univ. Innsbruck, Inst. of Mechatronics)	
16:00-16:30	MoPmPo.22
<i>MURAB: A New Robotic System for High Precision Biopsy.</i>	
Maris, Bogdan Mihai (Univ. of Verona), Siepel, Françoise J (Univ. of Twente), Dall'Alba, Diego (Univ. of Verona), Groenhuis, Vincent (Univ. of Twente), Fiorini, Paolo (Univ. of Verona), Stramigioli, Stefano (Univ. of Twente)	
16:00-16:30	MoPmPo.23
<i>A Cable Driven Mechanism for a Continuously Tunable Stiffness Arm towards Safe Human-Robot Interactions.</i>	
She, Yu (The Ohio State Univ), Gu, Zhaoyuan (Tsinghua Univ), Su, Hai-Jun (The Ohio State Univ)	
16:00-16:30	MoPmPo.24
<i>Combining Gaussian Processes and Model Identification for Fast Robot Learning.</i>	
Chatzilygeroudis, Konstantinos (Inria Nancy Grand-Est), Mouret, Jean-Baptiste (Inria)	
16:00-16:30	MoPmPo.25
<i>Encroachment Detection with Monocular Vision for Small, Low-Cost, Compute-Constrained Platforms.</i>	
Johnson, Jeffrey (Indiana Univ)	
16:00-16:30	MoPmPo.26
<i>Wheel-Rail Adherence Evaluation Using Multispectral Approach.</i>	
NICODEME, Claire (Mines ParisTech), Stanculescu, Bogdan (Mines - ParisTech)	
16:00-16:30	MoPmPo.27
<i>The Energetic Effect of a Flexible Spine in Quadrupedal Robots.</i>	
Yesilevskiy, Yevgeniy (Univ. of Michigan, RMLab), Remy, C. David (Univ. of Michigan)	
16:00-16:30	MoPmPo.28
<i>A Novel Design of a Multi-Section Continuum Surgical Robot with Ability of Varying Section Sizes.</i>	
Singh, Akash (Visvesvaraya National Inst. of Tech), Sachdeva, Enna (IIIT Hyderabad)	
16:00-16:30	MoPmPo.29
<i>Dense Scene Depth Estimation Using an IMU Aided Monocular Camera.</i>	

Li, Yan (Univ. of Tennessee, Knoxville), He, Hongsheng (Univ. of Tennessee), Tan, Jindong (Univ. of Tennessee, Knoxville)	
16:00-16:30	MoPmPo.30
<i>A Bio-Inspired Celestial Compass for a Hexapod Walking Robot in Outdoor Environment.</i>	
Dupeyroux, Julien (Aix-Marseille Univ), Diperi, Julien (Aix-Marseille Univ. Biorobotic Dept. CNRS, ISM UMR 7287), Boyron, Marc (Aix-Marseille Univ. Biorobotic Dept. CNRS, ISM UMR 7287), Viollet, Stephane (Aix-Marseille Univ), serres, Julien (CNRS/ Univ. De La Mediterranée)	
16:00-16:30	MoPmPo.31
<i>Multi-Level Feature Extraction for 3D Lidar Based Graph-SLAM.</i>	
Kim, Do-Hyeong (Chungbuk National Univ), Kim, Gon-Woo (Chungbuk National Univ)	
16:00-16:30	MoPmPo.32
<i>Dual-Expanded Guide Circle Method for Passing through the Narrow Passage.</i>	
Yoo, Joong-Sun (Chungbuk National Univ), Kim, Gon-Woo (Chungbuk National Univ)	
16:00-16:30	MoPmPo.33
<i>Learning Tasks with Primitives Learning and Human Hand Tracking.</i>	
Feng, Rong (Univ. of Alberta), Perez Quintero, Camilo Alfonso (Univ. of Alberta), Valipour, Sepehr (Univ. of Alberta), Zhang, Hong (Univ. of Alberta), Jagersand, Martin (Univ. of Alberta)	
16:00-16:30	MoPmPo.34
<i>Analysis of Human Behavior for the Peg-In-Hole Assembly Extraction of Conscious and Unconscious Behaviors.</i>	
Hyung, Hyun-Jun (Korea Univ. of Science & Tech), Hogil, Lee (Korea Inst. of Industrial Tech), Dongwook, Lee (Korea Inst. of Industrial Tech)	
16:00-16:30	MoPmPo.35
<i>Disturbance Compensation Algorithm of a Dual-Arm Underwater Vehicle-Manipulator System with Redundant Mechanism Theory.</i>	
Bae, Jangho (The School of Mechanical and Aerospace Engineering, Seoul Nation), BAK, Jeongae (Seoul National Univ), Jin, Sangrok (Seoul National Univ), Kim, Jongwon (Seoul National Univ), Seo, TaeWon (Yeungnam Univ)	
16:00-16:30	MoPmPo.36
<i>Continuous Wrist Joint Control Using Muscle Deformation Measured on Forearm Skin.</i>	
Kato, Akira (Waseda Univ), Hirabayashi, Masato (Waseda Univ), Matsumoto, Yuya (Waseda Univ), Kobayashi, Yo (Osaka Univ), Fujie, Masakatsu G. (Waseda Univ), Sugano, Shigeki (Waseda Univ)	
16:00-16:30	MoPmPo.37
<i>Multi-Legged Robot with Suckers to Climb a Wall -Autonomous Control Using Passivity.</i>	
Saito, Asuki (Hosei Univ), Nagayama, Kazuki (Hosei Univ), Ito, Kazuyuki (Hosei Univ), Oomichi, Takeo (Meijo Univ), Ashizawa, Reiji (Meijo Univ), Matsuno, Fumitoshi (Kyoto Univ)	
16:00-16:30	MoPmPo.38
<i>Motion Path Planning for Ground Mobile Robot by Using Improved RRT* Algorithm.</i>	
Xu, Xiangrong (Anhui Univ. of Tech)	

16:00-16:30	MoPmPo.39
<i>Extracting Invariant Movement Signatures of a Robot-Link from IMU Sensor Cluster.</i>	
Krishnan, Rakesh (KTH (Royal Inst. of Tech), Cruciani, Silvia (KTH Royal Inst. of Tech), Björsell, Niclas (Univ. of Gävle), M. Gutierrez-Farewik, Elena (KTH Royal Inst. of Tech), Smith, Claes Christian (KTH Royal Inst. of Tech)	
16:00-16:30	MoPmPo.40
<i>Improved Discrete RRT for Coordinated Multi-Robot Planning.</i>	
Hvězda, Jakub (Czech Tech. Univ. in Prague), Kulich, Miroslav (Czech Tech. Univ. in Prague), Preucil, Libor (Czech Tech. Univ. in Prague)	
16:00-16:30	MoPmPo.41
<i>Human-Powered Stair Travelling Mobility Vehicle with Posture Transition Mechanism.</i>	
Sasaki, Kai (Univ. of Tsukuba), Suzuki, Kenji (Univ. of Tsukuba)	
16:00-16:30	MoPmPo.42
<i>Deep Concrete Inspection Using Unmanned Aerial Vehicle towards CSSC Database.</i>	
Yang, Liang (City Coll. of New York, CUNY), Li, Bing (The City Coll. the City Univ. of New York), Li, Wei (CUNY City Coll), Liu, Zhaoming (Shenyang Inst. of Automation, Chinese Acad. of Sciences), Yang, Guoyong (Chinese Acad. of Sciences), Xiao, Jizhong (The City Coll. of New York)	
16:00-16:30	MoPmPo.43
<i>Proposal of New Navigation Method Using Personal Mobility and Development of Optimal Personal Mobility.</i>	
Yamanaka, Kai (Shibaura Inst. of Tech), Sasaki, Takeshi (Shibaura Inst. of Tech), ISHII, Shinji (CHUO Univ), Hashimoto, Hideki (Chuo Univ)	
16:00-16:30	MoPmPo.44
<i>DehazeGAN: Simultaneous Hazing and Dehazing Networks Using Unpaired Image-To-Image Translation.</i>	
Cho, Younggun (Korea Advanced Inst. of Science and Tech), Malav, Ramavtar (IIT), Pandey, Gaurav (IIT - Kanpur), Kim, Ayoung (Korea Advanced Inst. of Science Tech)	
16:00-16:30	MoPmPo.45
<i>An Approach to Lower Limb Exoskeleton Control.</i>	
Yatsun, Sergey (Kursk State Tech. Univ.), Savin, Sergei (Southwest State Univ.), Yatsun, Andrey (Kursk state Tech. Univ.)	
16:00-16:30	MoPmPo.46
<i>On the Solvability of Dynamic Formulations for Multibody Systems with Contacts and Coulomb Friction.</i>	
Peiret, Albert (McGill Univ), Kovacs, Jozsef (McGill Univ), Font-Llagunes, Josep Maria (Univ. Pol. De Catalunya)	
16:00-16:30	MoPmPo.47
<i>Modelling Collectives Using RoboChart.</i>	
Miyazawa, Alvaro (Univ. of York), Cavalcanti, Ana (Univ. of York), Sampaio, Augusto (Univ. Federal De Pernambuco), Li, Wei (Univ. of York), Ribeiro, Pedro (Univ. of York), Timmis, Jon (Univ. of York)	

Technical Sessions
Tuesday September 26, 2017

TuAT1	Room 109
Deep Learning in Robotics and Automation IV	
Chair: Englot, Brendan	Stevens Inst. of Tech
Co-Chair: Chen, Zetao	ETH Zurich
10:30-10:45	TuAT1.1
<i>Deep Predictive Policy Training Using Reinforcement Learning.</i>	
Ghadirzadeh, Ali (KTH Royal Inst. of Tech), Maki, Atsuto (KTH Royal Inst. of Tech), Kragic, Danica (KTH), Björkman, Márten (KTH)	
10:45-11:00	TuAT1.2
<i>Transform Invariant Auto-Encoder.</i>	
Matsuo, Tadashi (Ritsumeikan Univ), Fukuhara, Hiroya (Ritsumeikan Univ), SHIMADA, NOBUTAKA (Ritsumeikan Univ)	
11:00-11:15	TuAT1.3
<i>Sensor Fusion for Robot Control through Deep Reinforcement Learning.</i>	
Bohez, Steven (Ghent Univ. - Imec), Verbelen, Tim (Ghent Univ. - Imec), De Coninck, Elias (Ghent Univ. - Imec), Vankeirsbilck, Bert (Ghent Univ. - Imec), Simoens, Pieter (Ghent Univ. - Imec), Dhoedt, Bart (Ghent Univ. - Imec)	
11:15-11:30	TuAT1.4
<i>Deep Reinforcement Learning with Successor Features for Navigation across Similar Environments.</i>	
Zhang, Jingwei (Albert Ludwigs Univ. of Freiburg), Springenberg, Jost Tobias (Albert-Ludwigs Univ. Freiburg), Boedecker, Joschka (Univ. of Freiburg), Burgard, Wolfram (Univ. of Freiburg)	
11:30-11:45	TuAT1.5
<i>Toward Autonomous Mapping and Exploration for Mobile Robots through Deep Supervised Learning.</i>	
Bai, Shi (Stevens Inst. of Tech), Chen, Fanfei (Stevens Inst. of Tech), Englot, Brendan (Stevens Inst. of Tech)	
11:45-12:00	TuAT1.6
<i>Exercise Motion Classification from Large-Scale Wearable Sensor Data Using Convolutional Neural Networks.</i>	
Um, Terry Taewoong (Univ. of Waterloo), Babakeshizadeh, Vahid (Chief Algorithms Officer, PUSH Design Solutions Inc), Kulic, Dana (Univ. of Waterloo)	

TuAT2	Room 111
Biologically-Inspired Robots II	
Chair: Shen, Yantao	Univ. of Nevada, Reno
Co-Chair: Choi, Hyouk Ryeol	Sungkyunkwan Univ
10:30-10:45	TuAT2.1
<i>The Deformable Quad-Rotor: Design, Kinematics and Dynamics Characterization, and Flight Performance Validation.</i>	
Zhao, Na (Univ. of Nevada, Reno), Luo, Yudong (Univ. of Nevada, Reno), deng, hongbin (Beijing Inst. of Tech), Shen, Yantao (Univ. of Nevada, Reno)	
10:45-11:00	TuAT2.2
<i>Motion Evaluation of a Modified Multi-Link Robotic Rat.</i>	
Li, Chang (Beijing Inst. of Tech), Shi, Qing (Beijing Inst. of Tech), Li, Kang (Beijing Inst. of Tech), Zou, Mingjie (Beijing Inst. of Tech), ISHII, Hiroyuki (Waseda Univ), Takanishi, Atsuo (Waseda Univ), Huang, Qiang (Beijing Inst. of Tech), Fukuda, Toshio (Meijo Univ)	
11:00-11:15	TuAT2.3
<i>A Frog-Inspired Swimming Robot Based on Dielectric Elastomer Actuators.</i>	
Tang, Yucheng (Nanjing Univ. of Science & Tech. & National Univ), QIN, LEI (National Univ. of Singapore), Li, Xiaoning (Nanjing Univ. of Science and Tech), Chew, Chee Meng (National Univ. of Singapore), ZHU, Jian (National Univ. of Singapore)	
11:15-11:30	TuAT2.4
<i>Study on Quadruped Bounding with a Passive Compliant Spine.</i>	
Phan, Luong Tin (Sungkyunkwan Univ), Lee, Yoon Haeng (Sungkyunkwan Univ), Lee, Young Hun (Sungkyunkwan Univ), Lee, Hyunyong (Sungkyunkwan Univ), Kang, Hansol (Sungkyunkwan Univ), Choi, Hyouk Ryeol (Sungkyunkwan Univ)	
11:30-11:45	TuAT2.5
<i>CSMA/CA-Based Electrocommunication System Design for Underwater Robot Groups.</i>	
Zhang, Han (Peking Univ), Wang, Wei (Massachusetts Inst. of Tech), Zhou, Yang (Guangxi Univ. of Science and Tech), Wang, Chen (Peking Univ), Fan, Ruifeng (Peking Univ), Xie, Guangming (Peking Univ)	
11:45-12:00	TuAT2.6
<i>Design, Modeling and Experimental Validation of a Scissor Mechanisms Enabled Compliant Modular Earthworm-Like Robot.</i>	
Luo, Yudong (Univ. of Nevada, Reno), Zhao, Na (Univ. of Nevada, Reno), Wang, Hesheng (Shanghai Jiao Tong Univ), Kim, Kwang (Univ. of Nevada Reno), Shen, Yantao (Univ. of Nevada, Reno)	

TuAT3		Room 116
Perception for Grasping and Manipulation I		
Chair: Hlavac, Vaclav	Czech Tech. Univ. in Prague	
Co-Chair: Pfanne, Martin	DLR German Aerospace Center	
10:30-10:45	TuAT3.1	
<i>State Estimation for Deformable Objects by Point Registration and Dynamic Simulation.</i>		
Tang, Te (Univ. of California, Berkeley), Fan, Yongxiang (Univ. of California, Berkeley), Lin, Hsien-Chung (Univ. of California, Berkeley), Tomizuka, Masayoshi (Univ. of California)		
10:45-11:00	TuAT3.2	
<i>Associating Grasp Configurations with Hierarchical Features in Convolutional Neural Networks.</i>		
Ku, Li Yang (Umass Amherst), Learned-Miller, Erik (Univ. of Massachusetts, Amherst), Grupen, Rod (Univ. of Massachusetts)		
11:00-11:15	TuAT3.3	
<i>Shape Completion Enabled Robotic Grasping.</i>		
Varley, Jacob (Columbia Univ), DeChant, Chad (Columbia Univ), Richardson, Adam (Columbia Univ), Ruales, Joaquín (Columbia Univ), Allen, Peter (Columbia Univ)		
11:15-11:30	TuAT3.4	
<i>Improved Object Pose Estimation Via Deep Pre-Touch Sensing.</i>		
Lancaster, Patrick (Univ. of Washington), Yang, Boling (Univ. of Washington), Smith, Joshua R. (Univ. of Washington)		
11:30-11:45	TuAT3.5	
<i>Estimating Contact Forces from Postural Measures in a Class of Under-Actuated Robotic Hands.</i>		
Della Santina, Cosimo (Univ. of Pisa), Piazza, Cristina (Univ. Di Pisa), Santaera, Gaspare (Univ. of Pisa, Centro Di Ricerca "E. Piaggio"), Grioli, Giorgio (Istituto Italiano Di Tecnologia), Catalano, Manuel Giuseppe (Istituto Italiano Di Tecnologia), Bicchi, Antonio (Istituto Italiano Di Tecnologia)		
11:45-12:00	TuAT3.6	
<i>EKF-Based In-Hand Object Localization from Joint Position and Torque Measurements.</i>		
Pfanne, Martin (DLR German Aerospace Center), Chalon, Maxime (German Aerospace Center (DLR))		

TuAT4	Room 114
Localization I	
Co-Chair: Suh, Il Hong	Hanyang Univ
10:30-10:45	TuAT4.1
<i>Unified Image Retrieval and Keypoint Matching by Local Geometric Consistency and Non-Linear Diffusion.</i>	
Lee, Sehyung (Hanyang Univ), Lim, Jongwoo (Hanyang Univ), Suh, Il Hong (Hanyang Univ)	
10:45-11:00	TuAT4.2
<i>Localization of RW-UAVs Using Particle Filtering Over Distributed Microphone Arrays.</i>	
Lauzon, Jean-Samuel (Univ. De Sherbrooke), Grondin, Francois (Univ. De Sherbrooke), Létourneau, Dominic (Univ. De Sherbrooke), Lussier Desbiens, Alexis (Univ. De Sherbrooke), Michaud, Francois (Univ. De Sherbrooke)	
11:00-11:15	TuAT4.3
<i>Unscented Kalman Filtering on Lie Groups.</i>	
Brossard, Martin (Mines ParisTech), Bonnabel, Silvere (Mines ParisTech), Condomines, Jean-Philippe (ENAC Univ)	
11:15-11:30	TuAT4.4
<i>Sampling-Based Methods for Visual Navigation in 3D Maps by Synthesizing Depth Images.</i>	
Neubert, Peer (Chemnitz Univ. of Tech), Schubert, Stefan (Chemnitz Univ. of Tech), Protzel, Peter (Chemnitz Univ. of Tech)	
11:30-11:45	TuAT4.5
<i>Iterative Weighted 2D Orientation Averaging That Minimizes Arc-Length between Vectors.</i>	
Kazakova, Vera (Univ. of Central Florida), Wu, Annie (Univ. of Central Florida)	
11:45-12:00	TuAT4.6
<i>A Framework for Enhanced Localization of Marine Mammals Using Auto-Detected Video and Wearable Sensor Data Fusion.</i>	
Gabaldon, Joaquin (Univ. of Michigan Ann Arbor), Zhang, Ding (Univ. of Michigan, Ann Arbor), Barton, Kira (Univ. of Michigan at Ann Arbor), Johnson-Roberson, Matthew (Univ. of Michigan), Shorter, Alex (Univ. of Michigan)	

TuAT5	Room 118
Medical Robots and Systems II	
Chair: Desai, Jaydev P.	Georgia Inst. of Tech
Co-Chair: Hannaford, Blake	Univ. of Washington
10:30-10:45	TuAT5.1
<i>A Skull-Mounted Robotic Headframe for a Neurosurgical Robot.</i>	
Sheng, Jun (Georgia Inst. of Tech), Desai, Jaydev P. (Georgia Inst. of Tech)	
10:45-11:00	TuAT5.2
<i>Preliminary Study on Magnetic Tracking Based Navigation for Wire-Driven Flexible Robot.</i>	
Zhang, Changchun (Harbin Inst. of Tech. (Shenzhen)), Lu, Yi (Harbin Inst. of Tech), Qiu, Xiaoxiao (Harbin Inst. of Tech. (Shenzhen)), Song, Shuang (Harbin Inst. of Tech. Shenzhen Graduate School), Liu, Li (School of Biomedical Engineering, Health Science Center, Shenzhe), Meng, Max Q.-H. (The Chinese Univ. of Hong Kong)	
11:00-11:15	TuAT5.3
<i>3D Printing of Improved Needle Grasping Instrument for Flexible Robotic Surgery.</i>	
Seneci, Carlo Alberto (Imperial Coll. London), Gras, Gauthier (Imperial Coll. London), Wisanuvej, Piyamate (Imperial Coll. London), Shang, Jianzhong (Imperial Coll. London), Yang, Guang-Zhong (Imperial Coll. London)	
11:15-11:30	TuAT5.4
<i>Force Sensing in Continuum Manipulators Using Fiber Bragg Grating Sensors.</i>	
Khan, Fouzia (Univ. of Twente), Roesthuis, Roy (Univ. of Twente), Misra, Sarthak (Univ. of Twente)	
11:30-11:45	TuAT5.5
<i>Continuum Robots for Multi-Scale Motion: Micro-Scale Motion through Equilibrium Modulation.</i>	
Del Giudice, Giuseppe (Vanderbilt Univ), Wang, Long (Vanderbilt Univ), Shen, Jin-Hui (Vanderbilt Univ), Joos, Karen (Vanderbilt Univ), Simaan, Nabil (Vanderbilt Univ)	
11:45-12:00	TuAT5.6
<i>Integrated Asymmetric Stop Operator Based Model for Strain Stress Hysteresis Characteristics of Cable Driven Robots Loaded Longitudinally.</i>	
Omar, Aljanaideh (Univ. of Washington), Miyasaka, Muneaki (Univ. of Washington), Hannaford, Blake (Univ. of Washington)	

TuAT6	Room 121
Telerobotics and Teleoperation I	
Chair: Hauser, Kris	Duke Univ
Co-Chair: Bohren, Jonathan	Honeybee Robotics, Ltd
10:30-10:45	TuAT6.1
<i>Teleoperating Robots from Arbitrary Viewpoints in Surgical Contexts.</i>	
Draelos, Mark (Duke Univ), Keller, Brenton (Duke Univ), Toth, Cynthia (Duke Univ), Kuo, Anthony (Duke Univ), Hauser, Kris (Duke Univ), Izatt, Joseph (Duke Univ)	
10:45-11:00	TuAT6.2
<i>Robot Team Teleoperation for Cooperative Manipulation Using Wearable Haptics.</i>	
Musić, Selma (Tech. Univ. München), Salvietti, Gionata (Univ. of Siena), Budde genannt Dohmann, Pablo (Tech. Univ. Munich), Chinello, Francesco (Aarhus Univ), Prattichizzo, Domenico (Univ. of Siena), Hirche, Sandra (Tech. Univ. München)	
11:00-11:15	TuAT6.3
<i>Tele-Impedance with Force Feedback under Communication Time Delay.</i>	
Laghi, Marco (Istituto Italiano Di Tecnologia / Univ. Di Pisa), Ajoudani, Arash (Advanced Robotics Department), Catalano, Manuel Giuseppe (Istituto Italiano Di Tecnologia), Bicchi, Antonio (Istituto Italiano Di Tecnologia)	
11:15-11:30	TuAT6.4
<i>Interactive Scene Segmentation for Efficient Human-In-The-Loop Robot Manipulation.</i>	
Butler, Daniel J. (Univ. of Washington, Seattle, WA, USA), Elliott, Sarah (Univ. of Washington), Cakmak, Maya (Univ. of Washington)	
11:30-11:45	TuAT6.5
<i>An Assisted Bilateral Control Strategy for 3D Pose Estimation of Visual Features.</i>	
Battilani, Nicola (Univ. of Modena and Reggio Emilia), Spica, Riccardo (Stanford Univ), Robuffo Giordano, Paolo (Centre National De La Recherche Scientifique (CNRS)), Secchi, Cristian (Univ. of Modena & Reggio Emilia)	
11:45-12:00	TuAT6.6
<i>A Preliminary Study of an Intent-Recognition-Based Traded Control Architecture for High Latency Telemanipulation.</i>	
Bohren, Jonathan (Honeybee Robotics, Ltd), Whitcomb, Louis (The Johns Hopkins Univ)	

TuAT7	Room 122
Autonomous Vehicle Navigation II	
Chair: Manocha, Dinesh	Univ. of North Carolina at Chapel Hill
Co-Chair: Borges, Paulo Vinicius Koerich	CSIRO
10:30-10:45	TuAT7.1
<i>Robust Attitude Estimation Method for Underwater Vehicles with External and Internal Magnetic Noise Rejection Using Adaptive Indirect Kalman Filter.</i>	
Widy, Andreas (HKUST), Woo, Kam Tim (The Hong Kong Univ. of Science and Tech)	
10:45-11:00	TuAT7.2
<i>Real-Time Autonomous Ground Vehicle Navigation in Heterogeneous Environments Using a 3D LiDAR.</i>	
Pfrunder, Andreas (ETH Zurich), Borges, Paulo Vinicius Koerich (CSIRO), Rechy Romero, Adrian (CSIRO), Catt, Gavin (CSIRO), Elfes, Alberto (CSIRO)	
11:00-11:15	TuAT7.3
<i>Neural Network Modeling for Steering Control of an Autonomous Vehicle.</i>	
Garimella, Gowtham (Johns Hopkins Univ), Funke, Joseph (Stanford Univ), Wang, Chuang (Zoox), Kobilarov, Marin (Johns Hopkins Univ)	
11:15-11:30	TuAT7.4
<i>Active Online Visual-Inertial Navigation and Sensor Calibration Via Belief Space Planning and Factor Graph Based Incremental Smoothing.</i>	
Ben Elisha, Yair (Tech. - Israel Inst. of Tech), Indelman, Vadim (Tech. - Israel Inst. of Tech)	
11:30-11:45	TuAT7.5
<i>Deriving Overtaking Strategy from Nonlinear Model Predictive Control for a Race Car.</i>	
Buyval, Alexander (Innopolis Univ), Gabdullin, Aidar (Innopolis University), Mustafin, Ruslan (Innopolis Univ), Shimchik, Ilya (Innopolis Univ)	
11:45-12:00	TuAT7.6
<i>AutonoVi: Autonomous Vehicle Planning with Dynamic Maneuvers and Traffic Constraints.</i>	
Best, Andrew (Univ. of North Carolina at Chapel Hill), Narang, Sahil (Univ. of North Carolina at Chapel Hill), Barber, Daniel (Univ. of Central Florida), Manocha, Dinesh (Univ. of North Carolina at Chapel Hill)	

TuAT8	Room 202
Field Robotics	
Chair: Nagatani, Keiji	Tohoku Univ
Co-Chair: La, Hung	Univ. of Nevada at Reno
10:30-10:45	TuAT8.1
<i>Design and Development of a Tethered Mobile Robot to Traverse on Steep Slope Based on an Analysis of Its Slippage and Turnover.</i>	
Nagatani, Keiji (Tohoku Univ), Tatano, So (Tohoku Univ), Ikeda, Keisuke (Tohoku Univ), Watanabe, Atsushi (Tohoku Univ), Kuri, Miwa (Tohoku Univ)	
10:45-11:00	TuAT8.2
<i>Industrial-Scale Autonomous Wheeled-Vehicle Path Following by Combining Iterative Learning Control with Feedback Linearization.</i>	
Dekker, Lukas G. (Queen's Univ), Marshall, Joshua A. (Queen's Univ), Larsson, Johan (Örebro Univ)	
11:00-11:15	TuAT8.3
<i>Autonomous Navigation and Mapping for Inspection of Penstocks and Tunnels with MAVs.</i>	
Ozaslan, Tolga (Univ. of Pennsylvania), Loianno, Giuseppe (Univ. of Pennsylvania), Keller, James (Univ. of Pennsylvania), Taylor, Camillo Jose (Univ. of Pennsylvania), Kumar, Vijay (Univ. of Pennsylvania)	
11:15-11:30	TuAT8.4
<i>Planning and Control for Autonomous Excavation.</i>	
Jud, Dominic (ETH Zurich), Hottiger, Gabriel (ETH Zurich), Leemann, Philipp (ETH Zurich), Hutter, Marco (ETH Zurich)	
11:30-11:45	TuAT8.5
<i>Structured Light-Based Hazard Detection for Planetary Surface Navigation.</i>	
Nefian, Ara (NASA Ames Res. Center), Wong, Uland (NASA Ames Res. Center), Dille, Michael (SGT Inc. / NASA Ames Res. Center), Bouyssounouse, Xavier (NASA Ames Res. Center), Edwards, Laurence (NASA Ames Res. Center), To, Vinh (Stinger Ghaffarian Tech), Deans, Matthew (NASA Ames Res. Center), Fong, Terrence (NASA Ames Res. Center (ARC))	
11:45-12:00	TuAT8.6
<i>A Multi-Functional Inspection Robot for Civil Infrastructure Evaluation and Maintenance.</i>	
Spencer, Gibb (Univ. of Nevada, Reno), Le, Tuan (Univ. of Nevada, Reno), La, Hung (Univ. of Nevada at Reno), Schmid, Ryan (Univ. of Nevada, Reno), Tony, Berendsen (Univ. of Nevada, Reno)	

TuAT9	Room 204
Search and Rescue Robots	
Chair: Suzumori, Koichi	Tokyo Inst. of Tech
Co-Chair: Endo, Gen	Tokyo Inst. of Tech
10:30-10:45	TuAT9.1
<i>Geometric and Visual Terrain Classification for Autonomous Mobile Navigation.</i>	
Schilling, Fabian (KTH Royal Inst. of Tech), Chen, Xi (KTH), Folkesson, John (KTH), Jensfelt, Patric (KTH - Royal Inst. of Tech)	
10:45-11:00	TuAT9.2
<i>Modeling Structure and Aerosol Concentration with Fused Radar and LiDAR Data in Environments with Changing Visibility.</i>	
Fritsche, Paul (Leibniz Univ. Hannover), Wagner, Bernardo (Leibniz Univ. Hannover)	
11:00-11:15	TuAT9.3
<i>Challenges in Visual and Inertial Information Gathering for a Sprawling Posture Robot.</i>	
Parsapour, Mahsa (EPFL), Melo, Kamilo (EPFL), Horvat, Tomislav (EPFL), Ijspeert, Auke (EPFL)	
11:15-11:30	TuAT9.4
<i>Towards Autonomous Locomotion: Slithering Gait Design of Snake-Like Robot for Target Observation and Tracking.</i>	
Bing, Zhenshan (Tech. Univ. of Munich), Cheng, Long (Tech. Univ. of Munich), Huang, Kai (Sun Yat-Sen Univ), Jiang, Zhuangyi (Tech. Univ. of Munich), Chen, Guang (Tech. Univ. of Munich), Roehrbein, Florian (Tech. Univ. of Munich), Knoll, Alois (Tech. Univ. Muenchen TUM)	
11:30-11:45	TuAT9.5
<i>A Semi-Autonomous Compound Motion Pattern Using Multi-Flipper and Multi-Arm for Unstructured Terrain Traversal.</i>	
Chen, Kui (Waseda Univ), Kamezaki, Mitsuhiro (Waseda Univ), Katano, Takahiro (Waseda Univ), Kaneko, Taisei (Waseda Univ), Azuma, Kohga (Waseda Univ), Ishida, Tatsuzo (Waseda Univ), Seki, Masatoshi (Kikuchi Seisakusho Co., Ltd), Ken, Ichiryu (Kikuchi Seisakusho Co., Ltd), Sugano, Shigeki (Waseda Univ)	
11:45-12:00	TuAT9.6
<i>Development of a 20-M-Long Giacometti Arm with Balloon Body Based on Kinematic Model with Air Resistance.</i>	
Takeichi, Masashi (Tokyo Inst. of Tech), Suzumori, Koichi (Tokyo Inst. of Tech), Endo, Gen (Tokyo Inst. of Tech), Nabae, Hiroyuki (Tokyo Inst. of Tech)	

TuAT10	Room 205
Cellular Robots I	
Chair: Yim, Mark	Univ. of Pennsylvania
Co-Chair: Guan, Yisheng	Guangdong Univ. of Tech
10:30-10:45	TuAT10.1
<i>Variable Topology Truss: Design and Analysis.</i>	
Spinos, Alexander (Univ. of Pennsylvania), Carroll, Devin (Univ. of Pennsylvania), Kientz, Terry (Univ. of Pennsylvania), Yim, Mark (Univ. of Pennsylvania)	
10:45-11:00	TuAT10.2
<i>Generating Gaits for Simultaneous Locomotion and Manipulation.</i>	
Whitman, Julian (Carnegie Mellon Univ), Su, Shuang (Carnegie Mellon Univ), Coros, Stelian (Carnegie Mellon Univ), Ansari, Alexander (Carnegie Mellon Univ), Choset, Howie (Carnegie Mellon Univ)	
11:00-11:15	TuAT10.3
<i>Design and Testing of FERVOR: Flexible and Reconfigurable Voxel-Based Robot.</i>	
Cramer, Nicholas (Stinger Ghaffarian Tech. Inc), Tebyani, Maryam (Univ. of California, Santa Cruz), Stone, Katelyn (Univ. of California, Santa Cruz), Cellucci, Daniel (Cornell Univ), Cheung, Kenneth C. (National Aeronautics and Space Administration (NASA)), Swei, Sean (NASA Ames Res. Center), Teodorescu, Mircea (UCSC)	
11:15-11:30	TuAT10.4
<i>A Decentralized Algorithm for Assembling Structures with Modular Robots.</i>	
Saldana, David Julian (Univ. Federal De Minas Gerais), Teles Gabrich, Bruno (Univ. of Pennsylvania), Whitzer, Michael (Univ. of Pennsylvania), Prorok, Amanda (Univ. of Pennsylvania), Campos, Mario Montenegro (Univ. Federal De Minas Gerais), Yim, Mark (Univ. of Pennsylvania), Kumar, Vijay (Univ. of Pennsylvania)	
11:30-11:45	TuAT10.5
<i>Fabric-Based Actuator Modules for Building Soft Pneumatic Structures with High Payload-To-Weight Ratio.</i>	
Khin, Phone May (National Univ. of Singapore), Yap, Hong Kai (National Univ. of Singapore), Ang Jr, Marcelo H (National Univ. of Singapore), Yeow, Chen-Hua (National Univ. of Singapore)	
11:45-12:00	TuAT10.6
<i>A Vision-Based Scheme for Kinematic Model Construction of Re-Configurable Modular Robots.</i>	
Lin, Kewei (Guangdong Univ. of Tech), Rojas, Juan (Guangdong Univ. of Tech), Guan, Yisheng (Guangdong Univ. of Tech)	

TuAT11		Room 207
Social HRI		
Chair: Fu, Li-Chen	National Taiwan Univ	
Co-Chair: Jagersand, Martin	Univ. of Alberta	
10:30-10:45	TuAT11.1	
<i>Investigation of Human-Robot Comfort with a Small Unmanned Aerial Vehicle Compared to a Ground Robot.</i>		
Acharya, Urja (Univ. of Nebraska, Lincoln), Bevins, Alisha (Univ. of Nebraska, Lincoln), Duncan, Brittany (Univ. of Nebraska, Lincoln)		
10:45-11:00	TuAT11.2	
<i>A Study on the Social Acceptance of a Robot in a Multi-Human Interaction Using an F-Formation Based Motion Model.</i>		
Yang, Shih-An (National Taiwan Univ), Gamborino, Edwinn (National Taiwan Univ), Yang, Chun-Tang (National Taiwan Univ), Fu, Li-Chen (National Taiwan Univ)		
11:00-11:15	TuAT11.3	
<i>Incremental Learning for Robot Perception through HRI.</i>		
Valipour, Sepehr (Univ. of Alberta), Perez Quintero, Camilo Alfonso (Univ. of Alberta), Jagersand, Martin (Univ. of Alberta)		
11:15-11:30	TuAT11.4	
<i>Postural Optimization for an Ergonomic Human-Robot Interaction.</i>		
Busch, Baptiste (INRIA), Maeda, Guilherme Jorge (Tech. Univ. Darmstadt), Mollard, Yoan (Inria), Demangeat, Marie (Inria), Lopes, Manuel (Inst. Superior Tecnico)		
11:30-11:45	TuAT11.5	
<i>A Simple Bi-Layered Architecture to Enhance the Liveness of a Robot.</i>		
Takimoto, Yusuke (Keio Univ), Hasegawa, Komei (Keio Univ), Sono, Taichi (Keio Univ), Imai, Michita (Keio Univ)		
11:45-12:00	TuAT11.6	
<i>"Me and You Together": Movement Impact in Multi-User Collaboration Tasks.</i>		
Faria, Miguel (INESC-ID and Inst. Superior Técnico, Tech. Univ. Of), Silva, Rui (Carnegie Mellon Univ. and Inst. Superior Técnico), Alves-Oliveira, Patrícia (INESC-ID & Inst. Superior Técnico, Univ. of Lisbon), Melo, Francisco S. (Inst. Superior Técnico), Paiva, Ana (INESC-ID and Inst. Superior Técnico, Tech. Of)		

TuAT12	Room 208
Motion Control II	
Chair: Secchi, Cristian	Univ. of Modena & Reggio Emilia
Co-Chair: Kinugawa, Jun	Tohoku Univ
10:30-10:45	TuAT12.1
<i>Learning to Navigate Cloth Using Haptics.</i>	
Clegg, Alexander (Georgia Inst. of Tech), Yu, Wenhao (Georgia Inst. of Tech), Erickson, Zackory (Georgia Inst. of Tech), Tan, Jie (Georgia Inst. of Tech), Liu, Karen (Georgia Tech), Turk, Greg (Georgia Inst. of Tech)	
10:45-11:00	TuAT12.2
<i>A Passive Integration Strategy for Rendering Rotational Rigid-Body Dynamics on a Robotic Simulator.</i>	
De Stefano, Marco (DLR - German Aerospace Center), Artigas, Jordi (DLR - German Aerospace Center), Secchi, Cristian (Univ. of Modena & Reggio Emilia)	
11:00-11:15	TuAT12.3
<i>Applicability Analysis of Generalized Inverse Kinematics Algorithms with Respect to Manipulator Geometric Uncertainties.</i>	
Wang, Yuquan (Royal Inst. of Tech. (KTH)), Wang, Lihui (KTH Royal Inst. of Tech)	
11:15-11:30	TuAT12.4
<i>Disturbance-Observer-Based PD Control of Electro-Hydrostatically Actuated Flexible Joint Robots.</i>	
Lee, Woongyong (POSTECH), Kim, Min Jun (DLR), Chung, Wan Kyun (POSTECH)	
11:30-11:45	TuAT12.5
<i>Control Method of Power-Assisted Cart with One Motor, a Differential Gear, and Brakes Based on Motion State of the Cart.</i>	
Seino, Akira (Tohoku Univ), Wakabayashi, Yuta (Tohoku Univ), Kinugawa, Jun (Tohoku Univ), Kosuge, Kazuhiro (Tohoku Univ)	
11:45-12:00	TuAT12.6
<i>Formalization and Analysis of Jacobian Matrix in Screw Theory and Its Application in Kinematic Singularity.</i>	
Wu, Aixuan (Capital Normal Univ), shi, zhiping (Capital Normal Univ), Yang, Xiumei (Capital Normal Univ), guan, yong (Capital Normal Univ), Li, Yong-Dong (Beihang Univ), Song, Xiaoyu (Portland State Univ)	

TuAT13		Room 211
Motion and Path Planning II		
Chair: Ruml, Wheeler		Univ. of New Hampshire
Co-Chair: Gupta, Kamal		Simon Fraser Univ
10:30-10:45		TuAT13.1
<i>Efficient Humanoid Motion Planning on Uneven Terrain Using Paired Forward-Inverse Dynamic Reachability Maps.</i>		
Yang, Yiming (Univ. of Edinburgh), Merkt, Wolfgang Xaver (The Univ. of Edinburgh), Ferrolho, Henrique (Faculty of Engineering of the Univ. of Porto), Ivan, Vladimir (Univ. of Edinburgh), Vijayakumar, Sethu (Univ. of Edinburgh)		
10:45-11:00		TuAT13.2
<i>Repetition Sampling for Efficiently Planning Similar Constrained Manipulation Tasks.</i>		
Lehner, Peter (German Aerospace Center (DLR)), Albu-Schäffer, Alin (DLR - German Aerospace Center)		
11:00-11:15		TuAT13.3
<i>Efficient Path Planning in Belief Space for Safe Navigation.</i>		
Schirmer, Robert (Robert Bosch GmbH), Biber, Peter (Robert Bosch GmbH), Stachniss, Cyrill (Univ. of Bonn)		
11:15-11:30		TuAT13.4
<i>An Effort Bias for Sampling-Based Motion Planning.</i>		
Kiesel, Scott (Univ. of New Hampshire), Gu, Tianyi (Univ. of New Hampshire), Ruml, Wheeler (Univ. of New Hampshire)		
11:30-11:45		TuAT13.5
<i>Search-Based Motion Planning for Quadrotors Using Linear Quadratic Minimum Time Control.</i>		
Liu, Sikang (Univ. of Pennsylvania), Atanasov, Nikolay (Univ. of Pennsylvania), Mohta, Kartik (Univ. of Pennsylvania), Kumar, Vijay (Univ. of Pennsylvania)		
11:45-12:00		TuAT13.6
<i>Planning High-Speed Safe Trajectories in Confidence-Rich Maps.</i>		
Heiden, Eric (Univ. of Southern California), Hausman, Karol (Univ. of Southern California), Sukhatme, Gaurav (Univ. of Southern California), Agha-mohammadi, Ali-akbar (Qualcomm Res)		

TuAT14	Room 217
Soft Material Robotics III	
Chair: Hirai, Shinichi	Ritsumeikan Univ
Co-Chair: Liu, Hongbin	King's Coll. London
10:30-10:45	TuAT14.1
<i>A Prestressed Soft Gripper: Design, Modeling, Fabrication, and Tests for Food Handling.</i>	
Wang, Zhongkui (Ritsumeikan Univ), Hirai, Shinichi (Ritsumeikan Univ)	
10:45-11:00	TuAT14.2
<i>Visual Servoing Control of Soft Robots Based on Finite Element Model.</i>	
ZHANG, ZHONGKAI (INRIA, Univ. of Lille, France), Morales Bieze, Thor Enrique (Univ. of Lille), Dequidt, Jeremie (Univ. of Lille 1), Kruszewski, Alexandre (Ec. Centrale De Lille), Duriez, Christian (INRIA)	
11:00-11:15	TuAT14.3
<i>Design and Prototyping of a Soft Magnetic Anchored and Guidance Endoscope System.</i>	
Cheng, Truman (The Chinese Univ. of Hong Kong), Ng, Sze Hang (The Chinese Univ. of Hong Kong), Chiu, WAI, YAN Philip (Chinese Univ. of Hong Kong), li, zheng (The Chinese Univ. of Hong Kong)	
11:15-11:30	TuAT14.4
<i>Model-Free Control for Soft Manipulators Based on Reinforcement Learning.</i>	
You, Xuanke (Univ. of Science and Tech. of China), Zhang, Yixiao (Univ. of Science and Tech. of China), Chen, Xiaotong (Univ. of Science and Tech. of China), Liu, Xinghua (Univ. of Science and Tech. of China), Wang, Zhanchi (Univ. of Science and Tech. of China), Jiang, Hao (Univ. of Science and Tech. of China), Chen, Xiaoping (Univ. of Science and Tech. of China)	
11:30-11:45	TuAT14.5
<i>Model-Less Feedback Control for Soft Manipulators.</i>	
Jin, Yusong (Univ. of Science and Tech. of China), Wang, Yufei (Univ. of Science and Tech. of China), Chen, Xiaotong (Univ. of Science and Tech. of China), Wang, Zhanchi (Univ. of Science and Tech. of China), Liu, Xinghua (Univ. of Science and Tech. of China), Jiang, Hao (Univ. of Science and Tech. of China), Chen, Xiaoping (Univ. of Science and Tech. of China)	
11:45-12:00	TuAT14.6
<i>Intrinsic Force Sensing Capabilities in Compliant Robots Comprising Hydraulic Actuation.</i>	
Lindenroth, Lukas (King's Coll. London), Duriez, Christian (INRIA), Back, Jungwhan (King's Coll. London), Rhode, Kawal (King's Coll. London), Liu, Hongbin (King's Coll. London)	

TuAT15		Room 215
Visual Servoing		
Chair: Chaumette, Francois	Inria Rennes-Bretagne Atlantique	
Co-Chair: Marchand, Eric	Univ. De Rennes 1, IRISA, INRIA Rennes	
10:30-10:45		TuAT15.1
<i>Characterisation and Image-Based Flight Control of an Autonomous Free Fall Skydiving Robot.</i>		
Alatorre Troncoso, David (Univ. of Nottingham), Branson, David (Univ. of Nottingham)		
10:45-11:00		TuAT15.2
<i>Visual Servoing from Lines Using a Planar Catadioptric System.</i>		
Marchand, Eric (Univ. De Rennes 1, IRISA, INRIA Rennes), Fasquelle, Benjamin (ENS Rennes)		
11:00-11:15		TuAT15.3
<i>Strain Estimation of Moving Tissue Based on Automatic Motion Compensation by Ultrasound Visual Servoing.</i>		
Patlan Rosales, Pedro Alfonso (INRIA Rennes - Bretagne Atlantique, Univ. De Rennes I), Krupa, Alexandre (INRIA Rennes - Bretagne Atlantique)		
11:15-11:30		TuAT15.4
<i>Active Vision for Pose Estimation Applied to Singularity Avoidance in Visual Servoing.</i>		
Agravante, Don Joven (INRIA Rennes - Bretagne Atlantique), Chaumette, Francois (Inria Rennes-Bretagne Atlantique)		
11:30-11:45		TuAT15.5
<i>Pose Induction for Visual Servoing to a Novel Object Instance.</i>		
Kumar, Gourav (International Inst. of Information Tech. Hyderabad, In), Pandya, Harit (IIIT Hyderabad), Gaud, Ayush (International Inst. of Information Tech. Hyderabad), Krishna, Madhava (IIIT Hyderabad)		
11:45-12:00		TuAT15.6
<i>Combining Line Segments and Points for Appearance-Based Indoor Navigation by Image Based Visual Servoing.</i>		
Bista, Suman Raj (Inria Rennes Bretagne Atlantique), Robuffo Giordano, Paolo (Centre National De La Recherche Scientifique (CNRS)), Chaumette, Francois (Inria Rennes-Bretagne Atlantique)		

TuAT16	Room 220
Micro/Nano Robotics III	
Chair: Hwang, Gilgueng	CNRS, Univ. Paris-Sud, Univ. of Paris-Saclay
Co-Chair: Rabenoroosa, Kanty	Univ. Bourgogne Franche-Comté, CNRS
10:30-10:45	TuAT16.1
<i>3000 Hz Cell Manipulation in a Microfluidic Channel.</i>	
Tsai, Chia-Hung Dylan (Osaka Univ), Teramura, Kaoru (Osaka Univ), Hosokawa, Naoya (Osaka Univ), Mizoue, Kouji (MIZOUE PROJECT JAPAN Corp), Takayama, Toshio (Tokyo Inst. of Tech), Kaneko, Makoto (Osaka Univ)	
10:45-11:00	TuAT16.2
<i>Automated Cell Transportation for Batch-Cell Manipulation.</i>	
Wang, Xuefeng (Nankai Univ), Liu, Yaowei (Nankai Univ), Li, Shibao (Nankai Univ), Cui, Maosheng (Tianjin Animal Science), Sun, Mingzhu (Nankai Univ), Zhao, Xin (Nankai Univ)	
11:00-11:15	TuAT16.3
<i>On-Chip Fabrication of Movable Toroidal Cell Structures Using Photo-Crosslinkable Biodegradable Hydrogel.</i>	
Takeuchi, Masaru (Nagoya Univ), Nakamura, Yuki (Meijo Univ), Ichikawa, Akihiko (Meijo Univ), Hasegawa, Akiyuki (Meijo Univ), Hasegawa, Yasuhisa (Nagoya Univ), Fukuda, Toshio (Meijo Univ)	
11:15-11:30	TuAT16.4
<i>Realtime Vision Based Dynamic Power Management of In-Plane Magnetic Mobile Microrobots for Avoidance of Excessive Surface Stiction.</i>	
Dorazio, Silvia (C2N-CNRS), Couraud, Laurent (C2N), Ollivier, Yannick (LPN-CNRS), Hwang, Gilgueng (CNRS, Univ. Paris-Sud, Univ. of Paris-Saclay)	
11:30-11:45	TuAT16.5
<i>Depth Estimation of Optically Transparent Laser-Driven Microrobots.</i>	
Grammatikopoulou, Maria (Imperial Coll. London), Zhang, Lin (Imperial Coll. London), Yang, Guang-Zhong (Imperial Coll. London)	
11:45-12:00	TuAT16.6
<i>Preliminary Results on OCT-Based Position Control of a Concentric Tube Robot.</i>	
Baran, Yann (FEMTO-ST Inst. Bourgogne Franche Comté - CNRS/ENSMM), Rabenoroosa, Kanty (Univ. Bourgogne Franche-Comté, CNRS), Laurent, Guillaume J. (Univ. Bourgogne Franche-Comté, ENSMM), Rougeot, Patrick (Univ. of Franche-Comté, FEMTO-ST Inst), Andreff, Nicolas (Univ. De Franche Comté), TAMADAZTE, Brahim (Cnrs, Ufc/ensmm/utbm)	

TuAT17	Room 221
Dynamics	
Chair: De Luca, Alessandro	Sapienza Univ. of Rome
Co-Chair: Wensing, Patrick	Univ. of Notre Dame
10:30-10:45	TuAT17.1
<i>Classification Error Correction: A Case Study in Brain-Computer Interfacing.</i>	
Poonawala, Hasan A. (Univ. of Texas at Austin), Alshiekh, Mohammed (Univ. of Texas at Austin), Niekum, Scott (Univ. of Texas at Austin), Topcu, Ufuk (Univ. of Pennsylvania)	
10:45-11:00	TuAT17.2
<i>Elastic Rod Dynamics: Validation of a Real-Time Implicit Approach.</i>	
Till, John (Univ. of Tennessee, Knoxville), Rucker, Caleb (Univ. of Tennessee)	
11:00-11:15	TuAT17.3
<i>Periodic Trajectories of Mobile Robots.</i>	
Nilles, Alexandra (Univ. of Illinois - Champaign-Urbana), Becerra, Israel (Centro De Investigacion En Matematicas), LaValle, Steven M (Univ. of Illinois)	
11:15-11:30	TuAT17.4
<i>A Friction Model with Velocity, Temperature and Load Torque Effects for Collaborative Industrial Robot Joints.</i>	
Gao, Liming (Shanghai Jiao Tong Univ), Yuan, Jianjun (Shanghai Jiao Tong Univ. China), Han, Zhedong (Shanghai Jiao Tong Univ), Wang, Shuai (Shanghai JiaoTong Univ), Wang, Ning (Shanghai Jiao Tong Univ)	
11:30-11:45	TuAT17.5
<i>Payload Estimation Based on Identified Coefficients of Robot Dynamics --With an Application to Collision Detection.</i>	
Gaz, Claudio Roberto (Sapienza Univ. of Rome), De Luca, Alessandro (Sapienza Univ. of Rome)	
11:45-12:00	TuAT17.6
<i>Linear Matrix Inequalities for Physically-Consistent Inertial Parameter Identification: A Statistical Perspective on the Mass Distribution.</i>	
Wensing, Patrick (Univ. of Notre Dame), Kim, Sangbae (Massachusetts Inst. of Tech), Slotine, Jean-Jacques E. (Massachusetts Inst. of Tech)	

TuAT18	Room 223
Human Factors and Human Performance Augmentation	
Chair: Gosselin, Clement	Univ. Laval
Co-Chair: Morales Saiki, Luis Yoichi	Nagoya Univ
10:30-10:45	TuAT18.1
<i>Visual Perception of Limb Stiffness.</i>	
Huber, Meghan (Massachusetts Inst. of Tech), Folinus, Charlotte (Massachusetts Inst. of Tech), Hogan, Neville (Massachusetts Inst. of Tech)	
10:45-11:00	TuAT18.2
<i>Analysis of Navigational Habituation.</i>	
Morales Saiki, Luis Yoichi (Nagoya Univ), Even, Jani (ATR), Abdur-Rahim, Jamilah (EuroMov Univ. Montpellier), Watanabe, Atsushi (Tohoku Univ)	
11:00-11:15	TuAT18.3
<i>User-Robot Collaborative Excitation for PAM Model Identification in Exoskeleton Robots.</i>	
Hamaya, Masashi (ATR Computational Neuroscience Labs / Osaka Univ), Matsubara, Takamitsu (NAIST/ATR), Noda, Tomoyuki (ATR Computational Neuroscience Lab), Teramae, Tatsuya (ATR Computational Neuroscience Lab), Morimoto, Jun (ATR Computational Neuroscience Labs)	
11:15-11:30	TuAT18.4
<i>Passive Knee Exoskeleton Using Torsion Spring for Cycling Assistance.</i>	
Chaichawarat, Ronnapree (Tohoku Univ), Paez Granados, Diego Felipe (Tohoku Univ), Kinugawa, Jun (Tohoku Univ), Kosuge, Kazuhiro (Tohoku Univ)	
11:30-11:45	TuAT18.5
<i>An Anticipative Kinematic Limitation Avoidance Algorithm for Collaborative Robots: Three-Dimensional Case.</i>	
Lebel, Philippe (Univ. Laval), Gosselin, Clement (Univ. Laval), Campeau-Lecours, Alexandre (Univ. Laval)	
11:45-12:00	TuAT18.6
<i>Sequential Recognition of In-Hand Object Shape Using a Collection of Neural Forests.</i>	
VASQUEZ, Alex (Sorbonne Univ. UPMC Univ. Paris 06), dapogny, arnaud (UPMC), Bailly, Kevin (Sorbonne Univ. UPMC Univ. Paris 06, CNRS), Perdereau, Véronique (Univ. Pierre Et Marie Curie - Paris 6)	

TuBT1	Room 109
Learning from Demonstration I	
Co-Chair: Asfour, Tamim	Karlsruhe Inst. of Tech. (KIT)
14:30-14:45	TuBT1.1
<i>Metric Learning for Generalizing Spatial Relations to New Objects.</i>	
Mees, Oier (Albert-Ludwigs-Univ), Abdo, Nichola (Univ. of Freiburg), Mazuran, Mladen (Univ. of Freiburg), Burgard, Wolfram (Univ. of Freiburg)	
14:45-15:00	TuBT1.2
<i>Learning Manipulability Ellipsoids for Task Compatibility in Robot Manipulation.</i>	
Rozo, Leonel (Istituto Italiano Di Tecnologia), Jaquier, Noémie (Idiap Res. Inst), Calinon, Sylvain (Idiap Res. Inst), Caldwell, Darwin G. (Istituto Italiano Di Tecnologia)	
15:00-15:15	TuBT1.3
<i>Demonstration-Free Contextualized Probabilistic Movement Primitives, Further Enhanced with Obstacle Avoidance.</i>	
Colomé, Adrià (Inst. De Robòtica I Informàtica Industrial (CSIC-UPC), Q28180), Torras, Carme (Csic - Upc)	
15:15-15:30	TuBT1.4
<i>Learning Mobile Manipulation Actions from Human Demonstrations.</i>	
Welschhold, Tim (Albert-Ludwigs-Univ. Freiburg), Dornhege, Christian (Univ. of Freiburg), Burgard, Wolfram (Univ. of Freiburg)	
15:30-15:45	TuBT1.5
<i>Task-Oriented Generalization of Dynamic Movement Primitive.</i>	
Zhou, You (Karlsruhe Inst. of Tech. (KIT)), Asfour, Tamim (Karlsruhe Inst. of Tech. (KIT))	
15:45-16:00	TuBT1.6
<i>Detecting Insertion Tasks Using Convolutional Neural Networks During Robot Teaching-By-Demonstration.</i>	
Roberge, Etienne (École De Tech. Supérieure), Duchaine, Vincent (Ec. De Tech. Superieure)	

TuBT2	Room 111
Biologically-Inspired Robots III	
Chair: Niemeyer, Günter	Disney Res
Co-Chair: Bae, Joonbum	UNIST
14:30-14:45	TuBT2.1
<i>Skimming and Steering of a Non-Tethered Miniature Robot on the Water Surface Using Marangoni Propulsion.</i>	
Kwak, Bokeon (Ulsan National Inst. of Science and Tech. (UNIST)), Bae, Joonbum (UNIST)	
14:45-15:00	TuBT2.2
<i>Falling with Style: Sticking the Landing by Controlling Spin During Ballistic Flight.</i>	
Pope, Morgan (Disney Res), Niemeyer, Günter (Disney Res)	
15:00-15:15	TuBT2.3
<i>Planar Hopping Control Strategy for Tail-Actuated SLIP Model Traversing Varied Terrains.</i>	
Yu, Haitao (Harbin Inst. of Tech), Li, Cao (Beijing Inst. of Astronautical Systems Engineering), Yuan, Baofeng (Beijing Inst. of Spacecraft System Engineering), Gao, Haibo (Harbin Inst. of Tech), Deng, Zongquan (Harbin Inst. of Tech)	
15:15-15:30	TuBT2.4
<i>Development of a Flapping Wing Micro Air Vehicle Capable of Autonomous Hovering with Onboard Measurements.</i>	
Ryu, Seungwan (Seoul National Univ), Kim, H. Jin (Seoul National Univ)	
15:30-15:45	TuBT2.5
<i>Trajectory Tracking Using Motion Primitives for the Purcell's Swimmer.</i>	
Kadam, Sudin (Indian Inst. of Tech. Bombay), Joshi, Kedar (IIT Bombay), Gupta, Naman (Indian Inst. of Tech. Bombay), Katdare, Pulkit (IIT Bombay), Banavar, Ravi N (I. I. T. Bombay)	
15:45-16:00	TuBT2.6
<i>Efficient Topological Distances and Comparable Metric Ranges.</i>	
Haque, Musad (Johns Hopkins Univ. Applied Physics Lab), Abbas, Waseem (Vanderbilt Univ), Rafter, Abigail (Vanderbilt Univ), Adams, Julie (Oregon State Univ)	

TuBT3		Room 116
Perception for Grasping and Manipulation II		
Chair: Brock, Oliver		Tech. Univ. Berlin
14:30-14:45		TuBT3.1
<i>Active End-Effector Pose Selection for Tactile Object Recognition through Monte Carlo Tree Search.</i>		
Zhang, Mabel M. (Univ. of Pennsylvania), Atanasov, Nikolay (Univ. of Pennsylvania), Daniilidis, Kostas (Univ. of Pennsylvania)		
14:45-15:00		TuBT3.2
<i>Task-Oriented Grasping with Semantic and Geometric Scene Understanding.</i>		
Detry, Renaud (Jet Propulsion Lab), Papon, Jeremie (Jet Propulsion Lab), Matthies, Larry (Jet Propulsion Lab)		
15:00-15:15		TuBT3.3
<i>Model-Free Approach to Garments Unfolding Based on Detection of Folded Layers.</i>		
Stria, Jan (Czech Tech. Univ. in Prague), Petrik, Vladimir (Czech Tech. Univ. in Prague), Hlavac, Vaclav (Czech Tech. Univ. in Prague)		
15:15-15:30		TuBT3.4
<i>SUM: Sequential Scene Understanding and Manipulation.</i>		
Sui, Zhiqiang (Univ. of Michigan), Zhou, Zheming (Univ. of Michigan), Zeng, Zhen (Univ. of Michigan), Jenkins, Odest Chadwicke (Univ. of Michigan)		
15:30-15:45		TuBT3.5
<i>Cross-Modal Interpretation of Multi-Modal Sensor Streams in Interactive Perception Based on Coupled Recursion.</i>		
Martín-Martín, Roberto (Tech. Univ. Berlin), Brock, Oliver (Tech. Univ. Berlin)		
15:45-16:00		TuBT3.6
<i>Flexible User Specification of Perceptual Landmarks for Robot Manipulation.</i>		
Huang, Justin (Univ. of Washington), Cakmak, Maya (Univ. of Washington)		

TuBT4	Room 114
Localization II	
Chair: Alejo, David	Univ. Pablo De Olavide
Co-Chair: Ito, Seigo	Toyota Central R&d Labs., Inc
14:30-14:45	TuBT4.1
<i>Look No Further: Adapting the Localization Sensory Window to the Temporal Characteristics of the Environment.</i>	
Bruce, Jake (Queensland Univ. of Tech), Jacobson, Adam (Queensland Univ. of Tech), Milford, Michael J (Queensland Univ. of Tech)	
14:45-15:00	TuBT4.2
<i>SPAD DCNN: Localization with Small Imaging LIDAR and DCNN.</i>	
Ito, Seigo (Toyota Central R&d Labs., Inc), Hiratsuka, Shigeyoshi (Toyota Central R&d Labs., Inc), Ohta, Mitsuhiro (Toyota Central R&d Labs., Inc), Matsubara, Hiroyuki (Toyota Central R&d Labs., Inc), Ogawa, Masaru (Toyota Central R&d Labs., Inc)	
15:00-15:15	TuBT4.3
<i>Robust LiDAR-Based Localization in Architectural Floor Plans.</i>	
Boniardi, Federico (Univ. of Freiburg), Caselitz, Tim (Univ. of Freiburg), Kuemmerle, Rainer (KUKA Roboter GmbH), Burgard, Wolfram (Univ. of Freiburg)	
15:15-15:30	TuBT4.4
<i>The Datum Particle Filter: Localization for Objects with Coupled Geometric Datums.</i>	
Chen, Shiyuan (Carnegie Mellon Univ), Saund, Brad (Carnegie Mellon), Simmons, Reid (Carnegie Mellon Univ)	
15:30-15:45	TuBT4.5
<i>Probabilistic Normal Distributions Transform Representation for Accurate 3D Point Cloud Registration.</i>	
Hong, Hyunki (Seoul National Univ), Lee, Beom-Hee (Seoul National Univ)	
15:45-16:00	TuBT4.6
<i>Topological Localization Using Wi-Fi and Vision Merged into FABMAP Framework.</i>	
Nowakowski, Mathieu (MINES ParisTech - PSL Res. Univ), JOLY, Cyril (Mines ParisTech, PSL Res. Univ), Dalibard, Sebastien (SoftBank Robotics Europe), Garcia, Nicolas (Softbank Robotics Europe), Moutarde, Fabien (MINES ParisTech - PSL Res. Univ)	

TuBT5	Room 118
Legged Robots I	
Chair: Fearing, Ronald	Univ. of California at Berkeley
Co-Chair: Degani, Amir	Tech. - Israel Inst. of Tech
14:30-14:45	TuBT5.1
<i>Repetitive Extreme-Acceleration (14-G) Spatial Jumping with Salto-1P.</i>	
Haldane, Duncan (Univ. of California, Berkeley), Yim, Justin K. (Univ. of California, Berkeley), Fearing, Ronald (Univ. of California at Berkeley)	
14:45-15:00	TuBT5.2
<i>Swing Leg Retraction Using Virtual Apex Method for the ParkourBot Climbing Robot.</i>	
Nir, Omer (Tech. – Israel Inst. of Tech), Gaathon, Adar (Tech. - Israel Inst. of Tech), Degani, Amir (Tech. - Israel Inst. of Tech)	
15:00-15:15	TuBT5.3
<i>Dynamic Locomotion and Whole-Body Control for Quadrupedal Robots.</i>	
Bellicoso, C. Dario (ETH Zurich), Jenelten, Fabian (ETH Zurich), Fankhauser, Péter (ETH Zurich), Gehring, Christian (ETH Zurich), Hwangbo, Jemin (Swiss Federal Inst. of Tech. Zurich), Hutter, Marco (ETH Zurich)	
15:15-15:30	TuBT5.4
<i>NABi-S: A Compliant Robot with a CPG for Locomotion.</i>	
Pogue, Alexandra (UCLA), Bianes, Alana (UCLA), Hong, Dennis (UCLA), Iwasaki, Tetsuya (UCLA)	
15:30-15:45	TuBT5.5
<i>Model Predictive Control Based Framework for CoM Control of a Quadruped Robot.</i>	
Horvat, Tomislav (EPFL), Melo, Kamilo (EPFL), Ijspeert, Auke (EPFL)	
15:45-16:00	TuBT5.6
<i>Standing Posture Control for a Low-Cost Commercially Available Hexapod Robot.</i>	
Tikam, Mayur (Univ. of Pretoria, CSIR South Africa), Withey, Daniel (CSIR), Theron, Nicolaas Johannes (Univ. of Pretoria)	

TuBT6		Room 121
Telerobotics and Teleoperation II		
Chair: Ryu, Jee-Hwan	Korea Univ. of Tech. and Education	
Co-Chair: Robuffo Giordano, Paolo	Centre National De La Recherche Scientifique (CNRS)	
14:30-14:45	TuBT6.1	
<i>Human-In-The-Loop Optimisation: Mixed Initiative Grasping for Optimally Facilitating Post-Grasp Manipulative Actions.</i>		
Ghalamzan Esfahani, Amir Masoud (Univ. of Birmingham), Abi-Farraj, Firas (CNRS-Irisa), Robuffo Giordano, Paolo (Centre National De La Recherche Scientifique (CNRS)), Stolkin, Rustam (Univ. of Birmingham)		
14:45-15:00	TuBT6.2	
<i>User Study on Remotely Controlled UAVs with Focus on Interfaces and Data Link Quality.</i>		
Riestock, Maik (Otto-Von-Guericke-Univ. Magdeburg), Engelhardt, Frank (Otto-Von-Guericke-Univ. Magdeburg), Zug, Sebastian (Otto-Von-Guericke-Univ. Magdeburg), Hochgeschwender, Nico (Bonn-Rhein-Sieg Univ. of Applied Sciences, Germany)		
15:15-15:30	TuBT6.4	
<i>Teleoperation in Cluttered Environments Using Wearable Haptic Feedback.</i>		
Bimbo, Joao (Istituto Italiano Di Tecnologia), Pacchierotti, Claudio (Centre National De La Recherche Scientifique (CNRS)), Aggravi, Marco (Univ. of Siena), Tsagarakis, Nikos (Istituto Italiano Di Tecnologia), Prattichizzo, Domenico (Univ. of Siena)		
15:30-15:45	TuBT6.5	
<i>Baxter's Homunculus: Virtual Reality Spaces for Teleoperation in Manufacturing.</i>		
Lipton, Jeffrey (MIT), Fay, Aidan (Mit Csail), Rus, Daniela (MIT)		
15:45-16:00	TuBT6.6	
<i>Towards Mobile Mixed-Reality Interaction with Multi-Robot Systems.</i>		
Frank, Jared (NYU Tandon School of Engineering), Krishnamoorthy, Sai (NYU Tandon School of Engineering), Kapila, Vikram (NYU Tandon School of Engineering)		

TuBT7	Room 122
Autonomous Vehicle Navigation III	
Chair: Morales Saiki, Luis Yoichi	Nagoya Univ
Co-Chair: Matteucci, Matteo	Pol. Di Milano
14:30-14:45	TuBT7.1
<i>On the Uncertainty Propagation: Why Uncertainty on Lie Groups Preserves Monotonicity?</i>	
Kim, Youngji (Korea Advanced Inst. of Science and Tech), Kim, Ayoung (Korea Advanced Inst. of Science Tech)	
14:45-15:00	TuBT7.2
<i>Outdoor Person Following at Higher Speeds Using a Skid-Steered Mobile Robot.</i>	
Huskić, Goran (Univ. of Tübingen), Buck, Sebastian (Univ. of Tübingen), Ibargüen González, Luis Azareel (Eberhard Karls Univ. Tübingen), Zell, Andreas (Univ. of Tübingen)	
15:00-15:15	TuBT7.3
<i>A Novel Insect-Inspired Optical Compass Sensor for a Hexapod Walking Robot.</i>	
Dupeyroux, Julien (Aix-Marseille Univ), Diperi, Julien (Aix-Marseille Univ. Biorobotic Dept. CNRS, ISM UMR 7287), Boyron, Marc (Aix-Marseille Univ. Biorobotic Dept. CNRS, ISM UMR 7287), Violette, Stephane (Aix-Marseille Univ), Serres, Julien (CNRS/ Univ. De La Mediterranée)	
15:15-15:30	TuBT7.4
<i>Decentralized Navigation of Multiple Agents Based on ORCA and Model Predictive Control.</i>	
Cheng, Hui (Sun Yat-Sen Univ), Zhu, Qiyuan (Sun Yat-Sen Univ), Liu, Zhongchang (Sun Yat-Sen Univ), Xu, Tianye (SUN YAT-SEN Univ), Lin, Liang (Sun Yat-Sen Univ)	
15:30-15:45	TuBT7.5
<i>Autonomous Predictive Driving for Blind Intersections.</i>	
Yoshihara, Yuki (Nagoya Univ), Morales Saiki, Luis Yoichi (Nagoya Univ), Akai, Naoki (Nagoya Univ), Takeuchi, Eijiro (Nagoya Univ), Ninomiya, Yoshiki (Toyota Central R & D Labs., Inc)	
15:45-16:00	TuBT7.6
<i>Mesh-Based 3D Textured Urban Mapping.</i>	
Romanoni, Andrea (Pol. Di Milano), Fiorenti, Daniele (Pol. Di Milano), Matteucci, Matteo (Pol. Di Milano)	

TuBT8	Room 202
Aerial Systems: Perception and Autonomy I	
Chair: Merino, Luis	Pablo De Olavide Univ
Co-Chair: Caballero, Fernando	Univ. of Seville
14:30-14:45	TuBT8.1
<i>Linear Velocity from Commotion Motion.</i>	
Dong, Wenbo (Univ. of Minnesota), Isler, Volkan (Univ. of Minnesota)	
14:45-15:00	TuBT8.2
<i>Sense and Avoid Based on Visual Pose Estimation for Small UAS.</i>	
Kang, Changkoo (Virginia Tech), Davis, Jason (Virginia Tech), Woolsey, Craig (Virginia Tech), Choi, Seongim (Virginia Tech)	
15:00-15:15	TuBT8.3
<i>Onboard Real-Time Dense Reconstruction of Large-Scale Environments for UAV.</i>	
Vempati, Anurag Sai (ETH Zurich, Disney Res. Zurich), Gilitschenski, Igor (ETH Zurich), Nieto, Juan (ETH Zürich), Beardsley, Paul (Disney Res. Zurich), Siegwart, Roland (ETH Zurich)	
15:15-15:30	TuBT8.4
<i>Wire Detection Using Synthetic Data and Dilated Convolutional Networks for Unmanned Aerial Vehicles.</i>	
Madaan, Ratnesh (Carnegie Mellon Univ), Maturana, Daniel (Carnegie Mellon Univ), Scherer, Sebastian (Carnegie Mellon Univ)	
15:30-15:45	TuBT8.5
<i>Multi-Modal Mapping and Localization of Unmanned Aerial Robots Based on Ultra-Wideband and RGB-D Sensing.</i>	
Perez Grau, Francisco Javier (Center for Advanced Aerospace Tech), Caballero, Fernando (Univ. of Seville), Merino, Luis (Pablo De Olavide Univ), Viguria, Antidio (Center for Advanced Aerospace Tech. (CATEC))	
15:45-16:00	TuBT8.6
<i>Autonomous Meta-Classifer for Surface Hardness Classification from UAV Landings.</i>	
Basha, Elizabeth (Univ. of the Pacific), Watts-Willis, Tristan (Univ. of the Pacific), Detweiler, Carrick (Univ. of Nebraska-Lincoln)	

TuBT9	Room 204
AI-Based Methods	
Chair: Hannaford, Blake	Univ. of Washington
Co-Chair: Inamura, Tetsunari	National Inst. of Informatics
14:30-14:45	TuBT9.1
<i>On-Line Simultaneous Learning and Recognition of Everyday Activities from Virtual Reality Performances.</i>	
Bates, Tamas (Tech. Univ. of Munich), Ramirez-Amaro, Karinne (Inst. for Cognitive Systems. Tech. Univ. München), Inamura, Tetsunari (National Inst. of Informatics), Cheng, Gordon (Tech. Univ. of Munich)	
14:45-15:00	TuBT9.2
<i>Learning Magnetic Field Distortion Compensation for Robotic Systems.</i>	
Christensen, Leif (DFKI), Krell, Mario Michael (Univ. of Bremen), Kirchner, Frank (Univ. of Bremen)	
15:00-15:15	TuBT9.3
<i>Multi Vehicle Routing with Nonholonomic Constraints and Dense Dynamic Obstacles.</i>	
Mansouri, Masoumeh (Örebro Univ), Lagriffoul, Fabien (Örebro Univ), Pecora, Federico (Örebro Univ)	
15:15-15:30	TuBT9.4
<i>Feeling the Force: Integrating Force and Pose for Fluent Discovery through Imitation Learning to Open Medicine Bottles.</i>	
Gao, Feng (Univ. of California, Los Angeles), Edmonds, Mark (Univ. of California, Los Angeles), Xie, Xu (UCLA), Liu, Hangxin (Univ. of California, Los Angeles), ZHU, YIXIN (Univ. of California, Los Angeles), QI, SIYUAN (Univ. of California, Los Angeles), Rothrock, Brandon (Jet Propulsion Lab. California Inst. of Tech), Zhu, Song-Chun (UCLA)	
15:30-15:45	TuBT9.5
<i>Improving Control Precision and Motion Adaptiveness for Surgical Robot with Recurrent Neural Network.</i>	
Li, Yangming (Univ. of Washington), Li, Shuai (Hong Kong Pol. Univ), Caballero, David (Univ. of Washington), Miyasaka, Muneaki (Univ. of Washington), Lewis, Andrew (Applied Dexterity), Hannaford, Blake (Univ. of Washington)	
15:45-16:00	TuBT9.6
<i>Deep Semantic Classification for 3D LiDAR Data.</i>	
Dewan, Ayush (Univ. of Freiburg), Oliveira, Gabriel (Univ. of Freiburg), Burgard, Wolfram (Univ. of Freiburg)	

TuBT10		Room 205
Cellular Robots II		
Co-Chair: Nelson, Carl		Univ. of Nebraska-Lincoln
14:30-14:45		TuBT10.1
<i>Modular Robot Connector Area of Acceptance from Configuration Space Obstacles.</i>		
Eckenstein, Nick (Univ. of Pennsylvania), Yim, Mark (Univ. of Pennsylvania)		
14:45-15:00		TuBT10.2
<i>Adaptive Locomotion Learning in Modular Self-Reconfigurable Robots: A Game Theoretic Approach.</i>		
Dutta, Ayan (Univ. of Nebraska at Omaha), Dasgupta, Prithviraj (Raj) (Univ. of Nebraska, Omaha), Nelson, Carl (Univ. of Nebraska-Lincoln)		
15:00-15:15		TuBT10.3
<i>Evolutionary Cost-Optimal Composition Synthesis of Modular Robots Considering a Given Task.</i>		
Icer, Esra (Tech. Univ. München), Hassan, Heba (German Univ. in Cairo), El-Ayat, Khaled (American Univ. Cairo), Althoff, Matthias (Tech. Univ. München)		
15:15-15:30		TuBT10.4
<i>Shape Control of Compliant, Articulated Meshes: Towards Modular Active-Cell Robots (MACROs).</i>		
Nawroj, Ahsan (Yale Univ), Dollar, Aaron (Yale Univ)		
15:30-15:45		TuBT10.5
<i>Rearranging Agents in a Small Space Using Global Controls.</i>		
Zhang, Yinan (Dartmouth Coll), Chen, Xiaolei (Dartmouth Coll), Qi, Hang (Dartmouth Coll), Balkcom, Devin (Dartmouth Coll)		
15:45-16:00		TuBT10.6
<i>Predictive Routing for Autonomous Mobility-On-Demand Systems with Ride-Sharing.</i>		
Alonso-Mora, Javier (Delft Univ. of Tech), Wallar, Alexander (Massachusetts Inst. of Tech), Rus, Daniela (MIT)		

TuBT11	Room 207
Physical HRI	
Chair: Demiris, Yiannis	Imperial Coll. London
Co-Chair: Secchi, Cristian	Univ. of Modena & Reggio Emilia
14:30-14:45	TuBT11.1
<i>Improving Transparency in Physical Human-Robot Interaction Using an Impedance Compensator.</i>	
Lee, Kyeong Ha (Sungkyunkwan Univ), Baek, Seung Guk (Sungkyunkwan Univ), Lee, Hyuk Jin (SungKyunKwan Univ), Choi, Hyouk Ryeol (Sungkyunkwan Univ), Moon, Hyungpil (Sungkyunkwan Univ), Koo, Ja Choon (Sungkyunkwan Univ)	
14:45-15:00	TuBT11.2
<i>Modeling Human Reaching Phase in Human-Human Object Handover with Application in Robot-Human Handover.</i>	
Parastegari, Sina (Univ. of Illinois at Chicago), Abbasi, Bahareh (Univ. of Illinois at Chicago), Noohi, Ehsan (Univ. of Illinois at Chicago), Zefran, Milos (Univ. of Illinois at Chicago)	
15:00-15:15	TuBT11.3
<i>Personalized Robot-Assisted Dressing Using User Modeling in Latent Spaces.</i>	
Zhang, Fan (Imperial Coll. London), Cully, Antoine (Imperial Coll. London), Demiris, Yiannis (Imperial Coll. London)	
15:15-15:30	TuBT11.4
<i>Variable Admittance Control Preventing Undesired Oscillating Behaviors in Physical Human-Robot Interaction.</i>	
Talignani Landi, Chiara (Univ. of Modena and Reggio Emilia), Ferraguti, Federica (Univ. Degli Studi Di Modena E Reggio Emilia), Sabattini, Lorenzo (Univ. of Modena and Reggio Emilia), Secchi, Cristian (Univ. of Modena & Reggio Emilia), Bonfe, Marcello (Univ. of Ferrara), Fantuzzi, Cesare (Univ. Di Modena E Reggio Emilia)	
15:30-15:45	TuBT11.5
<i>Adaptive Indirect Control through Communication in Collaborative Human-Robot Interaction.</i>	
Silva, Rui (Carnegie Mellon Univ. and Inst. Superior Tecnico), Faria, Miguel (INESC-ID and Inst. Superior Técnico, Tech. Of), Melo, Francisco S. (Inst. Superior Tecnico), Veloso, Manuela (Carnegie Mellon Univ)	
15:45-16:00	TuBT11.6
<i>Impedance Control with Structural Compliance and a Sensorless Strategy for Contact Tasks.</i>	
Kim, Dongwon (Univ. of Michigan), Kang, Sang Hoon (Ulsan National Inst. of Science and Tech. / Nort), Gu, Gwang Min (KAIST), Jin, Maolin (Korea Inst. of Robot and Convergence)	

TuBT12		Room 208
Medical Robots and Systems III		
Chair: Tan, Jindong	Univ. of Tennessee, Knoxville	
Co-Chair: Gans, Nicholas (Nick)	Univ. Texas at Dallas	
14:30-14:45		TuBT12.1
<i>Distal Proprioceptive Sensor for Motion Feedback in Endoscope-Based Modular Robotic Systems.</i>		
Gafford, Joshua (Harvard Univ), Aihara, Hiroyuki (Brigham and Women's Hospital), Thompson, Christopher (Brigham and Women's Hospital), Wood, Robert (Harvard Univ), Walsh, Conor James (Harvard Univ)		
14:45-15:00		TuBT12.2
<i>Spatial Semg Pattern-Based Finger Motion Estimation in a Small Area Using a Microneedle-Based High-Density Interface.</i>		
Kim, Minjae (POSTECH), Chung, Wan Kyun (POSTECH)		
15:00-15:15		TuBT12.3
<i>Magnetic Hammer Actuation for Tissue Penetration Using Millirobots.</i>		
Leclerc, Julien (Univ. of Houston), Ramakrishnan, Ashwin (Univ. of Houston), Tsekos, Nikolaos (Univ. of Houston), Becker, Aaron (Univ. of Houston)		
15:15-15:30		TuBT12.4
<i>Semiautonomous Electrosurgery for Tumor Resection Using a Multi-Degree of Freedom Electrosurgical Tool and Visual Servoing.</i>		
Opfermann, Justin (Children's National Medical Center), Leonard, Simon (The Johns Hopkins Univ), Decker, Ryan (Children's National Medical Center), Uebele, Nicholas (Johns Hopkins Univ), Bayne, Christopher (Children's National Medical Center), Joshi, Arjun (George Washington Univ), Krieger, Axel (Univ. of Maryland)		
15:30-15:45		TuBT12.5
<i>Soft-NeuroAdapt: A 3-DOF Neuro-Adaptive Patient Pose Correction System for Frameless and Maskless Cancer Radiotherapy.</i>		
Ogunmolu, Olalekan (Univ. of Texas at Dallas), Kulkarni, Adwait (Univ. of Texas at Dallas), Tadesse, Yonas (Univ. of Texas at Dallas), Gu, Xuejun (Univ. of Texas at Dallv), jiang, Steve (Univ. of Texas Southwestern Medical Center), Gans, Nicholas (Nick) (Univ. Texas at Dallas)		
15:45-16:00		TuBT12.6
<i>A Novel Laparoscopic Camera Robot with In-Vivo Lens Cleaning and Debris Prevention Modules.</i>		
Yazdanpanah Abdolmalaki, Reza (Univ. of Tennessee, Knoxville), Liu, Xiaolong (Univ. of Tennessee, Knoxville), Li, Ning (The Univ. of Tennessee), Tan, Jindong (Univ. of Tennessee, Knoxville)		

TuBT13		Room 211
Motion and Path Planning III		
Chair: Arslan, Omur	Univ. of Pennsylvania	
14:30-14:45	TuBT13.1	
<i>An Optimization Approach to Trajectory Generation for Autonomous Vehicle Following.</i>		
Fassbender, Dennis (Univ. of the Bundeswehr Munich), Heinrich, Benjamin C. (Univ. of the Bundeswehr Munich), Luettel, Thorsten (Univ. of the Bundeswehr Muenchen), Wuensche, Hans J (UniBw Munich)		
14:45-15:00	TuBT13.2	
<i>Gradient-Based Online Safe Trajectory Generation for Quadrotor Flight in Complex Environments.</i>		
Gao, Fei (Hong Kong Univ. of Science and Tech), Lin, Yi (Hong Kong Univ. of Science and Tech), Shen, Shaojie (Hong Kong Univ. of Science and Tech)		
15:00-15:15	TuBT13.3	
<i>Optimal Control-Based Online Maneuver Planning for Cooperative Lane Change of Connected and Automated Vehicles.</i>		
Li, Bai (Zhejiang Univ), Zhang, Youmin (Concordia Univ), Ge, Yuming (China Acad. of Information and Communications Tech), Shao, Zhijiang (Zhejiang Univ), Li, Pu (Department of Simulation and Optimal Processes, Inst. of Aut)		
15:15-15:30	TuBT13.4	
<i>High Precision Trajectory Planning on Freeform Surfaces for Robotic Manipulators.</i>		
Salles de Freitas, Renan (Federal Univ. of Rio De Janeiro), Elael de Melo Soares, Eduardo (Federal Univ. of Rio De Janeiro), Costa, Ramon (Federal Univ. of Rio De Janeiro), Bellinati de Carvalho, Breno (Energia Sustentável Do Brasil)		
15:30-15:45	TuBT13.5	
<i>A Kinodynamic Steering-Method for Legged Multi-Contact Locomotion.</i>		
Fernbach, Pierre (Cnrs - Laas), Tonneau, Steve (Cnrs - Laas), Del Prete, Andrea (CNRS), Taïx, Michel (LAAS-CNRS/Univ. Paul Sabatier)		
15:45-16:00	TuBT13.6	
<i>Sensory Steering for Sampling-Based Motion Planning.</i>		
Arslan, Omur (Univ. of Pennsylvania), Pacelli, Vincent (Univ. of Pennsylvania), Koditschek, Daniel (Univ. of Pennsylvania)		

TuBT14	Room 217
Soft Material Robotics IV	
Chair: de Almeida, Anibal	IROS 2012 General Chair
Co-Chair: Tavakoli, Mahmoud	Univ. of Coimbra
14:30-14:45	TuBT14.1
<i>Design of a Soft, Parallel End-Effector Applied to Robot-Guided Ultrasound Interventions.</i>	
Lindenroth, Lukas (King's Coll. London), Soor, Avinash (King's Coll. London), Hutchinson, Jack (King's Coll. London), Shafi, Amber (King's Coll. London), Back, Jungwhan (King's Coll. London), Rhode, Kawal (King's Coll. London), Liu, Hongbin (King's Coll. London)	
14:45-15:00	TuBT14.2
<i>Development of a Soft-Inflatable Exosuit for Knee Rehabilitation.</i>	
Sridar, Saivimal (Arizona State Univ), Pham, Huy Nguyen (Arizona State Univ), Zhu, Mengjia (Arizona State Univ), Lam, Quoc (Arizona State Univ), Polygerinos, Panagiotis (Arizona State Univ)	
15:00-15:15	TuBT14.3
<i>A Move-And-Hold Pneumatic Actuator Enabled by Self-Softening Variable Stiffness Materials.</i>	
Buckner, Trevor (Purdue Univ), White, Edward (Purdue Univ), Yuen, Michelle Ching-Sum (Purdue Univ), Kramer, Rebecca (Purdue Univ), Bilodeau, Raymond Adam (Purdue Univ)	
15:15-15:30	TuBT14.4
<i>Soft-Matter Sensor for Proximity, Tactile and Pressure Detection.</i>	
Rocha, Rui (Univ. of Coimbra), Lopes, Pedro Filipe Alhais (ISR-UC Inst. of Systems and Robotics - Univ. of Coimbra), Tavakoli, Mahmoud (Univ. of Coimbra), de Almeida, Anibal (IROS 2012 General Chair), Majidi, Carmel (Carnegie Mellon Univ)	
15:30-15:45	TuBT14.5
<i>Fabrication, Modeling, and Control of Plush Robots.</i>	
Bern, James (Carnegie Mellon Univ), Kumagai, Grace (Univ. of Toronto), Coros, Stelian (Carnegie Mellon Univ)	
15:45-16:00	TuBT14.6
<i>Multi-Objective Optimization for Stiffness and Position Control in a Soft Robot Arm Module.</i>	
Ansari, Yasmin (Scuola Superiore Sant'Anna), Manti, Mariangela (Scuola Superiore Sant'Anna, Pisa, Italy), Falotico, Egidio (Scuola Superiore Sant'Anna), Cianchetti, Matteo (Scuola Superiore Sant'Anna), Laschi, Cecilia (Scuola Superiore Sant'Anna)	

TuBT15		Room 215
Visual Tracking		
Chair: Jagersand, Martin		Univ. of Alberta
14:30-14:45		TuBT15.1
<i>On-Road Vehicle Tracking Using Part-Based Particle Filter.</i>		
Fang, Yongkun (Peking Univ), Wang, Chao (Peking Univ), Zhao, Huijing (Peking Univ), Zha, Hongbin (Peking Univ)		
14:45-15:00		TuBT15.2
<i>Visual Coordination Task for Human-Robot Collaboration.</i>		
Khatib, Maram (Sapienza Univ. of Rome), Al Khudir, Khaled (Sapienza Univ. of Rome), De Luca, Alessandro (Sapienza Univ. of Rome)		
15:00-15:15		TuBT15.3
<i>Robust Visual Tracking with a Freely-Moving Event Camera.</i>		
Glover, Arren (Istituto Italiano Di Tecnologia), Bartolozzi, Chiara (Istituto Italiano Di Tecnologia)		
15:15-15:30		TuBT15.4
<i>RGB-D SLAM in Dynamic Environments Using Static Point Weighting.</i>		
Li, Shile (Tech. Univ. München), Lee, Dongheui (Tech. Univ. of Munich)		
15:30-15:45		TuBT15.5
<i>Modular Tracking Framework: A Fast Library for High Precision Tracking.</i>		
Singh, Abhineet (Univ. of Alberta), Jagersand, Martin (Univ. of Alberta)		
15:45-16:00		TuBT15.6
<i>Model-Based Visual Tracking of Orbiting Satellites Using Edges.</i>		
Lourakis, Manolis (Inst. of Computer Science - FFoundation for Res. Andtechn), Zabulis, Xenophon (FORTH)		

TuBT16		Room 220
Space Robotics		
Chair: Kazanzides, Peter	Johns Hopkins Univ	
Co-Chair: Baker, William	Houston Mechatronics Inc	
14:30-14:45	TuBT16.1	
<i>Supervisory Control of a Humanoid Robot in Microgravity for Manipulation Tasks.</i>		
Farrell, Logan (NASA: Johnson Space Center), Strawser, Philip (NASA), Hambuchen, Kimberly (NASA Johnson Space Center), Baker, William (Houston Mechatronics Inc), Badger, Julia (NASA Johnson Space Center)		
14:45-15:00	TuBT16.2	
<i>An Approach to Autonomous Science by Modeling Geological Knowledge in a Bayesian Framework.</i>		
Arora, Akash (Univ. of Sydney), Fitch, Robert (Univ. of Tech. Sydney), Sukkarieh, Salah (Univ. of Sydney)		
15:00-15:15	TuBT16.3	
<i>Planetary Robotic Exploration Driven by Science Hypotheses for Geologic Mapping.</i>		
Candela, Alberto (Carnegie Mellon Univ), Thompson, David (Jet Propulsion Lab. / California Inst. of Tech), Noe Dobreá, Eldar (Planetary Science Inst), Wettergreen, David (Carnegie Mellon Univ)		
15:15-15:30	TuBT16.4	
<i>Science-Aware Exploration Using Entropy-Based Planning.</i>		
Gautam, Shivam (Carnegie Mellon Univ), Sinha Roy, Bishwamoy (Carnegie Mellon Univ), Candela, Alberto (Carnegie Mellon Univ), Wettergreen, David (Carnegie Mellon Univ)		
15:30-15:45	TuBT16.5	
<i>Augmented Virtuality for Model-Based Teleoperation.</i>		
Vagvolgyi, Balazs (Johns Hopkins Univ), Niu, Wenlong (National Space Science Center, Univ. of Chinese Acad. Of), Chen, Zihan (Johns Hopkins Univ), Wilkening, Paul (Johns Hopkins Univ), Kazanzides, Peter (Johns Hopkins Univ)		

TuBT17	Room 221
Formal Methods for Robotics	
Chair: Petersen, Henrik Gordon	Univ. of Southern Denmark
Co-Chair: Vasile, Cristian Ioan	Massachusetts Inst. of Tech
14:30-14:45	TuBT17.1
<i>Reinforcement Learning with Temporal Logic Rewards.</i>	
Li, Xiao (Boston Univ), Vasile, Cristian Ioan (Massachusetts Inst. of Tech), Belta, Calin (Boston Univ)	
14:45-15:00	TuBT17.2
<i>Sampling-Based Synthesis of Maximally-Satisfying Controllers for Temporal Logic Specifications.</i>	
Vasile, Cristian Ioan (Massachusetts Inst. of Tech), Raman, Vasumathi (California Inst. of Tech), Karaman, Sertac (Massachusetts Inst. of Tech)	
15:00-15:15	TuBT17.3
<i>A Framework for Handling and Combining Inaccuracy Propagation in Robot Subtasks for Industrial Assembly.</i>	
Buch, Jacob Pørksen (Univ. of Southern Denmark), Petersen, Henrik Gordon (Univ. of Southern Denmark)	
15:15-15:30	TuBT17.4
<i>Mining the Usage Patterns of ROS Primitives.</i>	
Santos, André (Univ. of Minho), Cunha, Alcino (Univ. of Minho), Macedo, Nuno (Univ. of Minho), Arrais, Rafael (Inesc Tec), Neves dos Santos, Filipe (Inesc Tec)	
15:30-15:45	TuBT17.5
<i>Space-Efficient Filters for Mobile Robot Localization from Discrete Limit Cycles.</i>	
Alam, Tauhidul (Florida International Univ), Bobadilla, Leonardo (Florida International Univ), Shell, Dylan (Texas A&M Univ)	
15:45-16:00	TuBT17.6
<i>Automatic Property Checking of Robotic Applications.</i>	
Miyazawa, Alvaro (Univ. of York), Ribeiro, Pedro (Univ. of York), Li, Wei (Univ. of York), Cavalcanti, Ana (Univ. of York), Timmis, Jon (Univ. of York)	

TuBT18	Room 223
Physically Assistive Devices	
Chair: Hirata, Yasuhisa	Tohoku Univ
Co-Chair: Kaneko, Makoto	Osaka Univ
14:30-14:45	TuBT18.1
<i>A Five Degree-Of-Freedom Body-Machine Interface for Children with Severe Motor Impairments.</i>	
Chau, Sheryl (Michigan State Univ), Aspelund, Sanders (Michigan State Univ), Mukherjee, Ranjan (Michigan State Univ), Lee, Mei-Hua (Michigan State Univ), Ranganathan, Rajiv (Michigan State Univ), Kagerer, Florian (Michigan State Univ)	
14:45-15:00	TuBT18.2
<i>Development of a Soft Robotic Glove with High Gripping Force Using Force Distributing Compliant Structures.</i>	
Kim, Yong-Jae (Korea Univ. of Tech. and Education), Jeong, YongJun (Department of Electrical, Electronics Engineering & Communicatio), Jeon, Hyeong-Seok (Korea Univ. of Tech. and Education), Lee, Deok-Won (Korea Univ. of Tech. and Education), Kim, Jong-In (Korea Univ. of Tech. and Education)	
15:00-15:15	TuBT18.3
<i>Quantifying Performance of Bipedal Standing with Multi-Channel EMG.</i>	
Sui, Yanan (California Inst. of Tech), Kim, Kun ho (California Inst. of Tech), Burdick, Joel (California Inst. of Tech)	
15:15-15:30	TuBT18.4
<i>Variable Viscoelastic Joint System and Its Application to Exoskeleton.</i>	
Okui, Manabu (Chuo Univ), Iikawa, Shingo (Chuo Univ), Yamada, Yasuyuki (Chuo Univ), Nakamura, Taro (Chuo Univ)	
15:30-15:45	TuBT18.5
<i>A Phantom-Sensation Based Paradigm for Continuous Vibrotactile Wrist Guidance in 2D Space.</i>	
Salazar Luces, Jose Victorio (Tohoku Univ), Okabe, Keisuke (Tohoku Univ), Murao, Yoshiki (Tohoku Univ), Hirata, Yasuhisa (Tohoku Univ)	
15:45-16:00	TuBT18.6
<i>An Active Neck Brace Controlled by a Joystick to Assist Head Motion.</i>	
Zhang, Haohan (Columbia Univ), Agrawal, Sunil (Columbia Univ)	

TuCT1	Room 109
Learning from Demonstration II	
Chair: Oh, Songhwi	Seoul National Univ
Co-Chair: Asfour, Tamim	Karlsruhe Inst. of Tech. (KIT)
16:30-16:45	TuCT1.1
<i>Looking High and Low: Learning Place-Dependent Gaussian Mixture Height Models for Terrain Assessment.</i>	
Berczi, Laszlo-Peter (Univ. of Toronto), Barfoot, Timothy (Univ. of Toronto)	
16:45-17:00	TuCT1.2
<i>Scalable Robust Learning from Demonstration with Leveraged Deep Neural Networks.</i>	
Choi, Sungjoon (Seoul National Univ), Lee, Kyungjae (Seoul National Univ), Oh, Songhwi (Seoul National Univ)	
17:00-17:15	TuCT1.3
<i>Adversarially Robust Policy Learning through Active Construction of Physically-Plausible Perturbations.</i>	
Mandlekar, Ajay Uday (Stanford Univ), Zhu, Yuke (Stanford Univ), Garg, Animesh (Stanford Univ), Fei-Fei, Li (Stanford Univ), Savarese, Silvio (Stanford Univ)	
17:15-17:30	TuCT1.4
<i>Learning a Unified Control Policy for Safe Falling.</i>	
C V Kumar, Visak (Georgia Inst. of Tech), Ha, Sehoon (Disney Res), Liu, Karen (Georgia Tech)	
17:30-17:45	TuCT1.5
<i>Learning to Fly by Crashing.</i>	
Gandhi, Dhiraj (Carnegie Mellon Univ), Pinto, Lerrel Joseph (Carnegie Mellon Univ), Gupta, Abhinav (Carnegie Mellon Univ)	
17:45-18:00	TuCT1.6
<i>Learning Externally Modulated Dynamical Systems.</i>	
SOMMER, Nicolas (Ec. Pol. Federale De Lausanne (EPFL)), Kronander, Klas (Learning Algorithms and Systems Lab. EPFL), Billard, Aude (EPFL)	

TuCT2	Room 111
Biologically-Inspired Robots IV	
Co-Chair: Guan, Yisheng	Guangdong Univ. of Tech
16:30-16:45	TuCT2.1
<i>A High Speed Motion Capture Method and Performance Metrics for Studying Gaits on an Insect-Scale Legged Robot.</i>	
Goldberg, Benjamin (Harvard Univ), Doshi, Neel (Harvard), Jayaram, Kaushik (Harvard Univ), Koh, Je-Sung (Harvard Univ), Wood, Robert (Harvard Univ)	
16:45-17:00	TuCT2.2
<i>When Joggers Meet Robots: A Preliminary Study on Foot Strike Patterns.</i>	
Liu, George H. Z. (The Univ. of Hong Kong), Chen, Michael Z. Q. (Nanjing Univ. of Science and Tech), Chen, Yonghua (The Univ. of Hong Kong), Huang, Lixi (The Univ. of Hong Kong)	
17:00-17:15	TuCT2.3
<i>FLEGX: A Bioinspired Design for a Jumping Humanoid Leg.</i>	
D'Imperio, Mariapaola (Istituto Italiano Di Tecnologia), Ludovico, Daniele (Pol. Di Torino), PIZZAMIGLIO, CRISTIANO (Pol. Di Torino/DIMEAS), Canali, Carlo (Department of Advanced Robotics, Istituto Italiano Di Tecnologia), Caldwell, Darwin G. (Istituto Italiano Di Tecnologia), Cannella, Ferdinando (Istituto Italiano Di Tecnologia)	
17:15-17:30	TuCT2.4
<i>A 3-D Bio-Inspired Odor Source Localization and Its Validation in Realistic Environmental Conditions.</i>	
Rahbar, Faezeh (EPFL), Marjovi, Ali (EPFL), Kibleur, Pierre (EPFL), Martinoli, Alcherio (EPFL)	
17:30-17:45	TuCT2.5
<i>Morphological Optimization for Tensegrity Quadruped Locomotion.</i>	
Hustig-Schultz, Dawn (Univ. of California, Santa Cruz), SunSpiral, Vytas (SGT Inc. / NASA Ames Res. Center), Teodorescu, Mircea (UCSC)	
17:45-18:00	TuCT2.6
<i>Collision Selective LGMDs Neuron Models Research Benefits from a Vision-Based Autonomous Micro Robot.</i>	
Fu, Qinbing (Univ. of Lincoln), Hu, Cheng (Univ. of Lincoln), Liu, Tian (Univ. of Lincoln), Yue, Shigang (Univ. of Lincoln)	

TuCT3	Room 116
Manipulation Planning	
Chair: O'Kane, Jason	Univ. of South Carolina
Co-Chair: Behnke, Sven	Univ. of Bonn
16:30-16:45	TuCT3.1
<i>A Probabilistic Planning Framework for Planar Grasping under Uncertainty.</i>	
Zhou, Jiaji (Carnegie Mellon Univ), Paolini, Robert (Carnegie Mellon Univ), Johnson, Aaron (Carnegie Mellon Univ), Bagnell, James (Carnegie Mellon Univ), Mason, Matthew T. (Carnegie Mellon Univ)	
16:45-17:00	TuCT3.2
<i>Interleaving Motion in Contact and in Free Space for Planning under Uncertainty.</i>	
Sieverling, Arne (Tech. Univ. Berlin), Eppner, Clemens (Tech. Univ. Berlin), Wolff, Felix (Hasso Plattner Inst. Potsdam), Brock, Oliver (Tech. Univ. Berlin)	
17:00-17:15	TuCT3.3
<i>Efficient Stochastic Multicriteria Arm Trajectory Optimization.</i>	
Pavlichenko, Dmytro (Univ. of Bonn), Behnke, Sven (Univ. of Bonn)	
17:15-17:30	TuCT3.4
<i>Manipulation Planning with Directed Reachable Volumes.</i>	
McMahon, Troy (Texas A&M), Sandstrom, Read (Texas A&M Univ), Thomas, Shawna (Texas A&M Univ), Amato, Nancy (Texas A&M Univ)	
17:30-17:45	TuCT3.5
<i>Safe Robotic Grasping: Minimum Impact-Force Grasp Selection.</i>	
Mavrakis, Nikos (Univ. of Birmingham), Ghalamzan Esfahani, Amir Masoud (Univ. of Birmingham), Stolkin, Rustam (Univ. of Birmingham)	
17:45-18:00	TuCT3.6
<i>Inconsequential Improprieties: Filter Reduction in Probabilistic Worlds.</i>	
Saberifar, Fatemeh Zahra (Univ. of Amirkabir), O'Kane, Jason (Univ. of South Carolina), Shell, Dylan (Texas A&M Univ)	

TuCT4	Room 114
Localization III	
Chair: Magnusson, Martin	Örebro Univ
Co-Chair: Fang, Lu	Tsinghua Univ
16:30-16:45	TuCT4.1
<i>Planar Scan Matching Using Incident Angle.</i>	
LV, Jixin (Hangzhou Hikvision Digital Tech. Co., Ltd), Wang, Yue (Zhejiang Univ), WU, KANZHI (Univ. of Tech. Sydney), Dissanayake, Gamini (Univ. of Tech. Sydney), Kobayashi, Yukinori (Hokkaido Univ), Xiong, Rong (Zhejiang Univ)	
16:45-17:00	TuCT4.2
<i>Beyond SIFT Using Binary Features in Loop Closure Detection.</i>	
Han, Lei (Hong Kong Univ. of Science and Tech), ZHOU, Guyue (DJI), XU, Lan (Hong Kong Univ. of Science and Tech), Fang, Lu (Hong Kong Univ. of Science and Tech)	
17:00-17:15	TuCT4.3
<i>Semantic-Assisted 3D Normal Distributions Transform for Scan Registration in Environments with Limited Structure.</i>	
Zaganidis, Anestis (Univ. of Lincoln), Magnusson, Martin (Örebro Univ), Duckett, Tom (Univ. of Lincoln), Cielniak, Grzegorz (Univ. of Lincoln)	
17:15-17:30	TuCT4.4
<i>RGBD-Based Robot Localization in Sewer Networks.</i>	
Alejo, David (Univ. Pablo De Olavide), Caballero, Fernando (Univ. of Seville), Merino, Luis (Pablo De Olavide Univ)	
17:30-17:45	TuCT4.5
<i>Pose Graph-Based Precise Localization with Point and Lane Features.</i>	
Wu, Cong (Karlsruhe Inst. of Tech), Huang, Tiffany A. (Mercedes-Benz Res. & Development North America), Muffert, Maximilian (Mercedes-Benz RD North America), Schwarz, Tilo (Daimler AG), Gräter, Johannes (Karlsruher Inst. Für Tech. (KIT))	
17:45-18:00	TuCT4.6
<i>Markovian Jump Linear Systems-Based Filtering for Visual and GPS Aided Inertial Navigation System.</i>	
Inoue, Roberto (Federal Univ. of São Carlos), Guizilini, Vitor (Univ. of Sydney), Terra, Marco Henrique (Univ. of Sao Paulo), Ramos, Fabio (Univ. of Sydney)	

TuCT5	Room 118
Legged Robots II	
Chair: Choi, Hyouk Ryeol	Sungkyunkwan Univ
Co-Chair: Remy, C. David	Univ. of Michigan
16:30-16:45	TuCT5.1
<i>RAMone: A Planar Biped for Studying the Energetics of Gait.</i>	
Smit-Anseeuw, Nils (Univ. of Michigan), Gleason, Rodney (Univ. of Michigan), Zaytsev, Petr (Univ. of Michigan), Remy, C. David (Univ. of Michigan)	
16:45-17:00	TuCT5.2
<i>Foothold Placement Planning with a Hexapod Crawling Robot.</i>	
Cizek, Petr (Czech Tech. Univ. in Prague, Faculty of Electrical Engi), Masri, Diar (Czech Tech. Univ. in Prague, Faculty of Electrical Engi), Faigl, Jan (Czech Tech. Univ. in Prague)	
17:00-17:15	TuCT5.3
<i>Policy-Regularized Model Predictive Control to Stabilize Diverse Quadrupedal Gaits for the MIT Cheetah.</i>	
Bledt, Gerardo (Massachusetts Inst. of Tech. (MIT)), Wensing, Patrick (Univ. of Notre Dame), Kim, Sangbae (Massachusetts Inst. of Tech)	
17:15-17:30	TuCT5.4
<i>GOAT: A Legged Robot with 3D Agility and Virtual Compliance.</i>	
Kalouche, Simon (Stanford Univ. / Carnegie Mellon Univ)	
17:30-17:45	TuCT5.5
<i>Stealth Walking of 3-Link Planar Underactuated Biped.</i>	
Asano, Fumihiko (Japan Advanced Inst. of Science and Tech)	
17:45-18:00	TuCT5.6
<i>Development of Torque Controllable Leg for Running Robot, AiDIN-IV.</i>	
Lee, Yoon Haeng (Sungkyunkwan Univ), Lee, Young Hun (Sungkyunkwan Univ), Lee, Hyunyong (Sungkyunkwan Univ), Phan, Luong Tin (Sungkyunkwan Univ), Kang, Hansol (Sungkyunkwan Univ), kim, Yong Bum (Sungkyunkwan Univ), Choi, Hyouk Ryeol (Sungkyunkwan Univ)	

TuCT6	Room 121
Human Detection and Tracking	
Chair: Perez Quintero, Camilo Alfonso	Univ. of Alberta
Co-Chair: Furukawa, Tomonari	Virginia Pol. Inst. and State Univ
16:30-16:45	TuCT6.1
<i>Learn2Smile: Learning Non-Verbal Interaction through Observation.</i>	
Feng, Will (Facebook AI Res), Kannan, Anitha (Facebook), Gkioxari, Georgia (Facebook AI Res), Zitnick, Lawrence (Facebook AI Res)	
16:45-17:00	TuCT6.2
<i>Partially Transferred Convolution Neural Network with Cross-Layer Inheriting for Posture Recognition from Top-View Depth Camera.</i>	
Liu, An-Sheng (National Taiwan Univ), Li, Zi-Jun (National Taiwan Univ), Yeh, Tso-Hsin (National Taiwan Univ), Yang, Yu-Huan (National Taiwan Univ), Fu, Li-Chen (National Taiwan Univ)	
17:00-17:15	TuCT6.3
<i>Tracking a Varying Number of People with a Visually-Controlled Robotic Head.</i>	
BAN, Yutong (INRIA Grenoble Rhône-Alpes), Alameda-Pineda, Xavier (INRIA Grenoble Rhône-Alpes, Univ. Joseph Fourier), Badeig, Fabien (INRIA Grenoble Rhone-Alpes), Ba, Sileye (INRIA Rhône-Alpes), Horaud, Radu (INRIA Grenoble Rhone-Alpes)	
17:15-17:30	TuCT6.4
<i>Faster Robot Perception Using Salient Depth Partitioning.</i>	
Chan, Darren (Univ. of California, San Diego), Taylor, Angelique (Univ. of California, San Diego), Riek, Laurel D. (Univ. of California San Diego)	
17:30-17:45	TuCT6.5
<i>Fast and Robust Detection of Fallen People from a Mobile Robot.</i>	
Antonello, Morris (Univ. of Padova), Carraro, Marco (Univ. of Padua), Pierobon, Marco (IT+Robotics Srl), Menegatti, Emanuele (The Univ. of Padua)	
17:45-18:00	TuCT6.6
<i>Multi-Stage Bayesian Target Estimation by UAV Using Fisheye Lens Camera and Pan/Tilt Camera.</i>	
Furukawa, Tomonari (Virginia Pol. Inst. and State Univ), Kang, Changkoo (Virginia Tech), Li, Boren (Virginia Tech), Dissanayake, Gamini (Univ. of Tech. Sydney)	

TuCT7	Room 122
Marine Robotics I	
Chair: Sattar, Junaed	Univ. of Minnesota
Co-Chair: Shintake, Jun	École Pol. Fédérale De Lausanne
16:30-16:45	TuCT7.1
<i>Online Model Identification for Underwater Vehicles through Incremental Support Vector Regression.</i>	
Wehbe, Bilal (German Res. Center for Artificial Intelligence - Robotic Inn), Fabisch, Alexander (Univ. of Bremen), Krell, Mario Michael (Univ. of Bremen)	
16:45-17:00	TuCT7.2
<i>Low-Cost Monocular Localization with Active Markers for Micro Autonomous Underwater Vehicles.</i>	
Buchan, Austin D (UC Berkeley), Solowjow, Eugen (Hamburg Univ. of Tech), Duecker, Daniel Andre (Hamburg Univ. of Tech), Kreuzer, Edwin (Hamburg Univ. of Tech)	
17:00-17:15	TuCT7.3
<i>Underwater Multi-Robot Convoying Using Visual Tracking by Detection.</i>	
Shkurti, Florian (McGill Univ), Chang, Wei-Di (McGill Univ), Henderson, Peter (McGill Univ), Islam, Md Jahidul (Univ. of Minnesota-Twin Cities), Gamboa Higuera, Juan Camilo (McGill Univ), Li, Jimmy (McGill Univ), Manderson, Travis (McGill Univ), Xu, Anqi (McGill Univ), Dudek, Gregory (McGill Univ), Sattar, Junaed (Univ. of Minnesota)	
17:15-17:30	TuCT7.4
<i>Development of Bio-Inspired Underwater Robot with Adaptive Morphology Capable of Multiple Swimming Modes.</i>	
Paschal, Thibaut (EPFL), Shintake, Jun (École Pol. Fédérale De Lausanne), Mintchev, Stefano (École Pol. Fédérale De Lausanne), Floreano, Dario (Ec. Pol. Federal, Lausanne)	
17:30-17:45	TuCT7.5
<i>Control of a Flexible, Surface-Piercing Hydrofoil for High-Speed, Small-Scale Applications.</i>	
Bousquet, Gabriel D (Massachusetts Inst. of Tech), Triantafyllou, Michael (MIT), Slotine, Jean-Jacques E. (Massachusetts Inst. of Tech)	
17:45-18:00	TuCT7.6
<i>Path-Following Control for Unmanned Surface Vehicles.</i>	
Li, Zhi (Memorial Univ. of Newfoundland), Bachmayer, Ralf (Memorial Univ. of Newfoundland), Vardy, Andrew (Memorial Univ. of Newfoundland)	

TuCT8		Room 202
Aerial Systems: Perception and Autonomy II		
Chair: Birchfield, Stan	Microsoft Corp	
16:30-16:45	TuCT8.1	
<i>Autonomous Flight for Detection, Localization, and Tracking of Moving Targets with a Small Quadrotor.</i>		
Thomas, Justin (Univ. of Pennsylvania), Welde, Jake (Univ. of Pennsylvania), Loiano, Giuseppe (Univ. of Pennsylvania), Daniilidis, Kostas (Univ. of Pennsylvania), Kumar, Vijay (Univ. of Pennsylvania)		
16:45-17:00	TuCT8.2	
<i>Robust Initialization of Monocular Visual-Inertial Estimation on Aerial Robots.</i>		
QIN, Tong (Hong Kong Univ. of Science and Tech), Shen, Shaojie (Hong Kong Univ. of Science and Tech)		
17:00-17:15	TuCT8.3	
<i>Spline-Based Initialization of Monocular Visual-Inertial State Estimators at High Altitude.</i>		
Liu, Tianbo (Hong Kong Univ. of Science and Tech), Shen, Shaojie (Hong Kong Univ. of Science and Tech)		
17:15-17:30	TuCT8.4	
<i>Toward Low-Flying Autonomous MAV Trail Navigation Using Deep Neural Networks for Environmental Awareness.</i>		
Smolyanskiy, Nikolai (NVIDIA), Kamenev, Alexey (NVIDIA), Smith, Jeffrey (NVIDIA), Birchfield, Stan (Microsoft Corp)		
17:30-17:45	TuCT8.5	
<i>Tracking Control of a UAV with a Parallel Visual Processor.</i>		
Greatwood, Colin (Univ. of Bristol), Bose, Laurie (Univ. of Bristol), Richardson, Thomas (Univ. of Bristol), Mayol, Walterio (Univ. of Bristol), Chen, Jianing (The Univ. of Manchester), Carey, Stephen J. (The Univ. of Manchester), Dudek, Piotr (The Univ. of Manchester)		
17:45-18:00	TuCT8.6	
<i>Low Cost Sensing and Communication System for Rotor Craft.</i>		
Gyongyosi, Marc (Northwestern Univ), Daley, Alexander (Northwestern Univ), Resnick, Blake (Northwestern Univ), Rubenstein, Michael (Northwestern Univ)		

TuCT9	Room 204
Recognition	
Co-Chair: Gasteratos, Antonios	Democritus Univ. of Thrace
16:30-16:45	TuCT9.1
<i>Two-Stream RNN/CNN for Action Recognition in 3D Videos.</i>	
Zhao, Rui (Siemens AG & Ludwig Maximilian Univ. of Munich), Ali, Haider (Johns Hopkins Univ), van der Smagt, Patrick (TUM)	
16:45-17:00	TuCT9.2
<i>High Order Visual Words for Structure-Aware and Viewpoint-Invariant Loop Closure Detection.</i>	
Bampis, Loukas (Democritus Univ. of Thrace), Amanatiadis, Angelos (Democritus Univ. of Thrace), Gasteratos, Antonios (Democritus Univ. of Thrace)	
17:00-17:15	TuCT9.3
<i>Belief Tree Search for Active Object Recognition.</i>	
Malmir, Mohsen (Univ. of California San Diego), Cottrell, Garrison W. (Univ. of California, San Diego)	
17:15-17:30	TuCT9.4
<i>Real-Time Salient Closed Boundary Tracking Via Line Segments Perceptual Grouping.</i>	
Qin, Xuebin (Univ. of Alberta), He, Shida (Univ. of Alberta), Perez Quintero, Camilo Alfonso (Univ. of Alberta), Singh, Abhineet (Univ. of Alberta), Dehghan, Masood (National Univ. of Singapore), Jagersand, Martin (Univ. of Alberta)	
17:30-17:45	TuCT9.5
<i>Stable Laser Interest Point Selection for Place Recognition in a Forest.</i>	
Giamou, Matthew (Univ. of Toronto), Babich, Yaroslav (MIT), Habibi, Golnaz (Rice Univ), How, Jonathan Patrick (Massachusetts Inst. of Tech)	
17:45-18:00	TuCT9.6
<i>MSM-HOG: A Flexible Trajectory Descriptor for Rigid Body Motion Recognition.</i>	
GUO, Yao (City Univ. of Hong Kong), Li, You-Fu (City Univ. of Hong Kong), Shao, Zhanpeng (Zhejiang Univ. of Tech)	

TuCT10	Room 205
Swarms	
Chair: Werfel, Justin	Harvard Univ
Co-Chair: Hauert, Sabine	Univ. of Bristol
16:30-16:45	TuCT10.1
<i>Algorithms for Shaping a Particle Swarm with a Shared Input by Exploiting Non-Slip Wall Contacts.</i>	
Shahrokhi, Shiva (Univ. of Houston), Mahadev, Arun (Univ. of Houston), Becker, Aaron (Univ. of Houston)	
16:45-17:00	TuCT10.2
<i>Towards Rapid Mechanical Customization of Cm-Scale Self-Folding Agents.</i>	
Weston-Dawkes, William (Univ. of California, San Diego), Ong, Aaron (Univ. of California, San Diego), Abdul Majit, Mohamad Ramzi (Univ. of California, San Diego), Joseph, Francis (Univ. of California, San Diego), Tolley, Michael Thomas (Univ. of California, San Diego)	
17:00-17:15	TuCT10.3
<i>Field Coverage and Weed Mapping by UAV Swarms.</i>	
Albani, Dario (Sapienza Univ. of Rome), Nardi, Daniele (Sapienza Univ. of Rome), Trianni, Vito (Consiglio Nazionale Delle Ricerche)	
17:15-17:30	TuCT10.4
<i>Robust Distributed Decision-Making in Robot Swarms: Exploiting a Third Truth State.</i>	
Crosscombe, Michael (Univ. of Bristol), Lawry, Jonathan (Univ. of Bristol), Hauert, Sabine (Univ. of Bristol), Homer, Martin (Univ. of Bristol)	
17:30-17:45	TuCT10.5
<i>Using Local Force Measurements to Guide Construction by Distributed Climbing Robots.</i>	
Melenbrink, Nathan (Wyss Inst. for Biologically Inspired Engineering, Harvard Un), Michalatos, Panagiotis (Harvard Univ), Kassabian, Paul (Simpson Gumpertz & Heger), Werfel, Justin (Harvard Univ)	
17:45-18:00	TuCT10.6
<i>Decentralized Stochastic Control of Robotic Swarm Density: Theory, Simulation, and Experiment.</i>	
Li, Hanjun (Univ. of California, Los Angeles), Feng, Chunhan (Nankai Univ), Ehrhard, Henry (Grinnell Coll), Shen, Yijun (Univ. of California, Los Angeles), Cobos, Bernardo (Univ. of California, Los Angeles), Zhang, Fangbo (Univ. of California, Los Angeles), Elamvazhuthi, Karthik (Arizona State Univ), Berman, Spring (Arizona State Univ), Haberland, Matt (Univ. of California, Los Angeles), Bertozzi, Andrea Louise (UCLA)	

TuCT11	Room 207
Cognitive and Physical HRI	
Chair: Cannata, Giorgio	Univ. of Genova
Co-Chair: Tsagarakis, Nikos	Istituto Italiano Di Tecnologia
16:30-16:45	TuCT11.1
<i>Human Hand Recognition from Robotic Skin Measurements in Human-Robot Physical Interactions.</i>	
Albini, Alessandro (Univ. of Genova), Denei, Simone (Univ. of Genova), Cannata, Giorgio (Univ. of Genova)	
16:45-17:00	TuCT11.2
<i>Measurement and Prediction of Situation Awareness in Human-Robot Interaction Based on a Framework of Probabilistic Attention.</i>	
Dini, Amir (JOANNEUM Res. Forschungsgesellschaft Mbh), Murko, Cornelia (JOANNEUM Res. Forschungsgesellschaft Mbh), Paletta, Lucas (JOANNEUM Res. Forschungsgesellschaft Mbh), Hofbaur, Michael (Joanneum Res), Augsdörfer, Ursula (Graz Tech. Univ), yahyanejad, saeed (Joanneum Res)	
17:00-17:15	TuCT11.3
<i>Anticipatory Robot Assistance for the Prevention of Human Static Joint Overloading in Human-Robot Collaboration.</i>	
Kim, Wansoo (Istituto Italiano Di Tecnologia), Lee, Jinoh (Fondazione Istituto Italiano Di Tecnologia), Peternel, Luka (Istituto Italiano Di Tecnologia), Tsagarakis, Nikos (Istituto Italiano Di Tecnologia), Ajoudani, Arash (Advanced Robotics Department)	
17:15-17:30	TuCT11.4
<i>Velocity-Curvature Patterns Limit Human-Robot Physical Interaction.</i>	
Maurice, Pauline (Northeastern Univ), Huber, Meghan (Massachusetts Inst. of Tech), Hogan, Neville (Massachusetts Inst. of Tech), Sternad, Dagmar (Northeastern Univ)	
17:30-17:45	TuCT11.5
<i>EMG-Based Model Predictive Control for Physical Human-Robot Interaction: Application for Assist-As-Needed Control.</i>	
Teramae, Tatsuya (ATR Computational Neuroscience Lab), Noda, Tomoyuki (ATR Computational Neuroscience Lab), Morimoto, Jun (ATR Computational Neuroscience Labs)	
17:45-18:00	TuCT11.6
<i>Recognizing Actions During Tactile Manipulations through Force Sensing.</i>	
Subramani, Guru (Univ. of Wisconsin - Madison), Rakita, Daniel (Http://graphics.cs.wisc.edu/WP/), Wang, Hongyi (Univ. of Wisconsin-Madison), Black, Jordan (Univ. of Wisconsin-Madison), Zinn, Michael (Univ. of Wisconsin - Madison), Gleicher, Michael (Univ. of Wisconsin - Madison)	

TuCT12		Room 208
Sensor Fusion		
Co-Chair: Vardy, Andrew	Memorial Univ. of Newfoundland	
16:30-16:45	TuCT12.1	
<i>Inertial-Based Scale Estimation for Structure from Motion on Mobile Devices.</i>		
Mustaniemi, Janne (Univ. of Oulu), Kannala, Juho (Aalto Univ), Särkkä, Simo (Aalto Univ. Finland), Matas, Jiri (Czech Tech. Univ), Heikkilä, Janne (Univ. of Oulu)		
16:45-17:00	TuCT12.2	
<i>Robust Indoor/outdoor Navigation through Magneto-Visual-Inertial Optimization-Based Estimation.</i>		
Caruso, David (Ec. Pol), Eudes, Alexandre (ONERA), Sanfourche, Martial (ONERA), Vissiere, David (Sysnav), Lebesnerais, Guy (Onera)		
17:00-17:15	TuCT12.3	
<i>Likelihood-Based Iterated Cubature Multi-State Constraint Kalman Filter for Visual Inertial Navigation System.</i>		
Nguyen, Trung (Memorial Univ. of Newfoundland), Mann, George K. I. (Memorial Univ. of Newfoundland), Vardy, Andrew (Memorial Univ. of Newfoundland), Gosine, Raymond G. (Memorial Univ. of Newfoundland)		
17:15-17:30	TuCT12.4	
<i>State Observability in Presence of Disturbances: The Analytic Solution and Its Application in Robotics.</i>		
Martinelli, Agostino (INRIA Grenoble-Rhone-Alpes)		
17:30-17:45	TuCT12.5	
<i>Generalized Center of Gravity Compensation for Multirotors with Application to Aerial Manipulation.</i>		
Fresk, Emil (Luleå Univ. of Tech), Wuthier, David (Luleå Univ. of Tech), Nikolakopoulos, George (Luleå Univ. of Tech)		
17:45-18:00	TuCT12.6	
<i>Bias Estimation for Angle-Only Sensors in Distributed Multi-Target Tracking Systems.</i>		
Martin, Sean (Johns Hopkins Univ. APL), Peterson, Cammy (Univ. of Maryland)		

TuCT13	Room 211
Motion and Path Planning IV	
Chair: Behnke, Sven	Univ. of Bonn
Co-Chair: Padir, Taskin	Northeastern Univ
16:30-16:45	TuCT13.1
<i>On the Performance of Selective Adaptation in State Lattices for Mobile Robot Motion Planning in Cluttered Environments.</i>	
Napoli, Michael (Univ. of Rochester), Biggie, Harel (Univ. of Rochester), Howard, Thomas (Univ. of Rochester)	
16:45-17:00	TuCT13.2
<i>Anytime Hybrid Driving-Stepping Locomotion Planning.</i>	
Klamt, Tobias (Univ. of Bonn), Behnke, Sven (Univ. of Bonn)	
17:00-17:15	TuCT13.3
<i>Anytime Multi-Task Motion Planning for Humanoid Robots.</i>	
Long, Xianchao (Northeastern Univ), Wonsick, Murphy (Northeastern Univ), Dimitrov, Velin (Northeastern Univ), Padir, Taskin (Northeastern Univ)	
17:15-17:30	TuCT13.4
<i>A Distributed Exploration Algorithm for Unknown Environments with Multiple Obstacles by Multiple Robots.</i>	
Bravo, Luis (Univ. of Guanajuato), Ruiz, Ubaldo (CICESE), Murrieta-Cid, Rafael (Center for Mathematical Res), Aguilar, Gabriel (Centro De Investigacion En Matematicas), Chávez, Edgar (Cicese)	
17:30-17:45	TuCT13.5
<i>A Mixed-Integer Convex Optimization Framework for Robust Multilegged Robot Locomotion Planning Over Challenging Terrain.</i>	
Aceituno-Cabezas, Bernardo (Simon Bolivar Univ), Dai, Hongkai (Massachusetts Inst. of Tech), Cappelletto, Jose (Simón Bolívar Univ), Grieco, Juan Carlos (Simon Bolivar Univ), Fernandez-Lopez, Gerardo (Simon Bolivar Univ)	
17:45-18:00	TuCT13.6
<i>Calculating Human Reachable Occupancy for Guaranteed Collision-Free Planning.</i>	
Pereira, Aaron (Tech. Univ. München), Althoff, Matthias (Tech. Univ. München)	

TuCT14	Room 217
Intelligent Transportation	
Chair: Johnson-Roberson, Matthew	Univ. of Michigan
Co-Chair: DAVID, JENNIFER	HALMSTAD Univ
16:30-16:45	TuCT14.1
<i>Demand Estimation and Chance-Constrained Fleet Management for Ride Hailing.</i>	
Miller, Justin (MIT), How, Jonathan Patrick (Massachusetts Inst. of Tech)	
16:45-17:00	TuCT14.2
<i>Lane-Change Social Behavior Generator for Autonomous Driving Car by Non-Parametric Regression in Reproducing Kernel Hilbert Space.</i>	
Dong, Chiyu (Carnegie Mellon Univ), Zhang, Yihuan (Tongji University), Dolan, John M. (Carnegie Mellon Univ)	
17:00-17:15	TuCT14.3
<i>Have I Reached the Intersection: A Deep Learning-Based Approach for Intersection Detection from Monocular Cameras.</i>	
Bhatt, Dhaivat (IIIT-Hyderabad), Sodhi, Danish (IIIT-Hyderabad), Pal, Arghya (Indian Inst. of Tech. Hyderabad), Balasubramanian, Vineeth (Indian Inst. of Tech. Hyderabad), Krishna, Madhava (IIIT Hyderabad)	
17:15-17:30	TuCT14.4
<i>Gradient Based Path Optimization Method for Autonomous Driving.</i>	
DAVID, JENNIFER (HALMSTAD Univ), Valencia, Rafael (Carnegie Mellon Univ), Philippsen, Roland (Google Inc), Bosshard, Pascal (V-ZUG), Iagnemma, Karl (MIT)	
17:30-17:45	TuCT14.5
<i>Real-Time Certified Probabilistic Pedestrian Forecasting.</i>	
Jacobs, Henry (Univ. of Michigan), Hughes, Owen (Frc 1076), Johnson-Roberson, Matthew (Univ. of Michigan), Vasudevan, Ram (Univ. of Michigan)	
17:45-18:00	TuCT14.6
<i>Vibration-Reducing End Effector for Automation of Drilling Tasks in Aircraft Manufacturing.</i>	
von Drigalski, Felix Wolf Hans Erich (Nara Inst. of Science and Tech), El Hafi, Lotfi (Nara Inst. of Science and Tech), Uriguen Eljuri, Pedro Miguel (Nara Inst. of Science and Tech), Garcia Ricardez, Gustavo Alfonso (Nara Inst. of Science and Tech. (NAIST)), Takamatsu, Jun (Nara Inst. of Science and Tech), Ogasawara, Tsukasa (Nara Inst. of Science and Tech)	

TuCT15		Room 215
Biped Locomotion		
Chair: Sugihara, Tomomichi	Graduate School of Engineering, Osaka Univ	
Co-Chair: Engelsberger, Johannes	DLR (German Aerospace Center)	
16:30-16:45	TuCT15.1	
<i>Balancing Stability and Maneuverability During Rapid Gait Termination in Fast Biped Robots.</i>		
Shield, Stacey Leigh (Univ. of Cape Town), Patel, Amir (Univ. of Cape Town)		
16:45-17:00	TuCT15.2	
<i>Bipedal Walking Control against Swing Foot Collision Using Swing Foot Trajectory Regeneration and Impact Mitigation.</i>		
Ishikawa, Tatsuya (Univ. of Tokyo), Kojio, Yuta (The Univ. of Tokyo), Kojima, Kunio (The Univ. of Tokyo), Nozawa, Shunichi (The Univ. of Tokyo), Kakiuchi, Yohei (The Univ. of Tokyo), Okada, Kei (The Univ. of Tokyo), Inaba, Masayuki (The Univ. of Tokyo)		
17:00-17:15	TuCT15.3	
<i>Artificial Invariant Subspace with Potential Functions for Humanoid Robot Balancing.</i>		
Deng, Xiang (Univ. of Pennsylvania), Miao, Fei (Univ. of Pennsylvania), Lee, Daniel D. (Univ. of Pennsylvania)		
17:15-17:30	TuCT15.4	
<i>Foot-Guided Agile Control of a Biped Robot through ZMP Manipulation.</i>		
Sugihara, Tomomichi (Graduate School of Engineering, Osaka Univ), Yamamoto, Takanobu (Graduate School of Engineering, Osaka Univ)		
17:30-17:45	TuCT15.5	
<i>A Stability Region Criterion for Flat-Footed Bipedal Walking on Deformable Granular Terrain.</i>		
Xiong, Xiaobin (Georgia Inst. of Tech), Ames, Aaron (California Inst. of Tech), Goldman, Daniel (Georgia Inst. of Tech)		
17:45-18:00	TuCT15.6	
<i>Smooth Trajectory Generation and Push-Recovery Based on Divergent Component of Motion.</i>		
Engelsberger, Johannes (DLR (German Aerospace Center)), Mesesan, George (German Aerospace Center (DLR)), Ott, Christian (German Aerospace Center (DLR))		

TuCT16	Room 220
Impedance and Adaptive Control	
Chair: Carloni, Raffaella	Univ. of Twente
Co-Chair: Rojas, Juan	Guangdong Univ. of Tech
16:30-16:45	TuCT16.1
<i>Forward Dynamics Compliance Control (FDCC): A New Approach to Cartesian Compliance for Robotic Manipulators.</i>	
Scherzinger, Stefan (FZI Res. Center for Information Tech), Roennau, Arne (FZI Forschungszentrum Informatik, Karlsruhe), Dillmann, Rüdiger (Karlsruhe Inst. of Tech. (KIT))	
16:45-17:00	TuCT16.2
<i>A New Kinematic Formulation of the RCM Constraint for Redundant Torque-Controlled Robots.</i>	
Sandoval, Juan Sebastián (Univ. D'orléans), Poisson, Gérard (Univ. D'orléans), Vieyres, Pierre (Lab. PRISME, Univ. Oforleans)	
17:00-17:15	TuCT16.3
<i>Mechatronic Design of a Variable Stiffness Robotic Arm.</i>	
Barrett, Eamon (Univ. of Twente), Reiling, Mark (Univ. of Twente), Barbieri, Giuseppe (Univ. of Twente), Fumagalli, Matteo (Aalborg Univ), Carloni, Raffaella (Univ. of Twente)	
17:15-17:30	TuCT16.4
<i>Robust Whole-Body Motion Control of Legged Robots.</i>	
Farshidian, Farbod (ETH Zurich), Jelavic, Edo (Swiss Federal Inst. of Tech. Zurich), Winkler, Alexander, Wayne (ETH Zurich), Buchli, Jonas (ETH Zurich)	
17:30-17:45	TuCT16.5
<i>Robust Damping of a Ropeway Gondola's Wind Oscillations with an Actuated Mass.</i>	
Estandia, Alvaro (ETH Zurich), Hutter, Marco (ETH Zurich)	
17:45-18:00	TuCT16.6
<i>Rebalance Control for Humanoid Walking Based on Online Foot Position Compensation.</i>	
Zhang, Tong (Tongji Univ), Liu, Chengju (Tongji Univ), Chen, Qijun (Tongji Univ)	

TuCT17	Room 221
Physical Human-Robot Interaction	
Chair: Gosselin, Clement	Univ. Laval
Co-Chair: De Luca, Alessandro	Sapienza Univ. of Rome
16:30-16:45	TuCT17.1
<i>Human-Robot Coexistence and Contact Handling with Redundant Robots.</i>	
Magrini, Emanuele (Sapienza Univ. of Rome), De Luca, Alessandro (Sapienza Univ. of Rome)	
16:45-17:00	TuCT17.2
<i>A Control Architecture for Physical Human-UAV Interaction with a Fully Actuated Hexarotor.</i>	
Rajappa, Sujit (Max Planck Inst. for Biological Cybernetics), Buelthoff, Heinrich H. (Max Planck Inst. for Biol. Cybernetics), Odelga, Marcin (Max Planck Inst. for Biological Cybernetics; Univ. of T), Stegagno, Paolo (Univ. of Rhode Island)	
17:00-17:15	TuCT17.3
<i>Design, Control and Experimental Validation of a Haptic Robotic Hand Performing Human-Robot Handshake with Human-Like Agility.</i>	
Arns, Moritz (Univ. Laval), Laliberte, Thierry (Univ. Laval), Gosselin, Clement (Univ. Laval)	
17:15-17:30	TuCT17.4
<i>Goal-Driven Dimensionality Reduction for Reinforcement Learning.</i>	
Parisi, Simone (TU Darmstadt), Ramstedt, Simon (TU Darmstadt), Peters, Jan (Tech. Univ. Darmstadt)	
17:30-17:45	TuCT17.5
<i>Prediction of ICP Pose Uncertainties Using Monte Carlo Simulation with Synthetic Depth Images.</i>	
Iversen, Thorbjørn Mosekjær (The Maersk Mc-Kinney Moller Inst. Univ. of Southern De), Buch, Anders Glent (Univ. of Southern Denmark), Kraft, Dirk (Univ. of Southern Denmark)	
17:45-18:00	TuCT17.6
<i>Incorporating Qualitative Information into Quantitative Estimation Via Sequentially Constrained Hamiltonian Monte Carlo Sampling.</i>	
Yi, Daqing (Carnegie Mellon Univ), Choudhury, Shushman (Carnegie Mellon Univ), Srinivasa, Siddhartha (Carnegie Mellon Univ)	

TuCT18		Room 223
Assembly and Automation		
Chair: Komendera, Erik	NASA Langley Res. Center	
Co-Chair: Schindlbeck, Christopher	Leibniz Univ. Hanover	
16:30-16:45		TuCT18.1
<i>Probabilistic Modeling of Programmable Stochastic Self-Assembly of Robotic Modules.</i>		
Haghighat, Bahar (EPFL), Thandiackal, Robin (EPFL), Mordig, Maximilian (EPFL), Martinoli, Alcherio (EPFL)		
16:45-17:00		TuCT18.2
<i>1D Printing of Recyclable Robots.</i>		
Cellucci, Daniel (Cornell Univ), MacCurdy, Robert (MIT), Lipson, Hod (Columbia Univ), Risi, Sebastian (IT Univ. of Copenhagen)		
17:00-17:15		TuCT18.3
<i>Structure Assembly by a Heterogeneous Team of Robots Using State Estimation, Generalized Joints, and Mobile Parallel Manipulators.</i>		
Komendera, Erik (NASA Langley Res. Center), Adhikari, Shaurav (Univ. of Michigan), Kishen, Ashwin (Univ. of Pennsylvania), Glassner, Samantha (Northeastern Univ), Quartaro, Amy (Univ. of Texas)		
17:15-17:30		TuCT18.4
<i>A Study on Life Cycle of Twisted String Actuators: Preliminary Results.</i>		
Usman, Muhammad (Korea Univ. of Tech. and Education), Seong, Hyeonseok (Korea Univ. of Tech), Suthar, Bhivraj (KOREATECH), Gaponov, Igor (Korea Univ. of Tech. and Education), Ryu, Jee-Hwan (Korea Univ. of Tech. and Education)		
17:30-17:45		TuCT18.5
<i>Increasing Milling Precision for Macro-Micro-Manipulators with Disturbance Rejection Control Via Visual Feedback.</i>		
Schindlbeck, Christopher (Leibniz Univ. Hanover), Janz, Alexej (Leibniz Univ. Hanover), Pape, Christian (Inst. F. Mess Und Regelungstechnik), Reithmeier, Eduard (Leibniz Univ. Hanover)		
17:45-18:00		TuCT18.6
<i>A Multi-Track Elevator System for E-Commerce Fulfillment Centers.</i>		
Hoffman, Rachel (Massachusetts Inst. of Tech), Asada, Harry (MIT)		

TuAmPo	Ballroom Foyer
Tuesday Posters AM	
Chair: Lim, Angelica	SoftBank Robotics Europe
10:00-10:30	TuAmPo.1
<i>How Much Energy Can Really Be Saved Using Series Elastic Actuators?.</i>	
Bolivar, Edgar (Univ. of Texas at Dallas), Rezazadeh, Siavash (Univ. of Texas at Dallas), Gregg, Robert D. (Univ. of Texas at Dallas)	
10:00-10:30	TuAmPo.2
<i>Unsupervised Generative Network to Enable Real-Time Color Correction of Monocular Underwater Images.</i>	
Li, Jie (Univ. of Michigan), Skinner, Katherine A. (Univ. of Michigan), Eustice, Ryan (Univ. of Michigan), Johnson-Roberson, Matthew (Univ. of Michigan)	
10:00-10:30	TuAmPo.3
<i>Design and Development of a Holonomic and Power Efficient Multi-Rotor UAV.</i>	
Hedayatpour, Mojtaba (Univ. of Regina), mehrandezh, mehran (Univ. of Regina), Janabi-Sharifi, Farrokh (Ryerson Univ)	
10:00-10:30	TuAmPo.4
<i>Bayesian Optimization with Automatic Prior Selection for Damage Recovery in Multiple Contexts.</i>	
Pautrat, Remi (Inria Nancy Grand-Est), Chatzilygeroudis, Konstantinos (Inria Nancy Grand-Est), Mouret, Jean-Baptiste (Inria)	
10:00-10:30	TuAmPo.5
<i>Quadruped Robots Benefit from Compliant Leg Designs.</i>	
Willems, Brecht (Ghent Univ), Degrave, Jonas (Ghent Univ), Dambre, Joni (Ghent Univ), wyffels, Francis (Ghent Univ)	
10:00-10:30	TuAmPo.6
<i>The Elastomeric Passive Transmission: A Low-Cost, 3D-Printed Transmission for Tendon-Driven Robotics and Prosthetics.</i>	
O'Brien, Kevin (Cornell Univ), Levine, David (Univ. of Pennsylvania), Shepherd, Robert (Cornell Univ)	
10:00-10:30	TuAmPo.7
<i>Robot Behavior Follows Maslow's Theory of Motivation.</i>	
Hopper, Douglas (Colorado State Univ.)	
10:00-10:30	TuAmPo.8
<i>Experiments on Robot Navigation among Humans As Dynamic Obstacles in Indoor Environments.</i>	
Hekmati, Alireza (Simon Fraser Univ), Gupta, Kamal (Simon Fraser Univ)	
10:00-10:30	TuAmPo.9
<i>Online Visual Water Differentiation Using Unmanned Aerial Vehicles.</i>	
Medeiros, Thomas (Univ. of the Pacific), Watts-Willis, Tristan (Univ. of the Pacific), Basha, Elizabeth (Univ. of the Pacific)	
10:00-10:30	TuAmPo.10
<i>Preliminary Evaluation of Radio-Based Wireless Communication Performance for Multi-Robot Applications.</i>	
Liu, Yang (Case Western Res. Univ), Lee, Kiju (Case Western Res. Univ)	
10:00-10:30	TuAmPo.11

<i>Crowdsourcing Swarms As Assembly Controllers.</i>	
Lin, Lillian (Univ. of Houston), Shahrokhi, Shiva (Univ. of Houston), Becker, Aaron (Univ. of Houston)	
10:00-10:30	TuAmPo.12
<i>A Binaural Beamforming Approach to Resolve Complex Auditory Scenes for Humanoid Robots.</i>	
Ilievski, Marko (Univ. of Lethbridge), Rea, Francesco (Istituto Italiano Di Tecnologia), Sandini, Giulio (Italian Inst. of Tech), Tata, Matthew (Univ. of Lethbridge)	
10:00-10:30	TuAmPo.13
<i>Exploration and Mapping with a Particle Swarm Controlled by Uniform Inputs on a Magnetic Setup.</i>	
Bao, Daniel (Univ. of Houston), Mahadev, Arun (Univ. of Houston), Becker, Aaron (Univ. of Houston)	
10:00-10:30	TuAmPo.14
<i>Cooperative Manipulation in Marine Environments in the Presence of Faults.</i>	
Oh, Hyunjoo (Univ. of Pennsylvania), Kularatne, Dhanushka (Drexel Univ), Hsieh, M. Ani (Univ. of Pennsylvania)	
10:00-10:30	TuAmPo.15
<i>Point-Cloud-Based Aerial Fragmentation Analysis for Application in the Minerals and Aggregates Industries.</i>	
Bamford, Thomas (Univ. of Toronto), Esmaeili, Kamran (Univ. of Toronto), Schoellig, Angela P. (Univ. of Toronto)	
10:00-10:30	TuAmPo.16
<i>Deploying Sensor Modules with Remotely Operated Underwater Robots for Marine Data Collection.</i>	
Lonsford, Jarrett (Univ. of Houston), Becker, Aaron (Univ. of Houston)	
10:00-10:30	TuAmPo.17
<i>Marine Data-Ferrying Using Swarms of Autonomous Underwater Robots to Network Sensor Modules with a Surface Ship.</i>	
Dodge, Austin (Univ. of Houston), Becker, Aaron (Univ. of Houston)	
10:00-10:30	TuAmPo.18
<i>Optimization of an MRI Controllable Gauss Gun.</i>	
Garcia Gonzalez, Javier (Univ. of Houston), Becker, Aaron (Univ. of Houston)	
10:00-10:30	TuAmPo.19
<i>Whole Body Control Architecture for Posture, Balance, and Gait Control of Quadruped Robots.</i>	
Cho, Jungsoo (Sogang Univ), Choi, Jungsu (Sogang Univ), Seo, Yeongsik (Sogang Univ), Kong, Kyoungchul (Sogang Univ)	
10:00-10:30	TuAmPo.20
<i>Robust LiDAR-Based Localization on the Basis of Accurate Modeling of Optical Characteristics.</i>	
KIM, JIWOONG (Korea Univ), Chung, Woojin (Korea Univ)	
10:00-10:30	TuAmPo.21
<i>Towards an Autonomous Fetch, Delivery, and Handover System with a Mobile Manipulator.</i>	
Hegedus, Michael James (Simon Fraser Univ), Gupta, Kamal (Simon Fraser Univ), mehrandezh, mehran (Univ. of Regina)	

10:00-10:30	TuAmPo.22
<i>Automatic Vessel Detection Technology for Laparoscopic Surgery Images Including Surgical Instruments.</i>	
Jo, Kyungmin (Asan Medical Center), Choi, Bareum (Asan Medical Center), Choi, Jaesoon (Asan Medical Center)	
10:00-10:30	TuAmPo.23
<i>Real-Time Vision-Based Autonomous 3D Navigation for MAVs in GPS-Denied Environments.</i>	
Bi, Yingcai (National Univ. of Singapore), Lan, Menglu (National Univ. of Singapore), Li, Jiaxin (National Univ. of Singapore), Chen, Ben M. (National Univ. of Singapore)	
10:00-10:30	TuAmPo.24
<i>Self-Growing Personalized Knowledge Graph for Human-AI Interactions.</i>	
Yang, Hua (Intel Labs), wang, zhigang (Intel Labs), Zhang, Yimin (Intel Corp)	
10:00-10:30	TuAmPo.25
<i>RONNY Boards the Elevator: Toward Multi-Floor Navigation.</i>	
Stephens, Trevor Keith (Univ. of Minnesota), O'Neill, John (Univ. of Minnesota)	
10:00-10:30	TuAmPo.26
<i>Reconstruction Via Detection: Efficient and Automatic Reconstruction from Unorganized 3D Scans.</i>	
Birdal, Tolga (Tech. Univ. of Munich), Ilic, Slobodan (Tech. Univ. Munchen)	
10:00-10:30	TuAmPo.27
<i>Efficient Line Segment Merging Algorithm for Detecting Quadrangles.</i>	
Im, Hyun-Soo (Chungbuk National Univ), Kim, Gon-Woo (Chungbuk National Univ)	
10:00-10:30	TuAmPo.28
<i>Design of a Tendon-Based Haptic Mechanism for Underwater Manipulators.</i>	
Lee, Gihyeon (Seoul National Univ. of Science and Tech. (SEOULTECH)), Kim, Jinhyun (Seoul National Univ. of Science and Tech)	
10:00-10:30	TuAmPo.29
<i>Passively Adaptive Wheel-Based Mobile Platform for High-Speed Stair Climbing.</i>	
Kim, youngsoo (Seoul National Univ), Kim, Kijung (Seoul National Univ), Kim, Hwa Soo (Kyonggi Univ), Kim, Jongwon (Seoul National Univ)	
10:00-10:30	TuAmPo.30
<i>Hybrid Rocker-Bogie Based Mobile Robot Equipped with a Slide Joint for Efficient Stair Climbing.</i>	
Kim, Kijung (Seoul National Univ), Kim, Youngsoo (Seoul National Univ), Hong, Heeseung (Seoul National Univ), Kim, Hwa Soo (Kyonggi Univ), Kim, Jongwon (Seoul National Univ)	
10:00-10:30	TuAmPo.31
<i>De-Palletizing Method of Maximizing Number of Packages That Robot Handles Simultaneously for Complex Stacked Packages on RBPs.</i>	
Eto, Haruna (Toshiba Corp), Nakamoto, Hideichi (Toshiba Corp), Sonoura, Takafumi (Toshiba Corp), Tanaka, Junya (Toshiba Corp), OGAWA, AKIHITO (TOSHIBA Corp)	
10:00-10:30	TuAmPo.32
<i>A Basic Automation Approach for Hybrid Aerial/Terrestrial Robot.</i>	

premachandra, Chinthaka (Shibaura Inst. of Tech), Otsuka, Masahiro (Tokyo Univ. of Science)	
10:00-10:30	TuAmPo.33
<i>Affordance Learning and Reasoning Based on Vision-Speech Association in Developmental Robotics.</i>	
Yi, Chang'an (Foshan Univ), Min, Huaqing (South China Univ. of Tech), Zhu, Jinhui (South China Univ. of Tech), Yin, Pengshuai (South China Univ. of Tech)	
10:00-10:30	TuAmPo.34
<i>Autonomous Robotic Capturing of Space Non-Cooperative Targets.</i>	
Jia, Guanglu (Harbin Inst. of Tech. (Shenzhen)), Huang, Hailin (Harbin Inst. of Tech), Li, Guotao (Harbin Inst. of Tech. Shenzhen Graduate School), Li, Bing (Shenzhen Graduate School, Harbin Inst. of Tech)	
10:00-10:30	TuAmPo.35
<i>Novel 6-Bar Linkage Finger Clamping Device for Large Clamping Variance.</i>	
Jeon, Young Jae (Seoul National Univ. Mechanical Engineering), Chu, Kyungsung (Seoul National Univ), Kim, Kijung (Seoul National Univ), Kim, Jehyeok (Seoul National Univ), Kim, Jongwon (Seoul National Univ)	
10:00-10:30	TuAmPo.36
<i>Verification of UAV with Spokeless Two-Wheeled Cage for Bridge Inspections.</i>	
Yamada, Moyuru (Fujitsu Lab. LTD), Nakao, Manabu (Fujitsu Lab), Hada, Yoshiro (FUJITSU Lab. LTD), Sawasaki, Naoyuki (Fujitsu Lab)	
10:00-10:30	TuAmPo.37
<i>Experimental Validation of Connected Cruise Control Using Ground Robots.</i>	
Qin, Wubing B. (Univ. of Michigan), Wang, Zizhao (Univ. of Michigan-Ann Arbor), Orosz, Gabor (Univ. of Michigan)	
10:00-10:30	TuAmPo.38
<i>Parallel Mechanism Based Specimen Stage Design and Kinematic Analysis.</i>	
Lee, Sang-Chul (Korea Basic Science Inst), Jeong, Jongman (Korea Basic Science Inst), Kim, Jin-Gyu (Korea Basic Science Inst)	
10:00-10:30	TuAmPo.39
<i>A Low-Cost Vision-Based Real-Time Heart Rate Detection Method on Companion Robot Platform.</i>	
Wu, Han (Peking Univ), Wang, Tao (Peking Univ), Dai, Tuo (Peking Univ)	
10:00-10:30	TuAmPo.40
<i>Development of a Spherical, Jumping and Rolling Robot for Children with Developmental Disorder.</i>	
Mizumura, Yujiro (Waseda Univ), Ishibashi, Keitaro (Waseda Univ), Yamada, Soichi (Waseda Univ), Takanishi, Atsuo (Waseda Univ), ISHII, Hiroyuki (Waseda Univ)	
10:00-10:30	TuAmPo.41
<i>Parallel Imprecise Computation to Time-Dependent Planning.</i>	
Chishiro, Hiroyuki (Advanced Inst. of Industrial Tech)	
10:00-10:30	TuAmPo.42
<i>Towards Efficient Biased Searching for RRT-Based Algorithms Using Reinforcement Learning.</i>	
Deng, Hao (Shenzhen Inst. of Advanced Tech. CAS), Xiong, Jing (Chinese Acad. of Sciences), Xia, Zeyang (Chinese Acad. of Sciences)	

10:00-10:30	TuAmPo.43
<i>Accuracy and Reliability of Stochastic Estimation of Upper Limb 3-D Mechanical Impedance.</i>	
Jo, Hyunkyong (UNIST), Kang, Sang Hoon (Ulsan National Inst. of Science and Tech. / Nort)	
10:00-10:30	TuAmPo.45
<i>Predictive Coding for Dynamic Visual Processing: Development of Functional Hierarchy in a Multiple Spatio-Temporal Scales RNN Model.</i>	
Choi, Minkyu (KAIST), Hwang, Jungsik (Korea Advanced Inst. of Science and Tech), Tani, Jun (Okinawa Inst. of Science and Tech), Ahmadi, Ahmadreza (KAIST)	
10:00-10:30	TuAmPo.46
<i>Virtual Ground Robot Driven by Reaction Force Sensing Series Elastic Actuator.</i>	
Lee, Hyunwook (DGIST), Kwak, Su-Hui (DGIST), Oh, Sehoon (DGIST (Daegu Gyeongbuk Inst. of Science and Tech)	
10:00-10:30	TuAmPo.47
<i>An Interactive Robotic System for Promoting Social Engagement.</i>	
Bevill, Rachael (The George Washington Univ), Javed, Hifza (George Washington Univ), Jeon, Myounghoon (Michigan Tech. Univ), Howard, Ayanna (Georgia Inst. of Tech), Park, Chung Hyuk (George Washington Univ)	

TuPmPo	Ballroom Foyer
Tuesday Posters PM	
Chair: Lim, Angelica	SoftBank Robotics Europe
16:00-16:30	TuPmPo.1
<i>A Flexible Tele-Manipulation System.</i>	
Dehghan, Masood (National Univ. of Singapore), Perez Quintero, Camilo Alfonso (Univ. of Alberta), Jagersand, Martin (Univ. of Alberta)	
16:00-16:30	TuPmPo.2
<i>Mobile Personal Space: A Personal Space Robot to Assist People with Social Anxiety.</i>	
Terada, Kazunori (Gifu Univ), Hara, Tomohito (Gifu Univ)	
16:00-16:30	TuPmPo.3
<i>Design of a Parallel Structure Gripper with an Angular Error Measurement System for Square Peg-In-Hole Task.</i>	
Kim, Jehyeok (Seoul National Univ), Kim, Keonwoo (Seoul National Univ), Kim, Jongwon (Seoul National Univ)	
16:00-16:30	TuPmPo.4
<i>Manipulation of Delicate Objects: A Soft Touch Helps!</i>	
Strazzulla, Ilaria (Scuola Superiore Sant'Anna), Morachioli, Annagiulia (Istituto Di Biorobotica), Bonsignorio, Fabio Paolo (Heron Robots Srl and the Biorobotics Insitute Scuola Superiore S), Dario, Paolo (Scuola Superiore Sant'Anna)	
16:00-16:30	TuPmPo.5
<i>Data Collection Planning with Limited Budget for Dubins Airplane.</i>	
Váňa, Petr (Czech Tech. Univ. in Prague), Faigl, Jan (Czech Tech. Univ. in Prague), Sláma, Jakub (Czech Tech. Univ. in Prague), Pěnička, Robert (Czech Tech. Univ. in Prague)	
16:00-16:30	TuPmPo.6
<i>Caging Grasp Synthesis and Verification for Partially Deformable 3D Objects with Narrow Parts.</i>	
Varava, Anastasiia (KTH, the Royal Inst. of Tech), Kragic, Danica (KTH), Pokorny, Florian T. (KTH Royal Inst. of Tech)	
16:00-16:30	TuPmPo.7
<i>Exploring a "route Map" Model of Navigation Inspired by the Mammalian Brain.</i>	
Mitchinson, Ben (Univ. of Sheffield), Pearson, Martin (Bristol Robotics Lab), Prescott, Tony J (Univ. of Sheffield)	
16:00-16:30	TuPmPo.8
<i>Online Construction of Communication Maps for Robust Multirobot Deployments.</i>	
Quattrini Li, Alberto (Univ. of South Carolina), Penumarthi, Phani Krishna (Univ. of South Carolina), Banfi, Jacopo (Pol. Di Milano), Basilico, Nicola (Univ. of Milan), Amigoni, Francesco (Pol. Di Milano), Rekleitis, Ioannis (Univ. of South Carolina), O'Kane, Jason (Univ. of South Carolina), Nelakuditi, Srihari (Univ. of South Carolina)	
16:00-16:30	TuPmPo.9
<i>Distributed Relative Localization Using Ultra-Wideband Ranging.</i>	
Taylor, Chris (George Mason Univ), Sofge, Donald (Naval Res. Lab), Lofaro,	

Daniel (George Mason Univ)	
16:00-16:30	TuPmPo.10
<i>Haptic Object Recognition: A Recurrent Approach.</i>	
Liu, Chang (Tsinghua Univ), Sun, Fuchun (Tsinghua Univ), Yuille, Alan (Johns Hopkins Univ)	
16:00-16:30	TuPmPo.11
<i>An Analysis of a Delay-Conscious Communication Model for Mobile Robot Navigation.</i>	
Tanaka, Mamiko (Tokyo Woman's Christian Univ), Kato, Yuka (Tokyo Woman's Christian Univ)	
16:00-16:30	TuPmPo.12
<i>SafeArm: A Framework to Make Robots Safe to Humans.</i>	
Du, Yuyang (Intel Labs), Yan, SHOUMENG (Intel), Wang, Dawei (Intel Labs)	
16:00-16:30	TuPmPo.13
<i>Noise Robust 2D Sound Source Localization Using Multiple Microphone Arrays in Bird Song Scene Analysis.</i>	
Gabriel, Daniel (Tokyo Inst. of Tech), Kojima, Ryosuke (Tokyo Inst. of Tech), Hoshiba, Kotaro (Tokyo Inst. of Tech), Nakadai, Kazuhiro (Honda Res. Inst. Japan Co., Ltd)	
16:00-16:30	TuPmPo.14
<i>RNN-Based Visual Obstacle Avoidance with a CPG Controlled Hexapod Walking Robot.</i>	
Cizek, Petr (Czech Tech. Univ. in Prague, Faculty of Electrical Engi), Faigl, Jan (Czech Tech. Univ. in Prague)	
16:00-16:30	TuPmPo.15
<i>Bioinspired Vision-Only Attitude Rate Estimation for Micro Aerial Robots Using Machine Learning.</i>	
Mériada Floriano, Macarena (Univ. Pablo De Olavide), Caballero, Fernando (Univ. of Seville), García Morales, Diana (CSIC), Casares, Fernando (CSIC), Merino, Luis (Pablo De Olavide Univ)	
16:00-16:30	TuPmPo.16
<i>Development of Soft Perching System Using Tilting Mechanism for Wall-Climbing Drone.</i>	
Myeong, Wancheol (KAIST), Song, Seungwon (KAIST), Jung, Kwangyik (Korea Advanced Inst. of Science and Tech), Myung, Hyun (KAIST (Korea Adv. Inst. Sci. & Tech)	
16:00-16:30	TuPmPo.17
<i>Regulating Priority in Mixed Initiative Human-Robot Collaboration.</i>	
Owan, Parker (Univ. of Washington), Garbini, Joseph (U. of Washington), Devasia, Santosh (Univ. of Washington)	
16:00-16:30	TuPmPo.18
<i>Stochastic Search Methods for Mobile Manipulator Calibration.</i>	
Amoako-Frimpong, Samuel (Marquette Univ), Medeiros, Henry (Marquette Univ), Marvel, Jeremy (National Inst. of Standards and Tech), Bostelman, Roger (National Inst. of Standards and Tech)	
16:00-16:30	TuPmPo.19
<i>Collection of Advective, Diffusive Harmful Algae or Microplastics Using a Robot Swarm with and without Agent-Specific Partitions.</i>	

Schroeder, Adam (Univ. of Toledo), Trease, Brian (Univ. of Toledo), Arsie, Alessandro (Pennsylvania State Univ)	
16:00-16:30	TuPmPo.20
<i>Anomaly Detection for Vision-Based Target Tracking Using Unmanned Aerial Vehicles.</i>	
Reznichenko, Yevgeniy (Marquette Univ), Medeiros, Henry (Marquette Univ)	
16:00-16:30	TuPmPo.21
<i>Closing the Gap in the Theory of PRM-Based Planners.</i>	
Solovey, Kiril (Tel Aviv Univ), Kleinbort, Michal (Tel Aviv Univ)	
16:00-16:30	TuPmPo.22
<i>Open Dataset for On-Road Vehicle Tracking in Beijing Highway.</i>	
Fang, Yongkun (Peking Univ), Wang, Chao (Peking Univ), Zhao, Huijing (Peking Univ), Zha, Hongbin (Peking Univ)	
16:00-16:30	TuPmPo.23
<i>Mapping ADL Motion Capture Data to BLUE SABINO Exoskeleton Kinematics and Dynamics.</i>	
Bitikofer, Christopher Bitikofer (Univ. of Idaho), Perry, Joel C. (Univ. of Idaho), Wolbrecht, Eric (Univ. of Idaho)	
16:00-16:30	TuPmPo.24
<i>Object Tracking with Sparse and Noisy Data Using Singular Spectrum Analysis.</i>	
Raschpichler, Cole (British Columbia Inst. of Tech), Calderbank, Terry (British Columbia Inst. of Tech), Baryshnikov, Vasily (British Columbia Inst. of Tech), Jenks, Andrew (British Columbia Inst. of Tech), Nakamura, Takashi (British Columbia Inst. of Tech)	
16:00-16:30	TuPmPo.25
<i>Robustness Margins and Robust Guided Policy Search for Deep Reinforcement Learning.</i>	
Summers, Tyler (Univ. of Texas at Dallas), Ogunmolu, Olalekan (Univ. of Texas at Dallas), Gans, Nicholas (Nick) (Univ. Texas at Dallas)	
16:00-16:30	TuPmPo.26
<i>Inferring Intent in Human-In-The-Loop Output-Tracking Tasks.</i>	
Warrier, Rahul Balakrishna (Univ. of Washington, Seattle), Devasia, Santosh (Univ. of Washington)	
16:00-16:30	TuPmPo.27
<i>One-Actuator Wheeled Robot Moving Like a Snakeboard and Its Propelling Experiments.</i>	
Ito, Satoshi (Gifu Univ), Nohara, Shumpei (Gifu Univ), Masuda, Yuya (Gifu Univ), Yabuki, Jun (Gifu Univ), Morita, Ryosuke (Gifu Univ)	
16:00-16:30	TuPmPo.28
<i>Data Driven Teleoperated Sanding for Health Risk Mitigation.</i>	
Piaskowy, W. Tony (Univ. of Washington), Garbini, Joseph (U. of Washington), Devasia, Santosh (Univ. of Washington), Devine, Cameron (Univ. of Washington), McCann, Lance (Univ. of Washington, Boeing), Aubin, Jack (The Boeing Company)	
16:00-16:30	TuPmPo.29
<i>Autonomous Surveillance Route Solutions from Minimal Human-Robot Interaction.</i>	
Reardon, Christopher M. (U.S. Army Res. Lab), Han, Fei (Colorado School of	

Mines), Zhang, Hao (Colorado School of Mines), Fink, Jonathan (ARL)	
16:00-16:30	TuPmPo.30
<i>Human Upper-Body Pose Estimation Using Fully Convolutional Network and Joint Heatmap.</i>	
Koo, Jungmo (KAIST(Korea Advanced Inst. of Science and Tech), Lee, Seung Hee (KAIST), Kim, Hyungjin (KAIST(Korea Advanced Insititute of Science and Tech), Jung, Kwangyik (Korea Advanced Inst. of Science and Tech), Oh, Taekjun (KAIST), Myung, Hyun (KAIST (Korea Adv. Inst. Sci. & Tech)	
16:00-16:30	TuPmPo.31
<i>Fog Robotics: An Introduction.</i>	
GUDI, Siva Leela Krishna Chand (Univ. of Tech. Sydney), Ojha, Suman (Univ. of Tech. Sydney), Clark, Jesse (Univ. of Tech. Sydney), Johnston, Benjamin (Univ. of Tech. Sydney), Williams, Mary-Anne (Univ. of Tech. Sydney)	
16:00-16:30	TuPmPo.32
<i>Cross Domain Transfer Learning Using Target Apprentice.</i>	
Joshi, Girish (Univ. of Illinois Urbana Champaign), Chowdhary, Girish (Univ. of Illinois at Urbana Champaign)	
16:00-16:30	TuPmPo.33
<i>Autonomous Vehicles Moving As a Human Group.</i>	
Zanlungo, Francesco (Advanced Telecommunications Res. Inst), Yucel, Zeynep (ATR), Ferreri, Florent (ATR), Even, Jani (ATR), Morales Saiki, Luis Yoichi (Nagoya Univ), Kanda, Takayuki (ATR)	
16:00-16:30	TuPmPo.34
<i>Shape Sensing for Flexible Medical Instruments Using Fiber Bragg Grating Sensors in Multicore Optical Fibers.</i>	
Khan, Fouzia (Univ. of Twente), Denasi, Alper (Univ. of Twente), Misra, Sarthak (Univ. of Twente)	
16:00-16:30	TuPmPo.35
<i>Dynamic Dumbbell - Novel Training Machine.</i>	
Lee, Chan (DGIST (Daegu Gyeongbuk Inst. of Science and Tech), Oh, Sehoon (DGIST (Daegu Gyeongbuk Inst. of Science and Tech)	
16:00-16:30	TuPmPo.37
<i>Locomotion Algorithm for Variable Topology Truss.</i>	
Park, Sumin (Seoul National Univ), Kim, Jehyeok (Seoul National Univ), Seo, TaeWon (Yeungnam Univ), Yim, Mark (Univ. of Pennsylvania), Kim, Jongwon (Seoul National Univ)	
16:00-16:30	TuPmPo.38
<i>Distributed and Parallel Processing in Robot-Cloud System Using ROS-Compliant FPGA Component.</i>	
Ohkawa, Takeshi (Utsunomiya Univ), Sugata, Yuhei (Utsunomiya Univ), OOTSU, Kanemitsu (Utsunomiya Univ), Yokota, Takashi (Utsunomiya Univ)	
16:00-16:30	TuPmPo.39
<i>Development of Dual Mode Aerial Manipulator.</i>	
Jeong, Jongmin (Yonsei Univ), Kim, Jaeseung (Yonsei Univ), Lee, Donghyun (Yonsei Univ), Park, Jin Bae (Yonsei Univ), Sinha, Sudipta (Microsoft Res), Ikeuchi, Katsushi (Microsoft)	
16:00-16:30	TuPmPo.40
<i>Direct-Drive Linear Actuators for a Lower Extremity Exoskeleton.</i>	

Ruddy, Bryan P. (Univ. of Auckland), Laven, Robin C. (Univ. of Auckland), Greenslade, Mac (Univ. of Auckland), Taberner, Andrew J. (Univ. of Auckland)	
16:00-16:30	TuPmPo.41
<i>Real-Time Analysis of Tissue Trauma Using Mechanical Measures.</i>	
Jones, Dominic (Univ. of Leeds), Alazmani, Ali (Univ. of Leeds), Culmer, Peter Robert (Univ. of Leeds)	
16:00-16:30	TuPmPo.42
<i>New Deep Learning Based Hybrid Method for Elderly Fall Detection.</i>	
Kumar, Sachin (Univ. of Delhi)	
16:00-16:30	TuPmPo.43
<i>Hybrid Adaptive Control of Industrial Robots for Surface Exploration of Arbitrary Objects.</i>	
Nakhaeina, Danial (Univ. of Ottawa), Payeur, Pierre (Univ. of Ottawa), Laganiere, Robert (Univ. of Ottawa)	
16:00-16:30	TuPmPo.44
<i>Functional Attribute Estimation Using Local Evidences and Semi-Global Surface Structure.</i>	
Akizuki, Shuichi (Chukyo Univ), IIZUKA, Masaki (Chukyo Univ), KOZAI, Kentarō (Chukyo Univ), Hashimoto, Manabu (Graduate School of Computer and Cognitive Sciences, ChukyoUniver)	

Technical Sessions
Wednesday September 27, 2017

WeAT1	Room 109
Model Learning for Control	
Chair: Schoellig, Angela P.	Univ. of Toronto
Co-Chair: Au, Tsz-Chiu	Ulsan National Inst. of Science and Tech
10:30-10:45	WeAT1.1
<i>Multi-Robot Transfer Learning: A Dynamical System Perspective.</i>	
Helwa, Mohamed K. (Univ. of Toronto), Schoellig, Angela P. (Univ. of Toronto)	
10:45-11:00	WeAT1.2
<i>Data-Efficient Control Policy Search Using Residual Dynamics Learning.</i>	
Saveriano, Matteo (Tech. Univ. of Munich), Yin, Yuchao (Tech. Univ. of Munich), Falco, Pietro (Tech. Univ. of Munich), Lee, Dongheui (Tech. Univ. of Munich)	
11:00-11:15	WeAT1.3
<i>Online Multi-Target Learning of Inverse Dynamics Models for Computed-Torque Control of Compliant Manipulators.</i>	
Polydoros, Athanasios S. (Univ. of Innsbruck), Boukas, Evangelos (Aalborg Univ. Copenhagen), Nalpantidis, Lazaros (Aalborg Univ)	
11:15-11:30	WeAT1.4
<i>A New Data Source for Inverse Dynamics Learning.</i>	
Kappler, Daniel (Max-Planck Inst. for Intelligent Systems), Meier, Franziska (Max Planck Inst. for Intelligent Systems), Ratliff, Nathan (Lula Robotics Inc), Schaal, Stefan (MPI Intelligent Systems & Univ. of Southern California)	
11:30-11:45	WeAT1.5
<i>Learning of Vehicular Performance Models for Longitudinal Motion Planning to Satisfy Arrival Requirements.</i>	
Nguyen, Ty (Ulsan National Inst. of Science and Tech), Nguyen, Dung (Ulsan National Inst. of Science and Tech), Au, Tsz-Chiu (Ulsan National Inst. of Science and Tech)	
11:45-12:00	WeAT1.6
<i>Why Did the Robot Cross the Road? - Learning from Multi-Modal Sensor Data for Autonomous Road Crossing.</i>	
Radwan, Noha (Univ. of Freiburg), Winterhalter, Wera (Univ. of Freiburg), Dornhege, Christian (Univ. of Freiburg), Burgard, Wolfram (Univ. of Freiburg)	

WeAT2		Room 111
Compliant Joint/Mechanism I		
Co-Chair: Tsagarakis, Nikos	Istituto Italiano Di Tecnologia	
10:30-10:45		WeAT2.1
<i>Human-Inspired Compliant Strategy for Peg-In-Hole Assembly Using Environmental Constraint and Coarse Force Information.</i>		
Li, Xiaoqing (Univ. of Science and Tech. Beijing), Li, Rui (Inst. of Automation, Chinese Acad. of Sciences), Qiao, Hong (Inst. of Automation, Chinese Acad. of Sciences), Ma, Chao (Univ. of Science and Tech. Beijing), Li, Liang (Beijing Inst. of Spacecraft System Engineering)		
10:45-11:00		WeAT2.2
<i>Development and Control of a Variable Stiffness Actuator Using a Variable Radius Gear Transmission Mechanism.</i>		
Chang, Handdeut (KAIST), Kim, Sangjoon J. (KAIST), Na, Youngjin (Korea Advanced Inst. of Science and Tech. (KAIST)), Park, Junghoon (KAIST), Kim, Jung (KAIST)		
11:00-11:15		WeAT2.3
<i>Control of a Variable Stiffness Joint for Catching a Moving Object.</i>		
Bhole, Ajinkya (Birla Inst. of Tech. and Science, Pilani, Rajasthan), Kumle, Julian (Univ. of Twente), Groothuis, Stefan S. (Mourik International B.V), Carloni, Raffaella (Univ. of Twente)		
11:15-11:30		WeAT2.4
<i>What Is the Torque Bandwidth of This Actuator?.</i>		
Malzahn, Jörn (Istituto Italiano Di Tecnologia), Kashiri, Navvab (Istituto Italiano Di Tecnologia), Roozing, Wesley (Istituto Italiano Di Tecnologia), Tsagarakis, Nikos (Istituto Italiano Di Tecnologia), Caldwell, Darwin G. (Istituto Italiano Di Tecnologia)		
11:30-11:45		WeAT2.5
<i>On the Stiffness Selection for Torque Controlled Series-Elastic Actuators.</i>		
Roozing, Wesley (Istituto Italiano Di Tecnologia), Malzahn, Jörn (Istituto Italiano Di Tecnologia), Kashiri, Navvab (Istituto Italiano Di Tecnologia), Caldwell, Darwin G. (Istituto Italiano Di Tecnologia), Tsagarakis, Nikos (Istituto Italiano Di Tecnologia)		
11:45-12:00		WeAT2.6
<i>Design and Analysis of Planar Rotary Springs.</i>		
Georgiev, Nikola (Caltech), Burdick, Joel (California Inst. of Tech)		

WeAT3	Room 116
Manipulation	
10:30-10:45	WeAT3.1
<i>Robust Constraint-Based Robot Control for Bimanual Cap Rotation.</i>	
Parigi-Polverini, Matteo (Pol. Di Milano), Zanchettin, Andrea Maria (Pol. Di Milano), Incocciati, Francesco (Pol. Di Milano), Rocco, Paolo (Pol. Di Milano)	
10:45-11:00	WeAT3.2
<i>Inverse Dynamics Control of Bimanual Object Manipulation Using Orthogonal Decomposition: An Analytic Approach.</i>	
Shahbazi Aghbelagh, Mohammad (Istituto Italiano Di Tecnologia (IIT)), Lee, Jinh (Fondazione Istituto Italiano Di Tecnologia), Caldwell, Darwin G. (Istituto Italiano Di Tecnologia), Tsagarakis, Nikos (Istituto Italiano Di Tecnologia)	
11:00-11:15	WeAT3.3
<i>A Vision-Guided Multi-Robot Cooperation Framework for Learning-By-Demonstration and Task Reproduction.</i>	
Huang, Bidan (Imperial Coll. London), Ye, Menglong (Imperial Coll. London), Lee, Su-Lin (Imperial Coll. London), Yang, Guang-Zhong (Imperial Coll. London)	
11:15-11:30	WeAT3.4
<i>Extracting Bimanual Synergies with Reinforcement Learning.</i>	
Luck, Kevin Sebastian (Arizona State Univ), Ben Amor, Heni (Arizona State Univ)	
11:30-11:45	WeAT3.5
<i>Model-Free Precise In-Hand Manipulation with a 3d-Printed Tactile Gripper.</i>	
Ward-Cherrier, Benjamin (Univ. of Bristol), Rojas, Nicolas (Imperial Coll. London), Lepora, Nathan (Univ. of Bristol)	
11:45-12:00	WeAT3.6
<i>Visual Task Outcome Verification Using Deep Learning.</i>	
Erkent, Ozgur (Innsbruck Univ), Shukla, Dadhichi (Univ. of Innsbruck), Piater, Justus (Univ. of Innsbruck)	

WeAT4	Room 114
Optimization and Optimal Control I	
Chair: Hauser, Kris	Duke Univ
Co-Chair: Hur, Pilwon	Texas A&M Univ
10:30-10:45	WeAT4.1
<i>Landmark Guided Probabilistic Roadmaps.</i>	
Paden, Brian (MIT), Nager, Yannik (ETH Zürich), Frazzoli, Emilio (Massachusetts Inst. of Tech)	
10:45-11:00	WeAT4.2
<i>A Unified Control Method for Quadrotor Tail-Sitter UAVs in All Flight Modes: Hover, Transition, and Level Flight.</i>	
ZHOU, Jinni (Hong Kong Univ. of Science and Tech), Lyu, Ximin (Hong Kong Univ. of Science and Tech), Li, Zexiang (Hong Kong Univ. of Science and Tech), Shen, Shaojie (Hong Kong Univ. of Science and Tech), Zhang, Fu (Hong Kong Univ. of Science and Tech)	
11:00-11:15	WeAT4.3
<i>Occupancy Grid Based Distributed MPC for Mobile Robots.</i>	
Mehrez, Mohamed W. (Memorial Univ. in Newfoundland), Sprodownski, Tobias (Univ. of Bremen), Worthmann, Karl (Tech. Univ. Ilmenau), Mann, George K. I. (Memorial Univ. of Newfoundland), Gosine, Raymond G. (Memorial Univ. of Newfoundland), Sagawa, Juliana Keiko (Production Engineering Department, Federal Univ. of São Car), Pannek, Jürgen (Univ. Bremen)	
11:15-11:30	WeAT4.4
<i>A Step towards Generating Human-Like Walking Gait Via Trajectory Optimization through Contact for a Bipedal Robot with One-Sided Springs on Toes.</i>	
Chao, Kenneth (Texas A&M), Hur, Pilwon (Texas A&M Univ)	
11:30-11:45	WeAT4.5
<i>A Data-Driven Indirect Method for Nonlinear Optimal Control.</i>	
Tang, Gao (Duke Univ), Hauser, Kris (Duke Univ)	
11:45-12:00	WeAT4.6
<i>Convexification and Real-Time On-Board Optimization for Agile Quad-Rotor Maneuvering and Obstacle Avoidance.</i>	
Szmuk, Michael (Univ. of Washington), Pascucci, Carlo Alberto (Univ. of Washington), Dueri, Daniel (Univ. of Washington), Acikmese, Behcet (Univ. of Washington)	

WeAT5	Room 118
Legged Robots III	
Chair: Choi, Hyouk Ryeol	Sungkyunkwan Univ
Co-Chair: Semini, Claudio	Istituto Italiano Di Tecnologia
10:30-10:45	WeAT5.1
<i>Development of Experimental Legged Robot for Inspection and Disaster Response in Plants.</i>	
Yoshiike, Takahide (Honda R&D Co., Ltd), Kuroda, Mitsuhide (Honda R&D Co., Ltd), Ujino, Ryuma (Honda R&D Co., Ltd), Kaneko, Hiroyuki (Honda R&D Co., Ltd), Higuchi, Hirofumi (Honda R&D Co., Ltd), Iwasaki, Shingo (Honda R&D Co., Ltd), Kanemoto, Yoshiki (Honda R&D Co., Ltd), Asatani, Minami (Honda R&D Co., Ltd), Koshiishi, Takeshi (Honda R&D Co., Ltd)	
10:45-11:00	WeAT5.2
<i>A Leg Design Method for High Speed Quadrupedal Locomotion.</i>	
Dallas, Spyridon (National Tech. Univ. of Athens), Machairas, Konstantinos (National Tech. Univ. of Athens), Koutsoukis, Konstantinos (National Tech. Univ. of Athens), Papadopoulos, Evangelos (National Tech. Univ. of Athens)	
11:00-11:15	WeAT5.3
<i>Foot Placement and Ankle Push-Off Control for the Orbital Stabilization of Bipedal Robots.</i>	
Zamani, Ali (Univ. of Texas at San Antonio), Bhounsule, Pranav (Univ. of Texas at San Antonio)	
11:15-11:30	WeAT5.4
<i>Online Payload Identification for Quadruped Robots.</i>	
Tournois, Guido Alexander (Delft Univ. of Tech), Focchi, Michele (Fondazione Istituto Italiano Di Tecnologia), Del Prete, Andrea (CNRS), Orsolino, Romeo (Istituto Italiano Di Tecnologia), Caldwell, Darwin G. (Istituto Italiano Di Tecnologia), Semini, Claudio (Istituto Italiano Di Tecnologia)	
11:30-11:45	WeAT5.5
<i>Trajectory Design and Control of Quadruped Robot for Trotting Over Obstacles.</i>	
Lee, Young Hun (Sungkyunkwan Univ), Lee, Yoon Haeng (Sungkyunkwan Univ), Lee, Hyunyong (Sungkyunkwan Univ), Phan, Luong Tin (Sungkyunkwan Univ), Kang, Hansol (Sungkyunkwan Univ), Kim, Uikyum (Sungkyunkwan Univ), Jeon, Jeongmin (Sungkyunkwan Univ), Choi, Hyouk Ryeol (Sungkyunkwan Univ)	
11:45-12:00	WeAT5.6
<i>Active Stabilization of a Stiff Quadruped Robot Using Local Feedback.</i>	
Vasconcelos, Rui (Inst. Superior Técnico), Hauser, Simon (Biorob, EPFL), Dzeladini, Florin (EPFL, Biorob), Mutlu, Mehmet (École Pol. Fédérale De Lausanne (EPFL)), Horvat, Tomislav (EPFL), Melo, Kamilo (EPFL), Oliveira, Paulo (Inst. Superior Técnico), Ijspeert, Auke (EPFL)	

WeAT6		Room 121
RGBD Perception I		
Chair: Kosecka, Jana		George Mason Univ
Co-Chair: Lauri, Mikko		Univ. of Hamburg
10:30-10:45		WeAT6.1
<i>M³Net: Multi-Scale Multi-Path Multi-Modal Fusion Network and Example Application to RGB-D Salient Object Detection.</i>		
Chen, Hao (City Univ. of Hong Kong), Li, You-Fu (City Univ. of Hong Kong), Su, Dan (City Univ. of Hong Kong)		
10:45-11:00		WeAT6.2
<i>Label Propagation in RGB-D Video.</i>		
Reza, Md (George Mason Univ), zheng, hui (George Mason Univ), Georgakis, Georgios (George Mason Univ), Kosecka, Jana (George Mason Univ)		
11:00-11:15		WeAT6.3
<i>Learning How a Tool Affords by Simulating 3D Models from the Web.</i>		
Abelha, Paulo (Univ. of Aberdeen), Guerin, Frank (Univ. of Aberdeen)		
11:15-11:30		WeAT6.4
<i>Self-Supervised Online Learning of Appearance for 3D Tracking.</i>		
Lee, Bhoram (Univ. of Pennsylvania), Lee, Daniel D. (Univ. of Pennsylvania)		
11:30-11:45		WeAT6.5
<i>Saliency-Guided Adaptive Seeding for Supervoxel Segmentation.</i>		
Gao, Ge (Univ. of Hamburg), Lauri, Mikko (Univ. of Hamburg), Zhang, Jianwei (Univ. of Hamburg), Frintrop, Simone (Univ. of Hamburg)		
11:45-12:00		WeAT6.6
<i>Dense Piecewise Planar RGB-D SLAM for Indoor Environments.</i>		
Le, Phi-Hung (George Mason Univ), Kosecka, Jana (George Mason Univ)		

WeAT7	Room 122
Biomimetics I	
Chair: Ma, Shugen	Ritsumeikan Univ
Co-Chair: Brock, Oliver	Tech. Univ. Berlin
10:30-10:45	WeAT7.1
<i>Curved Excavation by a Sub-Seafloor Excavation Robot.</i>	
Tadami, Naoaki (Chuo Univ), Nagai, Mamoru (Chuo Univ), Nakatake, Toyoharu (Chuo Univ), Fujiwara, Ami (Chuo Univ), Yamada, Yasuyuki (Chuo Univ), Nakamura, Taro (Chuo Univ), Yoshida, Hiroshi (Japan Agency for Marine-Earth Science and Tech), SAWADA, HIROTAKA (JAXA), Kubota, Takashi (Jaxa Isas)	
10:45-11:00	WeAT7.2
<i>Human Mimetic Forearm Design with Radioulnar Joint Using Miniature Bone-Muscle Modules and Its Applications.</i>	
Kawaharazuka, Kento (The Univ. of Tokyo), Makino, Shogo (The Univ. of Tokyo), Kawamura, Masaya (The Univ. of Tokyo), Asano, Yuki (The Univ. of Tokyo), Kakiuchi, Yohei (The Univ. of Tokyo), Okada, Kei (The Univ. of Tokyo), Inaba, Masayuki (The Univ. of Tokyo)	
11:00-11:15	WeAT7.3
<i>An Underwater Electrosensor for Identifying Objects of Similar Volume and Aspect Ratio Using Convolution Neural Network.</i>	
Wang, Ke (Curtin Univ), Do, Khac Duc (Univ. of Western Australia), Cui, Lei (Curtin Univ)	
11:15-11:30	WeAT7.4
<i>Modelling and Analysis of the Passive Planar Rimless Wheel Mechanism in Universal Domain.</i>	
Jia, Wenchuan (Shanghai Univ), Yang, Jiang (Shanghai Univ), Bi, Liangyu (Shanghai Univ), Zhang, Quan (Shanghai Univ), Sun, Yi (Shanghai Univ), Pu, Huayan (Shanghai Univ), Ma, Shugen (Ritsumeikan Univ)	
11:30-11:45	WeAT7.5
<i>Inclined Surface Locomotion Strategies for Spherical Tensegrity Robots.</i>	
CHEN, LEE-HUANG (Univ. OF CALIFORNIA BERKELEY), Cera, Angelo Brian (UC Berkeley), Zhu, Edward (UC Berkeley), Edmunds, Riley (Univ. of California, Berkeley), Rice, Franklin (Univ. of California, Berkeley), Bronars, Antonia (UC Berkeley), Tang, Ellande (UC Berkeley), Malekshahi, Saunon Rod (Univ. of California, Berkeley), Romero, Osvaldo (Univ. Nacional Autónoma De México), Agogino, Adrian (UC Santa Cruz, NASA Ames Res. Center), Agogino, Alice (Univ. of California Berkeley)	
11:45-12:00	WeAT7.6
<i>Handshakiness: Benchmarking for Human-Robot Hand Interactions.</i>	
Knoop, Espen (The Walt Disney Company), Bächer, Moritz (Disney Res), Wall, Vincent (TU Berlin), Deimel, Raphael (TU Berlin), Brock, Oliver (Tech. Univ. Berlin), Beardsley, Paul (Disney Res. Zurich)	

WeAT8	Room 202
Humanoid and Bipedal Locomotion I	
Chair: Kheddar, Abderrahmane	CNRS-AIST JRL (Joint Robotics Lab. UMI3218/CRT)
Co-Chair: Suleiman, Wael	Univ. of Sherbrooke
10:30-10:45	WeAT8.1
<i>Rotational Sliding Motion Generation for Humanoid Robot by Force Distribution in Each Contact Face.</i>	
Kojima, Kunio (The Univ. of Tokyo), Nozawa, Shunichi (The Univ. of Tokyo), Okada, Kei (The Univ. of Tokyo), Inaba, Masayuki (The Univ. of Tokyo), Ishiguro, Yasuhiro (The Univ. of Tokyo), Sugai, Fumihito (The Univ. of Tokyo), Kakiuchi, Yohei (The Univ. of Tokyo)	
10:45-11:00	WeAT8.2
<i>Control Strategy and Implementation for a Humanoid Robot Pushing a Heavy Load on a Rolling Cart.</i>	
Hawley, Louis (Univ. of Sherbrooke), Suleiman, Wael (Univ. of Sherbrooke)	
11:00-11:15	WeAT8.3
<i>3D Walking and Skating Motion Generation Using Divergent Component of Motion and Gauss Pseudospectral Method.</i>	
Takasugi, Noriaki (The Univ. of Tokyo), Kojima, Kunio (The Univ. of Tokyo), Nozawa, Shunichi (The Univ. of Tokyo), Okada, Kei (The Univ. of Tokyo), Inaba, Masayuki (The Univ. of Tokyo)	
11:15-11:30	WeAT8.4
<i>Frictional Constraints on the Sole of a Biped Robot When Slipping.</i>	
Takabayashi, Yusuke (Maebashi Inst. of Tech), Ishihara, Kosuke (Maebashi Inst. of Tech), Yoshioka, Masataka (National Inst. of Tech. Kochi Coll), Liang, Hongbo (Maebashi Inst. of Tech), Liu, Chang (Maebashi Inst. of Tech), Zhu, Chi (Maebashi Inst. of Tech)	
11:30-11:45	WeAT8.5
<i>Dynamic Walking Over Rough Terrains by Nonlinear Predictive Control of the Floating-Base Inverted Pendulum.</i>	
Caron, Stephane (Lirmm Cnrs), Kheddar, Abderrahmane (CNRS-AIST JRL (Joint Robotics Lab. UMI3218/CRT)	
11:45-12:00	WeAT8.6
<i>Almost Driftless Navigation of 3D Limit-Cycle Walking Biped.</i>	
Veer, Sushant (Univ. of Delaware), Shafiee Motahar, Mohamad (Univ. of Delaware), Poulakakis, Ioannis (Univ. of Delaware)	

WeAT9	Room 204
Human Assistive Systems	
Chair: Zecca, Massimiliano	Loughborough Univ
Co-Chair: Artemiadis, Panagiotis	Arizona State Univ
10:30-10:45	WeAT9.1
<i>Real-Time End-Effector Motion Behavior Planning Approach Using On-Line Point-Cloud Data towards a User Adaptive Assistive Bath Robot.</i>	
Dometios, Athanasios (National Tech. Univ. of Athens (NTUA)), Papageorgiou, Xanthi S. (National Tech. Univ. of Athens), Arvanitakis, Antonis (National Tech. Univ. of Athens), Tzafestas, Costas S. (ICCS - Inst. of Communication and Computer Systems), Maragos, Petros (National Tech. Univ. of Athens)	
10:45-11:00	WeAT9.2
<i>Towards a User-Adaptive Context-Aware Robotic Walker with a Pathological Gait Assessment System: First Experimental Study.</i>	
Chalvatzaki, Georgia (NATIONAL Tech. Univ. OF ATHENS), Papageorgiou, Xanthi S. (National Tech. Univ. of Athens), Tzafestas, Costas S. (ICCS - Inst. of Communication and Computer Systems)	
11:00-11:15	WeAT9.3
<i>Supervisory Control of a DaVinci Surgical Robot.</i>	
Chow, Der-Lin (Case Western Res. Univ), Xu, Peng (Case Western Res. Univ), Tuna, Eser Erdem (Case Western Res. Univ), HUANG, SIQI (Case Western Res. Univ), Cavusoglu, M. Cenk (Case Western Res. Univ), Newman, Wyatt (Case Western Res. Univ)	
11:15-11:30	WeAT9.4
<i>Step Sequence and Direction Detection of Four Square Step Test.</i>	
Kong, Weisheng (Waseda Univ), Waaning, Lauren (Loughborough Univ), Sessa, Salvatore (Waseda Univ), Zecca, Massimiliano (Loughborough Univ), Magistro, Daniele (Loughborough Univ), Takeuchi, Hikaru (Tohoku Univ), Kawashima, Ryuta (Tohoku Univ), Takanishi, Atsuo (Waseda Univ)	
11:30-11:45	WeAT9.5
<i>Multi-Modal Trip Hazard Affordance Detection on Construction Sites.</i>	
McMahon, Sean M (Queensland Univ. of Tech), S�nderhauf, Niko (Queensland Univ. of Tech), Upcroft, Ben (Queensland Univ. of Tech), Milford, Michael J (Queensland Univ. of Tech)	
11:45-12:00	WeAT9.6
<i>A Hybrid Brain-Machine Interface for Control of Robotic Swarms: Preliminary Results.</i>	
Karavas, George K. (Arizona State Univ), Larsson, Daniel (Arizona State Univ), Artemiadis, Panagiotis (Arizona State Univ)	

WeAT10		Room 205
Object Detection, Segmentation, and Categorization I		
Chair: Triebel, Rudolph		Tech. Univ. Munich
Co-Chair: Pham, Trung		The Univ. of Adelaide
10:30-10:45		WeAT10.1
<i>Autonomous Meshing, Texturing and Recognition of Object Models with a Mobile Robot.</i>		
Ambrus, Rares (Royal Inst. of Tech. (KTH) Stockholm Sweden), Bore, Nils (KTH Royal Inst. of Tech), Folkesson, John (KTH), Jensfelt, Patric (KTH - Royal Inst. of Tech)		
10:45-11:00		WeAT10.2
<i>Meaningful Maps with Object-Oriented Semantic Mapping.</i>		
Sünderhauf, Niko (Queensland Univ. of Tech), Pham, Trung (The Univ. of Adelaide), Latif, Yasir (Univ. of Adelaide), Milford, Michael J (Queensland Univ. of Tech), Reid, Ian (Univ. of Adelaide)		
11:00-11:15		WeAT10.3
<i>Selecting CNN Features for Online Learning of 3D Objects.</i>		
Ullrich, Monika (German Aerospace Center (DLR)), Ali, Haider (Johns Hopkins Univ), Durner, Maximilian (German Aerospace Center DLR), Marton, Zoltan-Csaba (German Aerospace Center (DLR)), Triebel, Rudolph (Tech. Univ. Munich)		
11:15-11:30		WeAT10.4
<i>Probabilistic 3D Multilabel Real-Time Mapping for Multi-Object Manipulation.</i>		
Wada, Kentaro (The Univ. of Tokyo), Okada, Kei (The Univ. of Tokyo), Inaba, Masayuki (The Univ. of Tokyo)		
11:30-11:45		WeAT10.5
<i>What Makes a Place? Building Bespoke Place Dependent Object Detectors for Robotics.</i>		
Hawke, Jeffrey (Univ. of Oxford), Bewley, Alex (Univ. of Oxford), Posner, Ingmar (Oxford Univ)		
11:45-12:00		WeAT10.6
<i>MFNet: Towards Real-Time Semantic Segmentation for Autonomous Vehicles with Multi-Spectral Scenes.</i>		
Ha, Qishen (The Univ. of Tokyo), Watanabe, Kohei (The Univ. of Tokyo), Karasawa, Takumi (The Univ. of Tokyo), Ushiku, Yoshitaka (Grad School of Information Science & Tech. the Univ), Harada, Tatsuya (The Univ. of Tokyo)		

WeAT11	Room 207
Aerial Systems: Mechanics and Control I	
Chair: Papanikolopoulos, Nikos	Univ. of Minnesota
Co-Chair: Shen, Shaojie	Hong Kong Univ. of Science and Tech
10:30-10:45	WeAT11.1
<i>A Unified Approach to Configuration-Based Dynamic Analysis of Quadcopters for Optimal Stability.</i>	
Hedayatpour, Mojtaba (Univ. of Regina), mehrandezh, mehran (Univ. of Regina), Janabi-Sharifi, Farrokh (Ryerson Univ)	
10:45-11:00	WeAT11.2
<i>Wall Contact by Octo-Rotor UAV with One DoF Manipulator for Bridge Inspection.</i>	
Ikeda, Takahiro (Meijo Univ), Yasui, Shogo (Meijo Univ), Fujihara, Motoharu (Meijo Univ), Ohara, Kenichi (Meijo Univ), Ashizawa, Reiji (Meijo Univ), Ichikawa, Akihiko (Meijo Univ), Okino, akihisa (Okino Industries, LTD), Oomichi, Takeo (Meijo Univ), Fukuda, Toshio (Meijo Univ)	
11:00-11:15	WeAT11.3
<i>Enabling Robot Assisted Landing of Heavy UAV Rotorcraft Via Combined Control and Workload Sharing.</i>	
Maier, Moritz (German Aerospace Center (DLR)), Kondak, Konstantin (German Aerospace Center), Ott, Christian (German Aerospace Center (DLR))	
11:15-11:30	WeAT11.4
<i>A Hierarchical Control Approach for a Quadrotor Tail-Sitter VTOL UAV and Experimental Verification.</i>	
Lyu, Ximin (Hong Kong Univ. of Science and Tech), Gu, Haowei (Hong Kong Univ. of Science and Tech), ZHOU, Jinni (Hong Kong Univ. of Science and Tech), Li, Zexiang (Hong Kong Univ. of Science and Tech), Shen, Shaojie (Hong Kong Univ. of Science and Tech), Zhang, Fu (Hong Kong Univ. of Science and Tech)	
11:30-11:45	WeAT11.5
<i>Energy Characterization of a Transformable Solar-Powered Unmanned Aerial Vehicle.</i>	
Jenson, Devon (Cse, Umn), D'Sa, Ruben (Univ. of Minnesota), Henderson, Travis (Cse, Umn), Kilian, Jack (Cse, Umn), Schulz, Bobby (Univ. of Minnesota Twin Cities), Papanikolopoulos, Nikos (Univ. of Minnesota)	
11:45-12:00	WeAT11.6
<i>A Small Hybrid Ground-Air Vehicle Concept.</i>	
Morton, Scott (Univ. of Minnesota), Papanikolopoulos, Nikos (Univ. of Minnesota)	

WeAT12	Room 208
Agricultural Robotics I	
Chair: Bhattacharya, Sourabh	Iowa State Univ
Co-Chair: Dayoub, Feras	Queensland Univ. of Tech
10:30-10:45	WeAT12.1
<i>Semi-Supervised Online Visual Crop and Weed Classification in Precision Farming Exploiting Plant Arrangement.</i>	
Lottes, Philipp (Univ. of Bonn), Stachniss, Cyrill (Univ. of Bonn)	
10:45-11:00	WeAT12.2
<i>Online Detection of Occluded Plant Stalks for Manipulation.</i>	
Jenkins, Merritt (Carnegie Mellon Univ), Kantor, George (Carnegie Mellon Univ)	
11:00-11:15	WeAT12.3
<i>Smart Autonomous Grain Carts for Harvesting-On-Demand.</i>	
Tian, Yan (Iowa State Univ), Bhattacharya, Sourabh (Iowa State Univ)	
11:15-11:30	WeAT12.4
<i>A Transplantable System for Weed Classification by Agricultural Robotics.</i>	
Hall, David (Queensland Univ. of Tech), Dayoub, Feras (Queensland Univ. of Tech), Perez, Tristan (Queensland Univ. of Tech), McCool, Christopher Steven (Queensland Univ. of Tech)	
11:30-11:45	WeAT12.5
<i>In-Field Segmentation and Identification of Plant Structures Using 3D Imaging.</i>	
Sodhi, Paloma (Carnegie Mellon Univ), Vijayarangan, Srinivasan (Carnegie Mellon Univ), Wettergreen, David (Carnegie Mellon Univ)	
11:45-12:00	WeAT12.6
<i>Automatic Model Based Dataset Generation for Fast and Accurate Crop and Weeds Detection.</i>	
Di Cicco, Maurilio (Sapienza Univ. of Rome), Potena, Ciro (Sapienza Univ. of Rome), Grisetti, Giorgio (Sapienza Univ. of Rome), Pretto, Alberto (Sapienza Univ. of Rome)	

WeAT13		Room 211
Motion and Path Planning V		
Chair: Manocha, Dinesh	Univ. of North Carolina at Chapel Hill	
Co-Chair: Dai, Ran	Iowa State Univ	
10:30-10:45		WeAT13.1
<i>Towards Planning and Control of Hybrid Systems with Limit Cycle Using LQR Trees.</i>		
Rajasekaran, Siddharthan (Worcester Pol. Inst), Natarajan, Ramkumar (Worcester Pol. Inst), Taylor, Jonathan D. (Carnegie Mellon Univ)		
10:45-11:00		WeAT13.2
<i>Ergodic Coverage in Constrained Environments Using Stochastic Trajectory Optimization.</i>		
Ayvali, Elif (Carnegie Mellon Univ), Salman, Hadi (Carnegie Mellon Univ), Choset, Howie (Carnegie Mellon Univ)		
11:00-11:15		WeAT13.3
<i>Sampling-Based Coverage Motion Planning for Industrial Inspection Application with Redundant Robotic System.</i>		
Jing, Wei (Carnegie Mellon Univ), Polden, Joseph (Singapore Inst. of Manufacturing Tech. (SIMTech)), Goh, Chun Fan (Carnegie Mellon Univ), Rajaraman, Mabarani (Carnegie Mellon Univ), Lin, Wei (SIMTech, A*STAR), Shimada, Kenji (Carnegie Mellon Univ)		
11:15-11:30		WeAT13.4
<i>Static Force Distribution and Orientation Control for a Rover with an Actively Articulated Suspension System.</i>		
Cordes, Florian (DFKI Robotics Innovation Center Bremen), Babu, Ajish (German Res. Center for Artificial Intelligence (DFKI)), Kirchner, Frank (Univ. of Bremen)		
11:30-11:45		WeAT13.5
<i>Probabilistic Prioritization of Movement Primitives.</i>		
Paraschos, Alexandros (Tech. Univ. Darmstadt), Lioutikov, Rudolf (Tech. Univ. Darmstadt), Peters, Jan (Tech. Univ. Darmstadt), Neumann, Gerhard (Univ. of Lincoln)		
11:45-12:00		WeAT13.6
<i>Mission Planning for a Multi-Robot Team with a Solar-Powered Charging Station.</i>		
Kingry, Nathaniel (Iowa State Univ), Liu, Yen-Chen (Iowa State Univ), Simon, Benjamin (Iowa State Univ), Bang, Yun Qi (Iowa State Univ), Dai, Ran (Iowa State Univ)		

WeAT14	Room 217
Humanoid Locomotion	
Chair: Poulakakis, Ioannis	Univ. of Delaware
Co-Chair: Asano, Fumihiko	Japan Advanced Inst. of Science and Tech
10:30-10:45	WeAT14.1
<i>Distributed Torque Estimation Toward Low-Latency Variable Stiffness Control for Gear-Driven Torque Sensorless Humanoid.</i>	
Nagamatsu, Yuya (The Univ. of Tokyo), Shirai, Takuma (Tokyo Univ), Suzuki, Hiroto (The Univ. of Tokyo), Kakiuchi, Yohei (The Univ. of Tokyo), Okada, Kei (The Univ. of Tokyo), Inaba, Masayuki (The Univ. of Tokyo)	
10:45-11:00	WeAT14.2
<i>MPC-Based Humanoid Pursuit-Evasion in the Presence of Obstacles.</i>	
De Simone, Daniele (Sapienza Univ. of Rome), Scianca, Nicola (Sapienza Univ. of Rome), Ferrari, Paolo (Sapienza Univ. of Rome), Lanari, Leonardo (Sapienza Univ. of Rome), Oriolo, Giuseppe (Sapienza Univ. of Rome)	
11:00-11:15	WeAT14.3
<i>Steering a 3D Limit-Cycle Biped for Collaboration with a Leader.</i>	
Shafiee Motahar, Mohamad (Univ. of Delaware), Veer, Sushant (Univ. of Delaware), Poulakakis, Ioannis (Univ. of Delaware)	
11:15-11:30	WeAT14.4
<i>2D Omnidirectional Navigation of a Biped Robot Based on an Egocentric Orbit Following.</i>	
Atsuta, Hiroshi (Osaka Univ), Sugihara, Tomomichi (Graduate School of Engineering, Osaka Univ)	
11:30-11:45	WeAT14.5
<i>Biped Walking Stabilization Based on Foot Placement Control Using Capture Point Feedback.</i>	
Jeong, Hyobin (KAIST), Sim, Okkee (KAIST), Bae, HyoIn (KAIST, HuboLab), Lee, Kang Kyu (KAIST Hubolab), Oh, Jaesung (KAIST), Oh, Jun Ho (Korea Advanced Inst. of Sci. and Tech)	
11:45-12:00	WeAT14.6
<i>Modeling and Analysis of Sliding Passive Dynamic Walking with Semicircular Feet Considering Impulsive Frictional Effect.</i>	
Asano, Fumihiko (Japan Advanced Inst. of Science and Tech), Harata, Yuji (Hiroshima Univ)	

WeAT15	Room 215
Aerial I	
Chair: Furukawa, Tomonari	Virginia Pol. Inst. and State Univ
Co-Chair: Waslander, Steven Lake	Univ. of Waterloo
10:30-10:45	WeAT15.1
<i>Aerial Image Based Heading Correction for a Large Scale SLAM in an Urban Canyon.</i>	
roh, hyunchul (KAIST), Jeong, Jinyong (KAIST), Kim, Ayoung (Korea Advanced Inst. of Science Tech)	
10:45-11:00	WeAT15.2
<i>Image-Based UAV Localization Using Interval Methods.</i>	
Kenmogne, Ide-Flore (INRIA), Drevelle, Vincent (Univ. De Rennes 1, IRISA, INRIA Rennes), Marchand, Eric (Univ. De Rennes 1, IRISA, INRIA Rennes)	
11:00-11:15	WeAT15.3
<i>Distance Function Based 6DOF Localization for Unmanned Aerial Vehicles in GPS Denied Environments.</i>	
Unicomb, James (Univ. of Tech. Sydney), Dantanarayana, Lakshitha (Univ. of Tech. Sydney), Arukgoda, Janindu (Univ. of Tech. Sydney), Ranasinghe, Ravindra (Univ. of Tech. Sydney), Dissanayake, Gamini (Univ. of Tech. Sydney), Furukawa, Tomonari (Virginia Pol. Inst. and State Univ)	
11:15-11:30	WeAT15.4
<i>Circular Formation Control of Fixed-Wing UAVs with Constant Speeds.</i>	
Garcia de Marina, Hector (Ec. Nationale De L'aviation Civil (ENAC)), Sun, Zhiyong (Australian National Univ), Bronz, Murat (ENAC), Hattenberger, Gautier (ENAC, French Civil Aviation Univ)	
11:30-11:45	WeAT15.5
<i>A Decision-Theoretic Approach to Detection-Based Target Search with a UAV.</i>	
Gupta, Aayush (Saratoga High School), Bessonov, Daniel (Saratoga High School), Li, Patrick (Saratoga High School)	
11:45-12:00	WeAT15.6
<i>Using a Quadrotor to Track a Moving Target with Arbitrary Relative Motion Patterns.</i>	
Chen, Jing (Hong Kong Univ. of Science and Tech), Shen, Shaojie (Hong Kong Univ. of Science and Tech)	

WeAT16	Room 220
Reactive and Sensor-Based Planning I	
Chair: Kleiner, Alexander	Irobot
Co-Chair: Englot, Brendan	Stevens Inst. of Tech
10:30-10:45	WeAT16.1
<i>Belief Roadmap Search: Advances in Optimal and Efficient Planning under Uncertainty.</i>	
Shan, Tixiao (Stevens Inst. of Tech), Englot, Brendan (Stevens Inst. of Tech)	
10:45-11:00	WeAT16.2
<i>Reactive Synthesis for Finite Tasks under Resource Constraints.</i>	
He, Keliang (Rice Univ), Lahijanian, Morteza (Univ. of Oxford), Kavrazi, Lydia (Rice Univ), Moshe, Vardi (Rice Univ)	
11:00-11:15	WeAT16.3
<i>Probabilistic Nod Generation Model Based on Estimated Utterance Categories.</i>	
liu, chaoran (Osaka Univ), Ishi, Carlos Toshinori (ATR), Ishiguro, Hiroshi (Osaka Univ)	
11:15-11:30	WeAT16.4
<i>Visual Navigation with Efficient ConvNet Features.</i>	
Jaspers, Hanno (Univ. of the Bundeswehr Munich), Fassbender, Dennis (Univ. of the Bundeswehr Munich), Wuensche, Hans J (UniBw Munich)	
11:30-11:45	WeAT16.5
<i>A Solution to Room-By-Room Coverage for Autonomous Cleaning Robots.</i>	
Kleiner, Alexander (Irobot), Baravalle, Rodrigo Guillermo (Irobot, CIFASIS-CONICET, Lab. for System Dynamics and Sign), Kolling, Andreas (Irobot Corp), Pilotti, Pablo (Irobot), Munich, Mario Enrique (Irobot)	
11:45-12:00	WeAT16.6
<i>Viscosity-Based Height Reflex for Workspace Augmentation for Quadrupedal Locomotion on Rough Terrain.</i>	
Focchi, Michele (Fondazione Istituto Italiano Di Tecnologia), Featherstone, Roy (Istituto Italiano Di Tecnologia), Orsolino, Romeo (Istituto Italiano Di Tecnologia), Semini, Claudio (Istituto Italiano Di Tecnologia), Caldwell, Darwin G. (Istituto Italiano Di Tecnologia)	

WeAT17	Room 221
Redundant Robotics	
Chair: Takanishi, Atsuo	Waseda Univ
Co-Chair: Kovacs, Jozsef	McGill Univ
10:30-10:45	WeAT17.1
<i>Linear Actuator Robots: Differential Kinematics, Controllability, and Algorithms for Locomotion and Shape Morphing.</i>	
Usevitch, Nathan (Stanford), Hammond, Zachary (Stanford Univ), Follmer, Sean (Stanford Univ), Schwager, Mac (Stanford Univ)	
10:45-11:00	WeAT17.2
<i>Interactive Null Space Control for Intuitively Interpretable Reconfiguration of Redundant Manipulators.</i>	
Mansfeld, Nico (German Aerospace Center (DLR)), Beck, Fabian (German Aerospace Center (DLR)), Dietrich, Alexander (German Aerospace Center (DLR)), Haddadin, Sami (Leibniz Univ. Hanover)	
11:00-11:15	WeAT17.3
<i>A Survey on Precision of Redundantly Actuated DELTA-Type Parallel Kinematic Mechanisms.</i>	
Shahidi, Seyed Amirreza (RWTH Aachen Univ), Lorenz, Michael (RWTH Aachen Univ), Charaf Eddine, Sami (RWTH Aachen Univ), Hüsing, Mathias (RWTH Aachen Univ), Corves, Burkhard (RWTH Aachen Univ)	
11:15-11:30	WeAT17.4
<i>A Method to Enforce Stiff Constraints in the Simulation of Articulated Multibody Systems.</i>	
Hewlett, Joseph (McGill Univ), Kovacs, Jozsef (McGill Univ), Angeles, Jorge (McGill Univ)	
11:30-11:45	WeAT17.5
<i>Improving the Performance of Biomechanically Safe Velocity Control for Redundant Robots through Reflected Mass Minimization.</i>	
Mansfeld, Nico (German Aerospace Center (DLR)), Djellab, Badis (German Aerospace Center (DLR)), Raldua Veuthey, Jaime (German Aerospace Center (DLR)), Beck, Fabian (German Aerospace Center (DLR)), Ott, Christian (German Aerospace Center (DLR)), Haddadin, Sami (Leibniz Univ. Hanover)	
11:45-12:00	WeAT17.6
<i>A Four-Limbed Disaster-Response Robot Having High Mobility Capabilities in Extreme Environments.</i>	
Hashimoto, Kenji (Waseda Univ), Matsuzawa, Takashi (Waseda Univ), Teramachi, Tomotaka (Waseda Univ), Uryu, Kazuhiro (Waseda Univ), Sun, Xiao (Waseda Univ), Hamamoto, Shinya (Waseda Univ), Koizumi, Ayanori (Waseda Univ), Takanishi, Atsuo (Waseda Univ)	

WeAT18		Room 223
Failure Detection and Recovery		
Chair: Tang, Hui	Guangdong Univ. of Tech	
Co-Chair: Rojas, Juan	Guangdong Univ. of Tech	
10:30-10:45	WeAT18.1	
<i>A Multimodal Execution Monitor with Anomaly Classification for Robot-Assisted Feeding.</i>		
Park, Daehyung (Georgia Inst. of Tech), Kim, HoKeun (Georgia Inst. of Tech), Hoshi, Yuuna (Georgia Inst. of Tech), Erickson, Zackory (Georgia Inst. of Tech), Kapusta, Ariel (Georgia Inst. of Tech), Kemp, Charlie (Georgia Inst. of Tech)		
10:45-11:00	WeAT18.2	
<i>Force-Sensorless Fault Tolerant Detection and Switching Control of Tendon-Driven Mechanisms with Redundant Tendons.</i>		
Suehiro, Kiichi (Kubota Coporation), Ozawa, Ryuta (Ritsumeikan Univ), Van Heerden, Kirill (Ritsumeikan Univ)		
11:00-11:15	WeAT18.3	
<i>Structure and Performance Analysis of the 7! Robots Generated from an Optimally Fault Tolerant Jacobian.</i>		
Xie, Biyun (Colorado State Univ), Maciejewski, Anthony A. (Colorado State Univ)		
11:15-11:30	WeAT18.4	
<i>Online Robot Introspection Via Wrench-Based Action Grammars.</i>		
Rojas, Juan (Guangdong Univ. of Tech), Luo, Shuangqi (Guangdong Univ. of Tech), Zhu, DingQiao (Sun Yat Sen Univ), Huang, Zhenjie (Sun Yat Sen Univ), Lin, Hongbin (Guangdong Univ. of Tech), Du, Yunlong (Sun Yat Sen Univ), Kuàng, wen wei (Sun Yat Sen Univ), Harada, Kensuke (Osaka Univ)		
11:30-11:45	WeAT18.5	
<i>Viewpoint Selection for Visual Failure Detection.</i>		
Saran, Akanksha (Univ. of Texas at Austin), Lacic, Branka (Duke Univ), Majumdar, Srinjoy (Univ. of Texas at Austin), Hess, Juergen Michael (Robert Bosch LLC), Niekum, Scott (Univ. of Texas at Austin)		
11:45-12:00	WeAT18.6	
<i>Towards Adaptive Semantic Subscriptions for Stream Reasoning in the Robot Operating System.</i>		
de Leng, Daniel (Linköping Univ), Heintz, Fredrik (Linköping Univ)		

WeBT1	Room 109
Deep Learning	
Chair: He, Hongsheng	Univ. of Tennessee
Co-Chair: Sa, Inkyu	ETH Zurich
14:30-14:45	WeBT1.1
<i>Towards Visual Ego-Motion Learning in Robots.</i>	
Pillai, Sudeep (MIT), Leonard, John (MIT)	
14:45-15:00	WeBT1.2
<i>Robots That Anticipate Pain: Anticipating Physical Perturbations from Visual Cues through Deep Predictive Models.</i>	
Sur, Indranil (SRI International), Ben Amor, Heni (Arizona State Univ)	
15:00-15:15	WeBT1.3
<i>Control of a Quadrotor with Reinforcement Learning.</i>	
Hwangbo, Jemin (Swiss Federal Inst. of Tech. Zurich), Sa, Inkyu (ETH Zurich), Siegwart, Roland (ETH Zurich), Hutter, Marco (ETH Zurich)	
15:15-15:30	WeBT1.4
<i>Deep Visual Gravity Vector Detection for Unmanned Aircraft Attitude Estimation.</i>	
Ellingson, Gary (Brigham Young Univ), Wingate, David (Brigham Young Univ), McLain, T.W. (Brigham Young Univ)	
15:30-15:45	WeBT1.5
<i>Learning Deep Visual Object Models from Noisy Web Data: How to Make It Work.</i>	
Massouh, Nizar (Sapienza Rome Univ), Babiloni, Francesca (Sapienza Rome Univ), Tommasi, Tatiana (Univ. of Rome Sapienza), Young, Jay (Univ. of Birmingham), Hawes, Nick (Univ. of Birmingham), Caputo, Barbara (Sapienza Univ)	
15:45-16:00	WeBT1.6
<i>Learning Deep NBNN Representations for Robust Place Categorization.</i>	
Mancini, Massimiliano (Sapienza Univ. of Rome), Rota Bulò, Samuel (Fondazione Bruno Kessler), Ricci, Elisa (Univ. of Perugia), Caputo, Barbara (Sapienza Univ)	

WeBT2	Room 111
Compliant Joint/Mechanism II	
Chair: Kashiri, Navvab	Istituto Italiano Di Tecnologia
Co-Chair: Tsagarakis, Nikos	Istituto Italiano Di Tecnologia
14:30-14:45	WeBT2.1
<i>Tribot: A Deployable, Self-Righting and Multi-Locomotive Origami Robot.</i>	
Zhakypov, Zhenishbek (École Pol. Fédérale De Lausanne), Belke, Christoph H. (École Pol. Fédérale De Lausanne), Paik, Jamie (Ec. Pol. Federale De Lausanne)	
14:45-15:00	WeBT2.2
<i>COcRIP: Compliant OmniCrawler In-Pipeline Robot.</i>	
Singh, Akash (Visvesvaraya National Inst. of Tech), Sachdeva, Enna (IIIT Hyderabad), Sarkar, Abhishek (International Inst. of Information Tech. Hyderabad), Krishna, Madhava (IIIT Hyderabad)	
15:00-15:15	WeBT2.3
<i>Development of a Human Size and Strength Compliant Bi-Manual Platform for Realistic Heavy Manipulation Tasks.</i>	
Baccelliere, Lorenzo (Istituto Italiano Di Tecnologia), Kashiri, Navvab (Istituto Italiano Di Tecnologia), Muratore, Luca (Italian Inst. of Tech), Laurenzi, Arturo (Istituto Italiano Di Tecnologia), Kamedula, Malgorzata (Istituto Italiano Di Tecnologia), margan, alessio (Istituto Italiano Di Tecnologia), Cordasco, Stefano (Istituto Italiano Di Tecnologia (IIT)), Malzahn, Jörn (Istituto Italiano Di Tecnologia), Tsagarakis, Nikos (Istituto Italiano Di Tecnologia)	
15:15-15:30	WeBT2.4
<i>Open-Loop Torque Control of Series Clutch Actuators with a High Torque to Weight Ratio.</i>	
Wang, Yushi (Waseda Univ), Schmitz, Alexander (Waseda Univ), Kobayashi, Kento (Waseda Univ), Alvarez Lopez, Javier Alejandro (Waseda Univ. Sugano Lab), matsuo, yuki (Waseda Univ), Sakamoto, Yoshihiro (Waseda Univ), Sugano, Shigeki (Waseda Univ), Wang, Wei (Waseda Univ)	
15:30-15:45	WeBT2.5
<i>Soft Fluidic Rotary Actuator with Improved Actuation Properties.</i>	
Fraš, Jan (Industrial Res. Inst. for Automation and Measurements), Noh, Yohan (King's Coll. London), Wurdemann, Helge Arne (Univ. Coll. London), Althoefer, Kaspar (Queen Mary Univ. of London)	
15:45-16:00	WeBT2.6
<i>Flexible Ultrasonic Motor Using an Output Coil Spring Slider.</i>	
Kanada, Ayato (Toyohashi Univ. of Tech), Mashimo, Tomoaki (Toyohashi Univ. of Tech), Terashima, Kazuhiko (Toyohashi Univ. of Tech)	

WeBT3		Room 116
Planning		
Chair: Rekleitis, Ioannis		Univ. of South Carolina
14:30-14:45		WeBT3.1
<i>The Matroid Team Surviving Orienteers Problem: Constrained Routing of Heterogeneous Teams with Risky Traversal.</i>		
Jorgensen, Stefan (Stanford Univ), Chen, Robert (Northrop Grumman), Milam, Mark B. (California Inst. of Tech), Pavone, Marco (Stanford Univ)		
14:45-15:00		WeBT3.2
<i>Semi-Boustrophedon Coverage with a Dubins Vehicle.</i>		
Lewis, Jeremy (Univ. of South Carolina), Edwards, William (Univ. of South Carolina), Benson, Kelly (Univ. of South Carolina), Rekleitis, Ioannis (Univ. of South Carolina), O'Kane, Jason (Univ. of South Carolina)		
15:00-15:15		WeBT3.3
<i>A Study on Efficient Motion Design for Redundantly Actuated Parallel Kinematic Manipulators.</i>		
Lorenz, Michael (RWTH Aachen Univ), Paris, Jascha Normen (RWTH Aachen Univ), Haschke, Tobias (RWTH Aachen Univ), Schöler, Frederic Jean-Francois (RWTH Aachen Univ), Hüsing, Mathias (RWTH Aachen Univ), Corves, Burkhard (RWTH Aachen Univ)		
15:15-15:30		WeBT3.4
<i>On Close Enough Orienteering Problem with Dubins Vehicle.</i>		
Faigl, Jan (Czech Tech. Univ. in Prague), Pěnička, Robert (Czech Tech. Univ. in Prague)		
15:30-15:45		WeBT3.5
<i>Topologically Distinct Trajectory Predictions for Probabilistic Pursuit.</i>		
Shkurti, Florian (McGill Univ), Dudek, Gregory (McGill Univ)		
15:45-16:00		WeBT3.6
<i>Towards Optical Biopsy of Olfactory Cells Using Concentric Tube Robots with Follow-The-Leader Deployment.</i>		
Girerd, Cedric (ICube AVR, FEMTO-ST), Rabenorosoa, Kanty (FEMTO-ST Inst), Rougeot, Patrick (Univ. of Franche-Comté, FEMTO-ST Inst), Renaud, Pierre (ICube AVR)		

WeBT4	Room 114
Optimization and Optimal Control II	
Chair: Kyrki, Ville	Aalto Univ
Co-Chair: Pajarinen, Joni	TU Darmstadt
14:30-14:45	WeBT4.1
<i>Scalable Sparsification for Efficient Decision Making under Uncertainty in High Dimensional State Spaces.</i>	
Elimelech, Khen (Tech. – Israel Inst. of Tech), Indelman, Vadim (Tech. - Israel Inst. of Tech)	
14:45-15:00	WeBT4.2
<i>Constrained Unscented Dynamic Programming.</i>	
Plancher, Brian (Harvard Univ), Manchester, Zachary (School of Engineering and Applied Sciences, Harvard Univ), Kuindersma, Scott (Harvard Univ)	
15:00-15:15	WeBT4.3
<i>Kinodynamic Trajectory Optimization and Control for Car-Like Robots.</i>	
Rösmann, Christoph (TU Dortmund Univ), Hoffmann, Frank (Tech. Univ. Dortmund), Bertram, Torsten (Tech. Univ. Dortmund)	
15:15-15:30	WeBT4.4
<i>A Systematic Analysis of Spring Symmetry on Optimality of Antagonistic Variable Stiffness Actuation.</i>	
Kamadan, Abdullah (Sabanci Univ), Kiziltas, Gullu (Sabanci Univ), Patoglu, Volkan (Sabanci Univ)	
15:30-15:45	WeBT4.5
<i>Hybrid Control Trajectory Optimization under Uncertainty.</i>	
Pajarinen, Joni (TU Darmstadt), Kyrki, Ville (Aalto Univ), Koval, Michael (Carnegie Mellon Univ), Srinivasa, Siddhartha (Carnegie Mellon Univ), Peters, Jan (Tech. Univ. Darmstadt), Neumann, Gerhard (Univ. of Lincoln)	
15:45-16:00	WeBT4.6
<i>Fast Trajectory Optimization for Legged Robots Using Vertex-Based ZMP Constraints.</i>	
Winkler, Alexander, Wayne (ETH Zurich), Farshidian, Farbod (ETH Zurich), Pardo, Diego (ETH Zürich), Neunert, Michael (ETH Zurich), Buchli, Jonas (ETH Zurich)	

WeBT5	Room 118
Surgical Robotics I	
Chair: Burgner-Kahrs, Jessica	Gottfried Wilhelm Leibniz Univ. Hannover
Co-Chair: Stoyanov, Danail	Univ. Coll. London
14:30-14:45	WeBT5.1
<i>Robotic Knot Tying through a Spatial Trajectory with a Visual Servoing System.</i>	
LU, Bo (The Hong Kong Pol. Univ), Chu, Henry (The Hong Kong Pol. Univ), Cheng, Li (The Hong Kong Pol. Univ)	
14:45-15:00	WeBT5.2
<i>ToolNet: Holistically-Nested Real-Time Segmentation of Robotic Surgical Tools.</i>	
Garcia Peraza Herrera, Luis (Univ. Coll. London), Li, Wenqi (Univ. Coll. London), Fidon, Lucas (Univ. Coll. London), Gruijthuisen, Caspar (KU Leuven, Department of Mechanical Engineering), Devreker, Alain (KU Leuven), Attilakos, George (Univ. Coll. London Hospitals), Deprest, Jan (Univ. Hospital Leuven), Vander Poorten, Emmanuel B (Katholieke Univ. Leuven), Stoyanov, Danail (Univ. Coll. London), Vercauteren, Tom (Univ. Coll. London (UCL)), Ourselin, Sebastien (Univ. Coll. London)	
15:00-15:15	WeBT5.3
<i>Magnetic Interactions of Neighbouring Stator Sets in Multi DOF Local Electromagnetic Actuation for Robotic Abdominal Surgery.</i>	
Leong, Ching Ying, Florence (Univ. of Melbourne), Mohammadi, Alireza (The Univ. of Melbourne), Tan, Ying (The Univ. of Melbourne), Thiruchelvam, Dhan (Department of Surgery, Univ. of Melbourne at St Vincent's H), Valdastrì, Pietro (Vanderbilt Univ), Oetomo, Denny (The Univ. of Melbourne)	
15:15-15:30	WeBT5.4
<i>Dynamic Reconstruction of Deformable Soft-Tissue with Stereo Scope in Minimal Invasive Surgery.</i>	
Song, Jingwei (Univ. of Tech. Sydney), Wang, Jun (Univ. of Tech. Sydney), Zhao, Liang (Imperial Coll. London), Huang, Shoudong (Univ. of Tech. Sydney), Dissanayake, Gamini (Univ. of Tech. Sydney)	
15:30-15:45	WeBT5.5
<i>A Multi-Axis Force Sensor to Assess Tissue Properties in Real-Time.</i>	
Jones, Dominic (Univ. of Leeds), Wang, Hongbo (Univ. of Leeds), Alazmani, Ali (Univ. of Leeds), Culmer, Peter Robert (Univ. of Leeds)	
15:45-16:00	WeBT5.6
<i>Sensing Slip of Grasped Wet, Conformable Objects.</i>	
Burkhard, Natalie (Stanford Univ), Steger, Ryan (Intuitive Surgical), Cutkosky, Mark (Stanford Univ)	

WeBT6	Room 121
RGBD Perception II	
14:30-14:45	WeBT6.1
<i>An Efficient Rotation and Translation Decoupled Initialization from Large Field of View Depth Images.</i>	
Martins, Renato (Inria), Fernández-Moral, Eduardo (INRIA), Rives, Patrick (INRIA)	
14:45-15:00	WeBT6.2
<i>Extrinsic Calibration of Multiple RGB-D Cameras from Line Observations.</i>	
Perez-Yus, Alejandro (Univ. De Zaragoza), Fernández-Moral, Eduardo (INRIA), Lopez-Nicolas, Gonzalo (Univ. De Zaragoza), Guerrero, Josechu (Univ. De Zaragoza), Rives, Patrick (INRIA)	
15:00-15:15	WeBT6.3
<i>A Motion Transmission Model for Multi-DOF Tendon-Driven Mechanisms with Hysteresis and Coupling: Application to a Da Vinci Instrument.</i>	
Anooshahpour, Farshad (Western Univ), Yadmellat, Peyman (The Univ. of Western Ontario), Polushin, Ilia G. (Western Univ), Patel, Rajnikant V. (The Univ. of Western Ontario)	
15:15-15:30	WeBT6.4
<i>Sensor Fusion for Fiducial Tags: Highly Robust Pose Estimation from Single Frame RGBD.</i>	
Jin, Pengju (Carnegie Mellon Univ), Matikainen, Pyry (Carnegie Mellon Univ), Srinivasa, Siddhartha (Carnegie Mellon Univ)	
15:30-15:45	WeBT6.5
<i>Depth-Aware Convolutional Neural Networks for Accurate 3D Pose Estimation in RGB-D Images.</i>	
Porzi, Lorenzo (Mapillary), Peñate-Sánchez, Adrián (Inst. De Robòtica I Informàtica Industrial, CSIC-UPC), Ricci, Elisa (Univ. of Perugia), Moreno-Noguer, Francesc (CSIC)	
15:45-16:00	WeBT6.6
<i>SegICP: Integrated Deep Semantic Segmentation and Pose Estimation.</i>	
Wong, Jay M. (Draper), Mariottini, Gian Luca (Draper Lab), Torralba, Antonio (MIT), Chipalkatty, Rahul (Georgia Inst. of Tech), Kee, Vincent (Massachusetts Inst. of Tech), Hebert, Mitchell (Univ. of Massachusetts Amherst), Zhou, Bolei (MIT), Le, Tiffany (MIT), Schneider, Abraham (Charles Stark Draper Lab), Johnson, David M.S. (Draper), Wu, Jimmy (Massachusetts Inst. of Tech), Wagner, Syler (The Charles Stark Draper Lab)	

WeBT7	Room 122
Biomimetics II	
Co-Chair: Jang, Junwon	Samsung Electronics Co., Ltd
14:30-14:45	WeBT7.1
<i>Snake Robots in Contact with the Environment: Influence of the Friction on the Applied Wrench.</i>	
Reyes, Fabian (Ritsumeikan Univ), Ma, Shugen (Ritsumeikan Univ)	
14:45-15:00	WeBT7.2
<i>Long-Legged Hexapod Giacometti Robot Using Thin Soft McKibben Actuator.</i>	
Mohd Faudzi, Ahmad `Athif (Univ. Teknologi Malaysia), Endo, Gen (Tokyo Inst. of Tech), Kurumaya, Shunichi (Tokyo Inst. of Tech), Suzumori, Koichi (Tokyo Inst. of Tech)	
15:00-15:15	WeBT7.3
<i>Antagonist Inhibition Control in Redundant Tendon-Driven Structures Based on Human Reciprocal Innervation for Wide Range Limb Motion of Musculoskeletal Humanoids.</i>	
Kawaharazuka, Kento (The Univ. of Tokyo), Kawamura, Masaya (The Univ. of Tokyo), Makino, Shogo (The Univ. of Tokyo), Asano, Yuki (The Univ. of Tokyo), Okada, Kei (The Univ. of Tokyo), Inaba, Masayuki (The Univ. of Tokyo)	
15:15-15:30	WeBT7.4
<i>A Novel Modular Compliant Knee Joint Actuator for Use in Assistive and Rehabilitation Orthoses.</i>	
Bacek, Tomislav (Vrije Univ. Brussel), Moltedo, Marta (Vrije Univ. Brussel), Langlois, Kevin (VUB), Rodriguez Guerrero, Carlos (Vrije Univ. Brussel), Vanderborght, Bram (Vrije Univ. Brussel), Lefeber, Dirk (Vrije Univ. Brussel)	
15:30-15:45	WeBT7.5
<i>Preliminary Study of Online Gait Recognizer for Lower Limb Exoskeletons.</i>	
Jang, Junwon (Samsung Electronics Co., Ltd), Kim, Kyungrock (Samsung Advanced Inst. of Tech. (SAIT)), Lee, Jusuk (Samsung Electronics Co., Ltd), Lim, Bokman (Samsung Electronics Co., Ltd), Cho, Joon-Kee (Samsung Advanced Inst. of Tech), Shim, Youngbo (Samsung Electronics)	
15:45-16:00	WeBT7.6
<i>A Pneumatic Artificial Muscle Manufactured Out of Self-Healing Polymers That Can Repair Macroscopic Damages.</i>	
Terry, Seppe (Vrije Univ. Brussel (VUB)), Brancart, Joost (Vrije Univ. Brussel (VUB)), Lefeber, Dirk (Vrije Univ. Brussel - VUB), Van Assche, Guy (Vrije Univ. Brussel (VUB)), Vanderborght, Bram (Vrije Univ. Brussel)	

WeBT8	Room 202
Humanoid and Bipedal Locomotion II	
Chair: Poulakakis, Ioannis	Univ. of Delaware
Co-Chair: Zanotto, Damiano	Stevens Inst. of Tech
14:30-14:45	WeBT8.1
<i>Modeling Robot Geometries Like Molecules, Application to Fast Multi-Contact Posture Planning for Humanoids.</i>	
Faraji, Salman (EPFL), Ijspeert, Auke (EPFL)	
14:45-15:00	WeBT8.2
<i>Estimating CoP Trajectories and Kinematic Gait Parameters in Walking and Running Using Instrumented Insoles.</i>	
Zhang, Huanghe (Stevens Inst. of Tech), Zanotto, Damiano (Stevens Inst. of Tech), Agrawal, Sunil (Columbia Univ)	
15:00-15:15	WeBT8.3
<i>Adaptation of Limit-Cycle Walkers for Collaborative Tasks: A Supervisory Switching Control Approach.</i>	
Veer, Sushant (Univ. of Delaware), Shafiee Motahar, Mohamad (Univ. of Delaware), Poulakakis, Ioannis (Univ. of Delaware)	
15:15-15:30	WeBT8.4
<i>Optimal Control Based Push Recovery Strategy for the Icube Humanoid Robot with Series Elastic Actuators.</i>	
Hu, Yue (Heidelberg Univ), Mombaur, Katja (Heidelberg Univ)	
15:30-15:45	WeBT8.5
<i>Generation of Locomotion Trajectories for Series Elastic and Viscoelastic Bipedal Robots.</i>	
Werner, Alexander (German Aerospace Center (DLR)), Turlej, Wojciech (German Aerospace Center (DLR)), Ott, Christian (German Aerospace Center (DLR))	
15:45-16:00	WeBT8.6
<i>Snapbot: A Reconfigurable Legged Robot.</i>	
Kim, Joohyung (Disney Res), Alspach, Alexander (Disney Res), Yamane, Katsu (Disney)	

WeBT9	Room 204
Calibration and Identification	
Chair: Triebel, Rudolph	Tech. Univ. Munich
Co-Chair: Chaumette, Francois	Inria Rennes-Bretagne Atlantique
14:30-14:45	WeBT9.1
<i>A Method for Hand-Eye and Camera-To-Camera Calibration for Limited Fields of View.</i>	
Nissler, Christian (German Aerospace Center (DLR)), Marton, Zoltan-Csaba (German Aerospace Center (DLR)), Kisner, Hannes (Tech. Univ. Chemnitz), Thomas, Ulrike (Tech. Univ. of Chemnitz), Triebel, Rudolph (Tech. Univ. Munich)	
14:45-15:00	WeBT9.2
<i>Comparison of Trajectory Parametrization Methods with Statistical Analysis for Dynamic Parameter Identification of Serial Robot.</i>	
Abu-Dakka, Fares J. (Istituto Italiano Di Tecnologia), Diaz-Rodriguez, Miguel (Univ. De Los Andes)	
15:00-15:15	WeBT9.3
<i>Adaptive Estimation of Measurement Bias in Six Degree of Freedom Inertial Measurement Units: Theory and Preliminary Simulation Evaluation.</i>	
Spielvogel, Andrew Robert (Johns Hopkins Univ), Whitcomb, Louis (The Johns Hopkins Univ)	
15:15-15:30	WeBT9.4
<i>Optical Coherence Tomography Based 1D to 6D Eye-In-Hand Calibration.</i>	
Antoni, Sven-Thomas (Hamburg Univ. of Tech), Otte, Christoph (Hamburg Univ. of Tech), Savarimuthu, Thiusius Rajeeth (Univ. of Southern Denmark), Rajput, Omer (Hamburg Univ. of Tech), Schlaefel, Alexander (Hamburg Univ. of Tech)	
15:30-15:45	WeBT9.5
<i>A New Calibration Technique for Multi-Camera Systems of Limited Overlapping Field-Of-Views.</i>	
Xing, Ziran (ShanghaiTech Univ), Yu, Jingyi (Univ. of Delaware), Ma, Yi (Univ. of Illinois at Urbana-Champaign)	
15:45-16:00	WeBT9.6
<i>Application of Response Surface Methodology for Performing Kinematic Calibration of a 3-PSS/S Parallel Kinematic Mechanism.</i>	
Rahman, Taufiq (Agile Sensor Tech. Inc), Hicks, Dion (Memorial Univ. of Newfoundland), Hossain, Mohammed Raju (Memorial Univ. of Newfoundland), Krouglicof, Nicholas (Univ. of Prince Edward Island)	

WeBT10		Room 205
Object Detection, Segmentation, and Categorization II		
Chair: Lizarralde, Fernando	Federal Univ. of Rio De Janeiro	
14:30-14:45	WeBT10.1	
<i>Object-Based Affordances Detection with Convolutional Neural Networks and Dense Conditional Random Fields.</i>		
Nguyen, Anh (Inst. Italiano Di Tech), Kanoulas, Dimitrios (Inst. Italiano Di Tecnologia), Caldwell, Darwin G. (Istituto Italiano Di Tecnologia), Tsagarakis, Nikos (Istituto Italiano Di Tecnologia)		
14:45-15:00	WeBT10.2	
<i>Efficient Stairway Detection and Modeling for Autonomous Robot Climbing.</i>		
Shu Chan, Derek Kevin (Federal Univ. of Rio De Janeiro), Silva, Rôb Klér (Federal Univ. of Rio De Janeiro), Monteiro, João Carlos (COPPE / Federal Univ. of Rio De Janeiro), Lizarralde, Fernando (Federal Univ. of Rio De Janeiro)		
15:00-15:15	WeBT10.3	
<i>A Variational Approach for 3D Object Classification with Retrieval of Missing Data.</i>		
Yu, Hyeonwoo (Seoul National Univ), Lee, Beom-Hee (Seoul National Univ)		
15:15-15:30	WeBT10.4	
<i>12, 000-Fps Multi-Object Detection Using HOG Descriptor and SVM Classifier.</i>		
Li, Jianquan (Inst. of Automation, Chinese Acad. of Sciences), Yin, Yingjie (Inst. of Automation Chinese Acad. of Sciences), Liu, Xilong (Chinese Acad. of Sciences), Xu, De (Chinese Academy of Sciences), Gu, Qingyi (Inst. of Automation, Chinese Acad. of Sciences)		
15:30-15:45	WeBT10.5	
<i>Deep Learning of Directional Truncated Signed Distance Function for Robust 3D Object Recognition.</i>		
Liu, Hongsen (Chinese Acad. of Science), CONG, YANG (Chinese Acad. of Science, China), Wang, Shuai (Chinese Acad. of Science), Fan, Huijie (Shenyang Inst. of Automation), Tian, Dongying (Shenyang Inst. of Automation), Tang, Yandong (Shenyang Inst. of Automation, CAS)		
15:45-16:00	WeBT10.6	
<i>Estimating Deformability of Objects Using Meshless Shape Matching.</i>		
Güler, Püren (KTH), Pieropan, Alessandro (KTH), Ishikawa, Masatoshi (Univ. of Tokyo), Kragic, Danica (KTH)		

WeBT11	Room 207
Aerial Systems: Mechanics and Control II	
Chair: Nakadai, Kazuhiro	Honda Res. Inst. Japan Co., Ltd
Co-Chair: Fuller, Sawyer	Univ. of Washington
14:30-14:45	WeBT11.1
<i>Momentum Control of an Underactuated Flying Humanoid Robot.</i>	
Pucci, Daniele (Italian Inst. of Tech), Traversaro, Silvio (Istituto Italiano Di Tecnologia), Nori, Francesco (Istituto Italiano Di Tecnologia)	
14:45-15:00	WeBT11.2
<i>Quadrobee: Simulating Flapping Wing Aerial Vehicle Dynamics on a Quadrotor.</i>	
Chen, Yuyang (Univ. at Buffalo), Fuller, Sawyer (Univ. of Washington), Dantu, Karthik (Univ. of Buffalo)	
15:00-15:15	WeBT11.3
<i>An Intermediary Quaternion-Based Control for Trajectory Following Using a Quadrotor.</i>	
Marchand, Nicolas (GIPSA-Lab CNRS/U of Grenoble/INRIA), Colmenares-Vázquez, Josue (Univ. De Grenoble, GIPSA-Lab), Castillo, Pedro (Sorbonne Univ. Univ. De Tech. De Compiègne), Gomez Balderas, Jose Ernesto (GIPSA-Lab)	
15:15-15:30	WeBT11.4
<i>Design, Modelling and Hovering Control of a Tail-Sitter with Single Thrust-Vectored Propeller.</i>	
Wang, Wufan (Tsinghua Univ), Zhu, Jihong (Tsinghua Univ), Kuang, Minchi (Tsinghua Univ)	
15:30-15:45	WeBT11.5
<i>Multilinked Multirotor with Internal Communication System for Multiple Objects Transportation Based on Form Optimization Method.</i>	
Anzai, Tomoki (Univ. of Tokyo), ZHAO, MOJU (The Univ. of Tokyo), Chen, Xiangyu (The Univ. of Tokyo), Shi, Fan (The Univ. of Tokyo), Kawasaki, Koji (The Univ. of Tokyo), Okada, Kei (The Univ. of Tokyo), Inaba, Masayuki (The Univ. of Tokyo)	
15:45-16:00	WeBT11.6
<i>Development of Microphone-Array-Embedded UAV for Search and Rescue Task.</i>	
Nakadai, Kazuhiro (Honda Res. Inst. Japan Co., Ltd), Kumon, Makoto (Graduate School of Science and Tech. Kumamoto), Okuno, Hiroshi G. (Waseda Univ), Hoshiba, Kotaro (Tokyo Inst. of Tech), Wakabayashi, Mizuho (Kumamoto Univ), Washizaki, Kai (Kumamoto Univ), Ishiki, Takahiro (Kumamoto Univ), Gabriel, Daniel (Tokyo Inst. of Tech), Bando, Yoshiaki (Kyoto Univ), Morito, Takayuki (Tokyo Inst. of Tech), Kojima, Ryosuke (Tokyo Inst. of Tech), Sugiyama, Osamu (Tokyo Inst. of Tech)	

WeBT12	Room 208
Agricultural Robotics II	
Chair: Kayacan, Erdal	Nanyang Tech. Univ
Co-Chair: Kermani, Mehrdad R.	Univ. of Western Ontario
14:30-14:45	WeBT12.1
<i>Individual Leaf Identification from a Two-Dimensional Monocotyledon Image Based on Phytomorphological Graph Reconstruction.</i>	
Lee, Sang-Wook (Korea Inst. of Science and Tech), Kim, Jun-Sik (Korea Inst. of Science & Tech)	
14:45-15:00	WeBT12.2
<i>Grasp Evaluation Method for Applying Static Loads Leading to Beam Failure.</i>	
Abdeetedal, Mahyar (Western Univ), Kermani, Mehrdad R. (Univ. of Western Ontario)	
15:00-15:15	WeBT12.3
<i>A Robotic Vision System to Measure Tree Traits.</i>	
Tabb, Amy (USDA-ARS-AFRS), Medeiros, Henry (Marquette Univ)	
15:15-15:30	WeBT12.4
<i>Grasping by Wrapping: Mechanical Design and Evaluation.</i>	
Ho, Van (Japan Advanced Inst. of Science and Tech)	
15:30-15:45	WeBT12.5
<i>A Novel Building Post-Construction Quality Assessment Robot: Design and Prototyping.</i>	
Yan, Rui Jun (Ningbo Intelligent Manufacturing Industry Res. Inst), Kayacan, Erdal (Nanyang Tech. Univ), Chen, I-Ming (Nanyang Tech. Univ), Tiong, Lee Kong (Nanyang Tech. Univ)	
15:45-16:00	WeBT12.6
<i>Active View Planning for Counting Apples in Orchards.</i>	
Roy, Pravakar (Univ. of Minnesota), Isler, Volkan (Univ. of Minnesota)	

WeBT13	Room 211
Task Planning	
Chair: Liu, Lantao	Indiana Univ
Co-Chair: Rovida, Francesco	Aalborg Univ. Copenhagen
14:30-14:45	WeBT13.1
<i>An Approach to Robot Task Learning and Planning with Loops.</i>	
Mokhtari, Vahid (Univ. of Aveiro), Seabra Lopes, Luis (Univ. De Aveiro), Pinho, Armando (Univ. of Aveiro)	
14:45-15:00	WeBT13.2
<i>Synthesis of Correct-By-Construction Behavior Trees.</i>	
Colledanchise, Michele (KTH - the Royal Inst. of Tech), Murray, Richard (California Inst. of Tech), Ogren, Petter (Royal Inst. of Tech. (KTH))	
15:00-15:15	WeBT13.3
<i>Task-Based Behavior Generalization Via Manifold Clustering.</i>	
Garcia, Rafael (Federal Univ. of Rio Grande Do Sul), C. da Silva, Bruno (Federal Univ. of Rio Grande Do Sul (UFRGS)), Comba, João L. D. (Federal Univ. of Rio Grande Do Sul)	
15:15-15:30	WeBT13.4
<i>Identifying Good Poses When Doing Your Household Chores: Creation and Exploitation of Inverse Surface Reachability Maps.</i>	
Hertle, Andreas (Albert-Ludwigs-Univ. Freiburg), Nebel, Bernhard (Albert-Ludwigs-Univ. Freiburg)	
15:30-15:45	WeBT13.5
<i>Combining Neural Networks and Tree Search for Task and Motion Planning in Challenging Environments.</i>	
Paxton, Chris (Johns Hopkins Univ), Raman, Vasumathi (California Inst. of Tech), Hager, Gregory (Johns Hopkins Univ), Kobilarov, Marin (Johns Hopkins Univ)	
15:45-16:00	WeBT13.6
<i>Clustering-Based Algorithms for Multi-Vehicle Task Assignment in a Time-Invariant Drift Field.</i>	
Bai, Xiaoshan (Univ. of Groningen), Yan, Weisheng (Northwestern Pol. Univ), Cao, Ming (Univ. of Groningen)	

WeBT14		Room 217
Environment Monitoring		
Chair: Zhu, Delong	The Chinese Univ. of Hong Kong	
Co-Chair: Zhou, Mingxi	Memorial Univ. of Newfoundland	
14:30-14:45	WeBT14.1	
<i>Design of a Leak Sensor for Operating Water Pipe Systems.</i>		
Wu, You (MIT), Kim, Kristina (Massachusetts Inst. of Tech), Finn-Henry, Michael (MIT), Youcef-Toumi, Kamal (Massachusetts Inst. of Tech)		
14:45-15:00	WeBT14.2	
<i>Hawkeye: Open Source Framework for Field Surveillance.</i>		
Zhu, Delong (The Chinese Univ. of Hong Kong), Du, Yegui (Harbin Inst. of Tech), Lin, Yuan (The Univ. of Auckland), Li, Hongxiang (Harbin Inst. of Tech), Wang, Chaoqun (The Chinese Univ. of HongKong), Xu, Xun (Univ. of Auckland), Meng, Max Q.-H. (The Chinese Univ. of Hong Kong)		
15:00-15:15	WeBT14.3	
<i>Underwater Acoustic-Based Navigation towards Multi-Vehicle Operation and Adaptive Oceanographic Sampling.</i>		
Zhou, Mingxi (Memorial Univ. of Newfoundland), Bachmayer, Ralf (Memorial Univ. of Newfoundland), deYoung, Brad (Memorial Univ)		
15:15-15:30	WeBT14.4	
<i>Robotic Experiments to Evaluate Ocean Plume Characteristics and Structure.</i>		
Fahad, Muhammad (Stevens Inst. of Tech), Guo, Yi (Stevens Inst. of Tech), Bingham, Brian (Naval Postgraduate School), Krasnosky, Kristopher (Univ. of Hawaii at Manoa), Fitzpatrick, Laura (Univ. of Hawaii at Manoa), Aragon Sanabria, Fernando (Univ. of Hawaii at Manoa)		
15:30-15:45	WeBT14.5	
<i>UAV Assisted USV Visual Navigation for Marine Mass Casualty Incident Response.</i>		
Xiao, Xuesu (Texas A&M Univ), Dufek, Jan (Texas A&M Univ), Woodbury, Tim (Texas A&M Univ), Murphy, Robin (Texas A&M)		
15:45-16:00	WeBT14.6	
<i>Data-Driven Selective Sampling for Marine Vehicles Using Multi-Scale Paths.</i>		
Manjanna, Sandeep (McGill Univ), Dudek, Gregory (McGill Univ)		

WeBT15	Room 215
Computer Vision for Robotic Applications I	
Chair: Kheddar, Abderrahmane	CNRS-AIST JRL (Joint Robotics Lab. UMI3218/CRT)
Co-Chair: Civera, Javier	Univ. De Zaragoza
14:30-14:45	WeBT15.1
<i>Online Visual Robot Tracking and Identification Using Deep LSTM Networks.</i>	
Farazi, Hafez (Univ. of Bonn), Behnke, Sven (Univ. of Bonn)	
14:45-15:00	WeBT15.2
<i>Indoor Scan2BIM: Building Information Models of House Interiors.</i>	
Murali, Srivathsan (ETH Zurich), Speciale, Pablo (ETH), Oswald, Martin R. (ETH Zurich), Pollefeys, Marc (ETH Zurich)	
15:00-15:15	WeBT15.3
<i>A Multimodal Dataset for Object Model Learning from Natural Human-Robot Interaction.</i>	
Azagra, Pablo (Univ. of Zaragoza), Golemo, Florian (INRIA Bordeaux), Mollard, Yoan (Inria), Lopes, Manuel (Inst. Superior Tecnico), Civera, Javier (Univ. De Zaragoza), Murillo, Ana Cristina (Univ. of Zaragoza)	
15:15-15:30	WeBT15.4
<i>Nut Fastening with a Humanoid Robot.</i>	
Pfeiffer, Kai (CNRS-AIST JRL (Joint Robotic Lab. UMI3218/RL, Tsukuba, Ja), Escande, Adrien (Cnrs-Aist Jrl Umi3218/rl), Kheddar, Abderrahmane (CNRS-AIST JRL (Joint Robotics Lab. UMI3218/CRT)	
15:30-15:45	WeBT15.5
<i>Attentional Masking for Pre-Trained Deep Networks.</i>	
Wallenberg, Marcus (Linkoping Univ), Forssen, Per-Erik (Linkoping Univ)	
15:45-16:00	WeBT15.6
<i>Estimating the Leaf Area Index of Crops through the Evaluation of 3D Models.</i>	
Zermas, Dimitris (Cse, Umn), Morellas, Vassilios (U. of Minnesota), Mulla, David (Univ. of Minnesota), Papanikolopoulos, Nikos (Univ. of Minnesota)	

WeBT16		Room 220
Reactive and Sensor-Based Planning II		
Co-Chair: Robuffo Giordano, Paolo		Centre National De La Recherche Scientifique (CNRS)
14:30-14:45		WeBT16.1
<i>Cost-Aware Path Planning under Co-Safe Temporal Logic Specifications.</i>		
Cho, Kyunghoon (Seoul National Univ), Suh, Junghun (Seoul National Univ), Tomlin, Claire (UC Berkeley), Oh, Songhwai (Seoul National Univ)		
14:45-15:00		WeBT16.2
<i>An Online Trajectory Generator on SE(3) with Magnitude Constraints.</i>		
Huber, Gerold (Tech. Univ. of Munich), Gabler, Volker (Tech. Univ. München), Wollherr, Dirk (Tech. Univ. München)		
15:00-15:15		WeBT16.3
<i>Online Velocity Planner for Laser Guided Vehicles Subject to Safety Constraints.</i>		
Raineri, Marina (Univ. of Parma), Perri, Simone (Univ. of Parma), Guarino Lo Bianco, Corrado (Univ. of Parma)		
15:15-15:30		WeBT16.4
<i>An Optical Tracking System Based on Hybrid Stereo/Single-View Registration and Controlled Cameras.</i>		
Cortes, Guillaume (Realyz), Marchand, Eric (Univ. De Rennes 1, IRISA, INRIA Rennes), Ardouin, Jérôme (Unaffiliated), Lecuyer, Anatole (INRIA)		
15:30-15:45		WeBT16.5
<i>Exploration with Active Loop Closing: A Trade-Off between Exploration Efficiency and Map Quality.</i>		
Lehner, Hannah (German Aerospace Center (DLR)), Schuster, Martin Johannes (German Aerospace Center (DLR)), Bodenmueller, Tim (German Aerospace Center (DLR)), Kriegel, Simon (German Aerospace Center (DLR))		
15:45-16:00		WeBT16.6
<i>Vision-Based Minimum-Time Trajectory Generation for a Quadrotor UAV.</i>		
Penin, Bryan (Inria), Spica, Riccardo (Stanford Univ), Robuffo Giordano, Paolo (Centre National De La Recherche Scientifique (CNRS)), Chaumette, Francois (Inria Rennes-Bretagne Atlantique)		

WeBT17	Room 221
Soft Material Robotics V	
Chair: Choi, Hyouk Ryeol	Sungkyunkwan Univ
Co-Chair: Wang, Michael Yu	Hong Kong Univ. of Science & Tech
14:30-14:45	WeBT17.1
<i>Differential Pressure Control of 3D Printed Soft Fluidic Actuators.</i>	
Kalisky, Tom (Univ. of California, San Diego), Wang, Yueqi (Univ. of California, San Diego), Shih, Benjamin (Univ. of California, San Diego), Drotman, Dylan (Univ. of California, San Diego), Jadhav, Saurabh (Univ. of California, San Diego), aronoff spencer, Eliah (Uc San Diego), Tolley, Michael Thomas (Univ. of California, San Diego)	
14:45-15:00	WeBT17.2
<i>Design and Fabrication of a Shape-Morphing Soft Pneumatic Actuator: Soft Robotic Pad.</i>	
Sun, Yi (National Univ. of Singapore), Guo, Jin (National Univ. of Singapore), Miller-Jackson, Tiana (National Univ. of Singapore), Liang, Xinquan (National Univ. of Singapore), Ang Jr, Marcelo H (National Univ. of Singapore), Yeow, Chen-Hua (National Univ. of Singapore)	
15:00-15:15	WeBT17.3
<i>Soft Pneumatic Gelatin Actuator for Edible Robotics.</i>	
Shintake, Jun (École Pol. Fédérale De Lausanne), Sonar, Harshal (Indian Inst. of Tech. Bombay), Piskarev, Egor (EPFL), Paik, Jamie (Ec. Pol. Federale De Lausanne), Floreano, Dario (Ec. Pol. Federal, Lausanne)	
15:15-15:30	WeBT17.4
<i>Euglenoid-Inspired Giant Shape Change for Highly Deformable Soft Robots.</i>	
Digumarti, Krishna Manaswi (Bristol Robotics Lab), Conn, Andrew (Univ. of Bristol), Rossiter, Jonathan (Univ. of Bristol)	
15:30-15:45	WeBT17.5
<i>A Novel Bioinspired Hexapod Robot Developed by Soft Dielectric Elastomer Actuators.</i>	
Nguyen, Canh Toan (Sungkyunkwan Univ), Phung, Hoa (Sungkyunkwan Univ), Hoang, Phi Tien (Sungkyunkwan Univ), Nguyen, Tien Dat (Sungkyunkwan Univ), Jung, Hosang (Sungkyunkwan Univ), Moon, Hyungpil (Sungkyunkwan Univ), Koo, Ja Choon (Sungkyunkwan Univ), Choi, Hyouk Ryeol (Sungkyunkwan Univ)	
15:45-16:00	WeBT17.6
<i>Design and Development of a Soft Gripper with Topology Optimization.</i>	
Zhang, Hongying (National Univ. of Singapore), Wang, Michael Yu (Hong Kong Univ. of Science & Tech), Chen, Feifei (National Univ. of Singapore), Wang, Yiqiang (Hong Kong Univ. of Science and Tech), Senthil Kumar, A. (National Univ. of Singapore), Fuh, Jerry (National Univ. of Singapore)	

WeBT18	Room 223
Marine Robotics II	
Chair: Ma, Shugen	Ritsumeikan Univ
Co-Chair: Dudek, Gregory	McGill Univ
14:30-14:45	WeBT18.1
<i>Experimental Verification of the Oscillating Paddling Gait for an Epaddle-EGM Amphibious Locomotion Mechanism.</i>	
Shen, Yayi (Ritsumeikan Univ), Sun, Yi (Shanghai Univ), Pu, Huayan (Shanghai Univ), Ma, Shugen (Ritsumeikan Univ)	
14:45-15:00	WeBT18.2
<i>FACON: A Flow-Aided Cooperative Navigation Scheme.</i>	
Song, Zhuoyuan (Univ. of Florida), Mohseni, Kamran (Univ. of Florida at Gainesville)	
15:00-15:15	WeBT18.3
<i>Design and Adaptive Depth Control of a Micro Diving Agent.</i>	
Solowjow, Eugen (Hamburg Univ. of Tech), Lange, Johann (Hamburg Univ. of Tech), Pick, Marc-André (Hamburg Univ. of Tech), Bessa, Wallace M. (Hamburg Univ. of Tech), Kreuzer, Edwin (Hamburg Univ. of Tech)	
15:15-15:30	WeBT18.4
<i>A Biomimetic Underwater Soft Robot Inspired by Cephalopod Mollusc.</i>	
Shen, Zhong (The Univ. of Hong Kong), Wang, Zheng (The Univ. of Hong Kong), NA, JUNHAN (The Univ. of Hong Kong)	
15:30-15:45	WeBT18.5
<i>Study of Sweep Angle Effect on Thrust Generation of Oscillatory Pectoral Fins.</i>	
Chew, Chee Meng (National Univ. of Singapore), Arastehfar, Soheil (National Univ. of Singapore), Gunawan, Gunawan (National Univ. of Singapore), Yeo, Khoon Seng (National Univ. of Singapore)	
15:45-16:00	WeBT18.6
<i>Self-Reconfiguration of Modular Underwater Robots Using an Energy Heuristic.</i>	
Furno, Lidia (Tech. Univ. of Denmark), Blanke, Mogens (Tech. Univ. of Denmark), Galeazzi, Roberto (Tech. Univ. of Denmark), Christensen, David Johan (Tech. Univ. of Denmark)	

WeCT1	Room 109
Mobile Manipulation and Path Planning	
Chair: Asfour, Tamim	Karlsruhe Inst. of Tech. (KIT)
Co-Chair: Fraise, Philippe	LIRMM
16:30-16:45	WeCT1.1
<i>A Combined Approach for Robot Placement and Coverage Path Planning for Mobile Manipulation.</i>	
Paus, Fabian (Karlsruhe Inst. of Tech. (KIT)), Kaiser, Peter (Karlsruhe Inst. of Tech. (KIT)), Vahrenkamp, Nikolaus (Karlsruhe Inst. of Tech. (KIT)), Asfour, Tamim (Karlsruhe Inst. of Tech. (KIT))	
16:45-17:00	WeCT1.2
<i>A Framework for Intuitive Collaboration with a Mobile Manipulator.</i>	
Navarro, Benjamin (Univ. of Orléans), Cherubini, Andrea (LIRMM - Univ. De Montpellier CNRS), Fonte, Aicha (Univ. of Orleans), Poisson, Gérard (Univ. D'orléans), Fraise, Philippe (LIRMM)	
17:00-17:15	WeCT1.3
<i>Dynamically Decoupling Base and End-Effector Motion for Mobile Manipulation Using Visual-Inertial Sensing.</i>	
Sandy, Timothy (ETH Zürich), Buchli, Jonas (ETH Zurich)	
17:15-17:30	WeCT1.4
<i>Deformed State Lattice Planning.</i>	
Ren, Zhongqiang (Carnegie Mellon Univ), Gong, Chaohui (Carnegie Mellon Univ), Choset, Howie (Carnegie Mellon Univ)	
17:30-17:45	WeCT1.5
<i>Online RRT* and Online FMT*: Rapid Replanning with Dynamic Cost.</i>	
Chandler, Bryant (Brigham Young Univ), Goodrich, Michael A. (Brigham Young Univ)	
17:45-18:00	WeCT1.6
<i>Learning Foresighted People Following under Occlusions.</i>	
Bayoumi, AbdElMoniem (Univ. of Bonn), Karkowski, Philipp (Univ. of Bonn), Bennewitz, Maren (Univ. of Bonn)	

WeCT2	Room 111
Mechanism Design	
Chair: Choi, Hyouk Ryeol	Sungkyunkwan Univ
Co-Chair: Sugahara, Yusuke	Tokyo Inst. of Tech
16:30-16:45	WeCT2.1
<i>A Novel POWERPACK for Robotic Application, Integrated Torque Sensor, Harmonic Drive and Motor.</i>	
kim, Yong Bum (Sungkyunkwan Univ), Kim, Uikyum (Sungkyunkwan Univ), Seok, Dong-Yeop (Sungkyunkwan Univ), So, JinHo (Sungkyunkwan Univ), Lee, Yoon Haeng (Sungkyunkwan Univ), Choi, Hyouk Ryeol (Sungkyunkwan Univ)	
16:45-17:00	WeCT2.2
<i>Development and Grasp Analysis of a Sensorized Underactuated Finger.</i>	
Abdeetedal, Mahyar (Western Univ), Kermani, Mehrdad R. (Univ. of Western Ontario)	
17:00-17:15	WeCT2.3
<i>A Human-Powered Joint Drive Mechanism Using Regenerative Clutches.</i>	
Sugahara, Yusuke (Tokyo Inst. of Tech), Kikui, Kensuke (Tokyo Inst. of Tech), Endo, Mitsuru (Nihon Univ), Okamoto, Jun (Tokyo Women's Medical Univ), Matsuura, Daisuke (Tokyo Inst. of Tech), Takeda, Yukio (Tokyo Inst. of Tech)	
17:15-17:30	WeCT2.4
<i>Design and Analysis of a Novel Planar Robotic Leg for High-Speed Locomotion.</i>	
Kamidi, Vinaykarthik (Robotics and Mechatronics Lab), Saab, Wael (Virginia Tech), Ben-Tzvi, Pinhas (Virginia Tech)	
17:30-17:45	WeCT2.5
<i>Design Optimization of a Direct-Drive Linear Actuator Assistive Device for Stroke.</i>	
Haji Hosseinejad, Soroosh (Univ. of Auckland), Besier, Thor F. (Auckland Bioengineering Inst), Taberner, Andrew J. (Univ. of Auckland), Ruddy, Bryan P. (Univ. of Auckland)	
17:45-18:00	WeCT2.6
<i>3D Printable Origami Twisted Tower: Design, Fabrication, and Robot Embodiment.</i>	
Liu, Tao (Case Western Res. Univ), Wang, Yanzhou (Case Western Res. Univ), Lee, Kiju (Case Western Res. Univ)	

WeCT3	Room 116
Force Control and Tactile Sensing	
Chair: Niemeyer, Günter	Disney Res
Co-Chair: Lepora, Nathan	Univ. of Bristol
16:30-16:45	WeCT3.1
<i>Object Exploration Using Vision and Active Touch.</i>	
Yang, Chuanyu (Univ. of Bristol), Lepora, Nathan (Univ. of Bristol)	
16:45-17:00	WeCT3.2
<i>Multilayered Center-Of-Pressure Sensors for Robot Fingertips and Adaptive Feedback Control.</i>	
Suzuki, Yosuke (Kanazawa Univ)	
17:00-17:15	WeCT3.3
<i>A Tactile-Based Framework for Active Object Learning and Discrimination Using Multi-Modal Robotic Skin.</i>	
Kaboli, Mohsen (Tech. Univ. of Munich (TUM)), Feng, Di (Tech. Univ. of Munich), Yao, Kunpeng (Tech. Univ. of Munich), Lanillos, Pablo (Tech. Univ. München), Cheng, Gordon (Tech. Univ. of Munich)	
17:15-17:30	WeCT3.4
<i>Toward Torque Control of a KUKA LBR IIWA for Physical Human-Robot Interaction.</i>	
Chawda, Vinay (The Walt Disney Company), Niemeyer, Günter (Disney Res)	
17:30-17:45	WeCT3.5
<i>Robust Set Invariance for Implicit Robot Force Control in Presence of Contact Model Uncertainty.</i>	
Parigi-Polverini, Matteo (Pol. Di Milano), Nicolis, Davide (Pol. Di Milano), Zanchettin, Andrea Maria (Pol. Di Milano), Rocco, Paolo (Pol. Di Milano)	
17:45-18:00	WeCT3.6
<i>Haptic Guidance in Dynamic Environments Using Optimal Reciprocal Collision Avoidance.</i>	
Lisini Baldi, Tommaso (Univ. of Siena), Scheggi, Stefano (Univ. of Twente), Aggravi, Marco (Univ. of Siena), Prattichizzo, Domenico (Univ. of Siena)	

WeCT4		Room 114
Simulation and Animation		
Chair: Manocha, Dinesh	Univ. of North Carolina at Chapel Hill	
Co-Chair: Li, Sheng	Peking Univ	
16:30-16:45	WeCT4.1	
<i>Visualizing Robot Behaviors As Automated Video Annotations: A Case Study in Robot Soccer.</i>		
Zhu, Danny (Carnegie Mellon Univ), Veloso, Manuela (Carnegie Mellon Univ)		
16:45-17:00	WeCT4.2	
<i>Fast Simulation of Vehicles with Non-Deformable Tracks.</i>		
Pecka, Martin (Czech Tech. Univ. in Prague), Zimmermann, Karel (Czech Tech. Univ. Prague), Svoboda, Tomas (Faculty of Electrical Engineering, Czech Tech. Univ. In)		
17:00-17:15	WeCT4.3	
<i>Multi-Contact Frictional Rigid Dynamics Using Impulse Decomposition.</i>		
Li, Sheng (Peking Univ), Zhang, Tianxiang (Peking Univ), Wang, Guoping (Peking Univ), Sun, Hanqiu (CUHK), Manocha, Dinesh (Univ. of North Carolina at Chapel Hill)		
17:15-17:30	WeCT4.4	
<i>Loosely-Constrained Volumetric Contact Force Computation for Rigid Body Simulation.</i>		
Wakisaka, Naoki (Osaka Univ), Sugihara, Tomomichi (Graduate School of Engineering, Osaka Univ)		
17:30-17:45	WeCT4.5	
<i>Evaluation of Regular Planar Meshes for Modular Active Cell Robots (MACROs).</i>		
Nawroj, Ahsan (Yale Univ), Dollar, Aaron (Yale Univ)		

WeCT5	Room 118
Surgical Robotics II	
Chair: Alterovitz, Ron	Univ. of North Carolina at Chapel Hill
Co-Chair: Simaan, Nabil	Vanderbilt Univ
16:30-16:45	WeCT5.1
<i>Towards MRI-Guided and Actuated Tetherless Milli-Robots: Preoperative Planning and Modeling of Control.</i>	
Kensicher, Thibault (Univ. of Houston), Leclerc, Julien (Univ. of Houston), Biediger, Dan (Univ. of Houston), Shah, Dipan J. (Houston Methodist DeBakey Heart & Vascular Center), Seimenis, Ioannis (Democritus Univ. of Thrace), Becker, Aaron (Univ. of Houston), Tsekos, Nikolaos (Univ. of Houston)	
16:45-17:00	WeCT5.2
<i>Minimal Visual Occlusion Redundancy Resolution of Continuum Robots in Confined Spaces.</i>	
Sarli, Nima (Vanderbilt Univ), Simaan, Nabil (Vanderbilt Univ)	
17:00-17:15	WeCT5.3
<i>A Model of Vertebral Motion and Key Point Recognition of Drilling with Force in Robot-Assisted Spinal Surgery.</i>	
Jiang, Zhongliang (Shenzhen Inst. of Advanced Tech), Sun, Yu (Shenzhen Inst. of Advanced Tech. Chinese Acad. of S), Zhao, Shijia (Shenzhen Inst. of Advanced Tech. Chinese Acad. of S), HU, Ying (Shenzhen Inst. of Advanced Tech. ShenZhen, China), Zhang, Jianwei (Univ. of Hamburg)	
17:15-17:30	WeCT5.4
<i>Motion Planning for Continuum Reconfigurable Incisionless Surgical Parallel Robots.</i>	
Kuntz, Alan (Univ. of North Carolina at Chapel Hill), Mahoney, Art (Vanderbilt Univ), Peckman, Nicolas (Univ. of North Carolina at Chapel Hill), Anderson, Patrick (Vanderbilt Univ), Maldonado, Fabien (Vanderbilt Univ), Webster III, Robert James (Vanderbilt Univ), Alterovitz, Ron (Univ. of North Carolina at Chapel Hill)	
17:30-17:45	WeCT5.5
<i>On the Merits of Helical Tendon Routing in Continuum Robots.</i>	
Starke, Julia (Leibniz Univ. Hannover), Amanov, Ernar (Leibniz Univ. Hannover), Chikhaoui, Mohamed Taha (Leibniz Univ. Hannover), Burgner-Kahrs, Jessica (Gottfried Wilhelm Leibniz Univ. Hannover)	
17:45-18:00	WeCT5.6
<i>User Interface of Force-Controlled Arm for Endoscopic Surgery.</i>	
Kasai, Takara (Sony Corp), NAGAO, Daisuke (Sony Corp), Kuroda, Yohei (Sony Corp), Miyamoto, Atsushi (Sony Corp), Matsuda, Yasuhiro (Sony Corp), Fukushima, Tetsuharu (Sony Corp)	

WeCT6	Room 121
RGBD Perception III	
Chair: Kaess, Michael	Carnegie Mellon Univ
Co-Chair: Johnson-Roberson, Matthew	Univ. of Michigan
16:30-16:45	WeCT6.1
<i>Robotic Ironing with 3D Perception and Force/Torque Feedback in Household Environments.</i>	
Estevez, David (Univ. Carlos III De Madrid), Victores, Juan G. (Univ. Carlos III De Madrid), Fernandez, Raul (Univ. Carlos III De Madrid), Balaguer, Carlos (Univ. Carlos III De Madrid)	
16:45-17:00	WeCT6.2
<i>RGB-D Fusion Enhancement by Mode Filter for Surfel Cloud Segmentation.</i>	
Monica, Riccardo (Univ. of Parma), Zillich, Michael (Vienna Univ. of Tech), Vincze, Markus (Vienna Univ. of Tech), Aleotti, Jacopo (Univ. of Parma)	
17:00-17:15	WeCT6.3
<i>A Probabilistic Framework for Intrinsic Image Decomposition from RGB-D Streams.</i>	
Kim, Wonhui (Univ. of Michigan), Johnson-Roberson, Matthew (Univ. of Michigan)	
17:15-17:30	WeCT6.4
<i>GravityFusion: Real-Time Dense Mapping without Pose Graph Using Deformation and Orientation.</i>	
Puri, Puneet (Carnegie Mellon Univ), Jia, Daoyuan (School of Computer Science, Carnegie Mellon Univ), Kaess, Michael (Carnegie Mellon Univ)	
17:30-17:45	WeCT6.5
<i>Active High Dynamic Range Mapping for Dense Visual SLAM.</i>	
Barat, christian (Univ. of Nice Sophia-Antipolis), Comport, Andrew Ian (CNRS-I3S/UNS)	
17:45-18:00	WeCT6.6
<i>A Fast Search Algorithm Based on Image Pyramid for Robotic Grasping.</i>	
Ren, Guangli (Capital Normal Univ), Shao, Zhenzhou (Capital Normal Univ), guan, yong (Capital Normal Univ), Qu, Ying (Northeastern Univ), Tan, Jindong (Univ. of Tennessee, Knoxville), Wei, Hongxing (Beihang Univ), Tong, Guofeng (Northeastern Univ)	

WeCT7	Room 122
Climbing Robots	
Chair: Rubenstein, Michael	Northwestern Univ
Co-Chair: Chou, Jui Jen	National Taiwan Univ
16:30-16:45	WeCT7.1
<i>Bridge Risk Investigation Diagnostic Grouped Exploratory (BRIDGE) Bot.</i>	
Sirken, Aaron (Univ. of Maryland, Coll. Park), Knizhnik, Gedaliah (Univ. of Maryland, Coll. Park), McWilliams, Jessica (Univ. of Maryland Coll. Park), Bergbreiter, Sarah (Univ. of Maryland, Coll. Park)	
16:45-17:00	WeCT7.2
<i>Flippy: A Soft, Autonomous Climber with Simple Sensing and Control.</i>	
Nagpal, Radhika (Harvard Univ), Malley, Melinda (Harvard Univ), Rubenstein, Michael (Northwestern Univ)	
17:00-17:15	WeCT7.3
<i>Claw-Wheel: A Transformable Robot for Search and Investigation in Amphibious Environment.</i>	
Huang, Chun-Yi (National Taiwan Univ), Kuo, Che-Nan (National Taiwan Univ), Pan, Li-Han (National Taiwan Univ), Lin, Szu-Yu (National Taiwan Univ), Chou, Jui Jen (National Taiwan Univ)	
17:15-17:30	WeCT7.4
<i>Planning and Control of Stable Ladder Climbing Motion for the Four-Limbed Robot "WAREC-1".</i>	
Sun, Xiao (Waseda Univ), Hashimoto, Kenji (Waseda Univ), Teramachi, Tomotaka (Waseda Univ), Matsuzawa, Takashi (Waseda Univ), Kimura, Shunsuke (Waseda Univ), Sakai, Nobuaki (Waseda Univ), Hayashi, Syota (Waseda Univ), Yoshida, Yuki (Waseda Univ), Takanishi, Atsuo (Waseda Univ)	
17:30-17:45	WeCT7.5
<i>Robust Control of a Brachiating Robot.</i>	
Nguyen, Kim-Doang (South Dakota State Univ), Liu, Dikai (Univ. of Tech. Sydney)	
17:45-18:00	WeCT7.6
<i>Design and Development of a Mobile Crawling Robot with Novel Halbach Array Based Magnetic Wheels.</i>	
Fernando, Nipuna Rasandun (Univ. of Moratuwa), Amarasinghe, Indika (Univ. of Moratuwa), Stepson, Volanka (Univ. of Moratuwa), Amarasinghe, Ranjith (Ritsumeikan Univ)	

WeCT8	Room 202
Social Human Robot Interaction	
Chair: Zanchettin, Andrea Maria	Pol. Di Milano
Co-Chair: Wang, Yue	Clemson Univ
16:30-16:45	WeCT8.1
<i>Interpreting Uncertain Information Related to Relative References for Improved Navigational Command Understanding of Service Robots.</i>	
Muthugala Arachchige, Viraj Jagathpriya Muthugala (Univ. of Moratuwa), Jayasekara, A.G.B.P. (Univ. of Moratuwa)	
16:45-17:00	WeCT8.2
<i>Trust-Based Leader Selection for Bilateral Haptic Teleoperation of Multi-Robot Systems.</i>	
Saeidi, Hamed (Clemson Univ), Mikulski, Dariusz (U.S. Army RDECOM-TARDEC), Wang, Yue (Clemson Univ)	
17:00-17:15	WeCT8.3
<i>Leveraging Commonsense Reasoning and Multimodal Perception for Robot Spoken Dialog Systems.</i>	
Lu, Dongcai (Univ. of Science and Tech. of China), Zhang, Shiqi (The Univ. of Texas at Austin), Stone, Peter (Univ. of Texas at Austin), Chen, Xiaoping (Univ. of Science and Tech. of China)	
17:15-17:30	WeCT8.4
<i>Differences in Interaction Patterns and Perception for Teleoperated and Autonomous Humanoid Robots.</i>	
Bennett, Maxwell (Kindred Inc), Williams, Tom (Tufts Univ), Thames, Daria (Tufts Univ), Scheutz, Matthias (Tufts Univ)	
17:30-17:45	WeCT8.5
<i>Probabilistic Inference of Human Arm Reaching Target for Effective Human-Robot Collaboration.</i>	
Zanchettin, Andrea Maria (Pol. Di Milano), Rocco, Paolo (Pol. Di Milano)	
17:45-18:00	WeCT8.6
<i>Upper Limb Motion Intent Recognition Using Tactile Sensing.</i>	
Stefanou, Thekla (Bristol Robotics Lab. Univ. of Bristol, Univ. O), Turton, A.J. (Bristol Robotics Lab), Lenz, Alexander (Bristol Robotic Lab), Dogramadzi, Sanja (Univ. of the West of England)	

WeCT9		Room 204
Sensor Network		
Chair: La, Hung		Univ. of Nevada at Reno
Co-Chair: Martinelli, Agostino		INRIA Grenoble-Rhone-Alpes
16:30-16:45		WeCT9.1
<i>Jointly Optimizing Placement and Inference for Beacon-Based Localization.</i>		
Schaff, Charles (Toyota Tech. Inst. at Chicago), Yunis, David (Univ. of Chicago), Chakrabarti, Ayan (Toyota Tech. Inst. at Chicago), Walter, Matthew (Toyota Tech. Inst. at Chicago)		
16:45-17:00		WeCT9.2
<i>A Glove-Based System for Studying Hand-Object Manipulation Via Joint Pose and Force Sensing.</i>		
Liu, Hangxin (Univ. of California, Los Angeles), Xie, Xu (UCLA), Millar, Matthew (UCLA), Edmonds, Mark (Univ. of California, Los Angeles), Gao, Feng (Univ. of California, Los Angeles), ZHU, YIXIN (Univ. of California, Los Angeles), Santos, Veronica J. (Univ. of California, Los Angeles), Rothrock, Brandon (Jet Propulsion Lab. California Inst. of Tech), Zhu, Song-Chun (UCLA)		
17:00-17:15		WeCT9.3
<i>Robust Multiple Object Tracking in RGB-D Camera Networks.</i>		
Zhao, Yongheng (Univ. of Padova), Carraro, Marco (Univ. of Padova), Munaro, Matteo (Univ. of Padova), Menegatti, Emanuele (The Univ. of Padova)		
17:15-17:30		WeCT9.4
<i>Relay Vehicle Formations for Optimizing Communication Quality in Robot Networks.</i>		
Rahman, Md Mahbubur (Florida International Univ), Bobadilla, Leonardo (Florida International Univ), Abodo, Franklin (Florida International Univ), Rapp, Brian (United States Army Res. Lab)		
17:30-17:45		WeCT9.5
<i>A Multi-Robot Sensor-Delivery Planning Strategy for Spatio-Temporally Optimized Static-Sensor Networks.</i>		
Kashino, Zendai (Univ. of Toronto), Nejat, Goldie (Univ. of Toronto), Benhabib, Beno (Univ. of Toronto)		
17:45-18:00		WeCT9.6
<i>A Distributed Control Framework for a Team of Unmanned Aerial Vehicles for Dynamic Wildfire Tracking.</i>		
Pham, Huy (Univ. of Nevada, Reno), La, Hung (Univ. of Nevada at Reno), Feil-Seifer, David (Univ. of Nevada, Reno), Deans, Matthew (NASA Ames Res. Center)		

WeCT10		Room 205
Mapping and Localization		
Chair: Mourikis, Anastasios	Univ. of California, Riverside	
Co-Chair: Rekleitis, Ioannis	Univ. of South Carolina	
16:30-16:45	WeCT10.1	
<i>Deja Vu: Scalable Place Recognition Using Mutually Supportive Feature Frequencies.</i>		
Jacobson, Adam (Queensland Univ. of Tech), Scheirer, Walter (Harvard Univ), Milford, Michael J (Queensland Univ. of Tech)		
16:45-17:00	WeCT10.2	
<i>Keyframe-Based Visual-Inertial Online SLAM with Relocalization.</i>		
Kasyanov, Anton (RWTH Aachen), Engelmann, Francis (RWTH Aachen Univ), Stückler, Jörg (RWTH Aachen Univ), Leibe, Bastian (RWTH Aachen Univ)		
17:00-17:15	WeCT10.3	
<i>Edge-Based Visual-Inertial Odometry.</i>		
Yu, Hongsheng (UC Riverside), Mourikis, Anastasios (Univ. of California, Riverside)		
17:15-17:30	WeCT10.4	
<i>Closed-Form Full Map Posteriors for Robot Localization with Lidar Sensors.</i>		
Luft, Lukas (Freiburg Univ), Schaefer, Alexander (Freiburg Univ), Schubert, Tobias (AIS Univ. Freiburg), Burgard, Wolfram (Univ. of Freiburg)		
17:30-17:45	WeCT10.5	
<i>Analyzing the Quality of Matched 3D Point Clouds of Objects.</i>		
Bogoslavskyi, Igor (Univ. of Bonn), Stachniss, Cyrill (Univ. of Bonn)		
17:45-18:00	WeCT10.6	
<i>Looking Forward: A Semantic Mapping System for Scouting with Micro-Aerial Vehicles.</i>		
Maturana, Daniel (Carnegie Mellon Univ), Arora, Sankalp (Carnegie Mellon Univ), Scherer, Sebastian (Carnegie Mellon Univ)		

WeCT11	Room 207
Sensing and Perception	
Chair: Shen, Shaojie	Hong Kong Univ. of Science and Tech
Co-Chair: Prescott, Tony J	Univ. of Sheffield
16:30-16:45	WeCT11.1
<i>Single-Shot Clothing Category Recognition in Free-Configurations with Application to Autonomous Clothes Sorting.</i>	
Sun, Li (Univ. of Birmingham), Aragon-Camarasa, Gerardo (Univ. of Glasgow), Rogers, Simon (School of Computing Science, Univ. of Glasgow), Stolkin, Rustam (Univ. of Birmingham), Siebert, Jan Paul (Univ. of Glasgow)	
16:45-17:00	WeCT11.2
<i>Evaluation of Keypoint Detectors and Descriptors in Arthroscopic Images for Feature-Based Matching Applications.</i>	
Marmol, Andres (Queensland Univ. of Tech), Peynot, Thierry (Queensland Univ. of Tech. (QUT)), eriksson, anders (Queensland Inst. of Tech), jaiprakash, Anjali (Australian Centre for Robotic Vision, Queensland Univ. of T), Roberts, Jonathan (Queensland Univ. of Tech), Crawford, Ross (Queensland Univ. of Tech)	
17:00-17:15	WeCT11.3
<i>Dual-Fisheye Omnidirectional Stereo.</i>	
GAO, Wenliang (Hong Kong Univ. of Science and Tech), Shen, Shaojie (Hong Kong Univ. of Science and Tech)	
17:15-17:30	WeCT11.4
<i>Monocular 3D Metric Scale Reconstruction Using Depth from Defocus and Image Velocity.</i>	
Shiozaki, Tomoyuki (Univ. of Tech. Sydney), Dissanayake, Gamini (Univ. of Tech. Sydney)	
17:30-17:45	WeCT11.5
<i>Multi-Step-Ahead Information-Based Feedback Control for Active Binaural Localization.</i>	
Bustamante, Gabriel (LAAS-CNRS and Univ. De Toulouse, UPS, INPT), Danès, Patrick (Univ. Toulouse - LAAS-CNRS - UPS)	
17:45-18:00	WeCT11.6
<i>Adaptive Perception: Learning from Sensory Predictions to Extract Object Shape with a Biomimetic Fingertip.</i>	
Martinez-Hernandez, Uriel (Univ. of Leeds), Prescott, Tony J (Univ. of Sheffield)	

WeCT12	Room 208
Slam Iv	
Chair: Leutenegger, Stefan	Imperial Coll. London
Co-Chair: Civera, Javier	Univ. De Zaragoza
16:30-16:45	WeCT12.1
<i>Dense RGB-D-Inertial SLAM with Map Deformations.</i>	
Laidlow, Tristan (Imperial Coll. London), Bloesch, Michael (Imperial Coll.), Li, Wenbin (Imperial Coll. London), Leutenegger, Stefan (Imperial Coll. London)	
16:45-17:00	WeCT12.2
<i>Null-Space-Based Marginalization: Analysis and Algorithm.</i>	
Yang, Yulin (Department of Mechanical Engineering, Univ. of Delaware), Maley, James (U.S. Army Res. Lab), Huang, Guoquan (Univ. of Delaware)	
17:00-17:15	WeCT12.3
<i>RGBDTAM: A Cost-Effective and Accurate RGB-D Tracking and Mapping System.</i>	
Concha, Alejo (Univ. De Zaragoza), Civera, Javier (Univ. De Zaragoza)	
17:15-17:30	WeCT12.4
<i>NOctoSLAM: Fast Octree Surface Normal Mapping and Registration.</i>	
Fossel, Joscha-David (Univ. of Liverpool), Tuyls, Karl (Univ. of Liverpool), Schnieders, Benjamin (Univ. of Liverpool), Claes, Daniel (Maastricht Univ), Hennes, Daniel (German Res. Center for Artificial Intelligence (DFKI))	
17:30-17:45	WeCT12.5
<i>VinySLAM: An Indoor SLAM Method for Low-Cost Platforms Based on the Transferable Belief Model.</i>	
Huletski, Arthur (The Acad. Univ. Saint-Petersburg), Kartashov, Dmitry (The Acad. Univ), Krinkin, Kirill (Saint-Petersburg Electrotechnical Univ)	
17:45-18:00	WeCT12.6
<i>GraphTinker: Outlier Rejection and Inlier Injection for Pose Graph SLAM.</i>	
Xie, Linhai (Univ. of Oxford), Wang, Sen (Heriot-Watt Univ), Markham, Andrew (Oxford Univ), Trigoni, Niki (Univ. of Oxford)	

WeCT13	Room 211
Planning, Scheduling, and Coordination	
Chair: Rovida, Francesco	Aalborg Univ. Copenhagen
Co-Chair: Liu, Lantao	Indiana Univ
16:30-16:45	WeCT13.1
<i>A Spatio-Temporal Representation for the Orienteering Problem with Time-Varying Profits.</i>	
Ma, Zhibei (Univ. of Southern California), Yin, Kai (HomeAway), Liu, Lantao (Univ. of Southern California), Sukhatme, Gaurav (Univ. of Southern California)	
16:45-17:00	WeCT13.2
<i>Extended Behavior Trees for Quick Definition of Flexible Robotic Tasks.</i>	
Rovida, Francesco (Aalborg Univ. Copenhagen), Grossmann, Bjarne (Aalborg Univ. Copenhagen), Kruger, Volker (Aalborg Univ)	
17:00-17:15	WeCT13.3
<i>Towards an Online Heuristic Method for Energy-Constrained Underwater Sensing Mission Planning.</i>	
Tsiogkas, Nikolaos (Heriot Watt Univ), De Carolis, Valerio (Heriot-Watt Univ), Lane, David (Heriot-Watt Univ)	
17:15-17:30	WeCT13.4
<i>Coordinated Recharging of Mobile Robots During Exploration.</i>	
Rappaport, Micha (Univ. of Klagenfurt, Austria), Bettstetter, Christian (Univ. of Klagenfurt)	
17:30-17:45	WeCT13.5
<i>Socially Competent Navigation Planning by Deep Learning of Multi-Agent Path Topologies.</i>	
Mavrogiannis, Christoforos (Cornell Univ), Blukis, Valts (Cornell Univ), Knepper, Ross A (Cornell Univ)	
17:45-18:00	WeCT13.6
<i>Mixed-Initiative Planning, Replanning and Execution: From Concept to Field Testing Using AUV Fleets.</i>	
Chrapa, Lukas (Czech Tech. Univ. in Prague), Pinto, José (Faculty of Engineering, Porto Univ), Sá Marques, Tiago (Faculdade De Engenharia Da Univ. Do Porto), Ribeiro, Manuel António (Faculdade De Engenharia Univ. Do Porto), Sousa, João (Univ. Porto - Faculdade Engenharia)	

WeCT14	Room 217
Aerial II	
Chair: Schoellig, Angela P.	Univ. of Toronto
Co-Chair: Zhang, Ketao	Imperial Coll. London
16:30-16:45	WeCT14.1
<i>Prediction of Air-To-Ground Communication Strength for Relay UAV Trajectory Planner in Urban Environments.</i>	
Ladosz, Pawel (Loughborough Univ), Oh, Hyondong (UNIST), Chen, Wenhua (Loughborough Univ)	
16:45-17:00	WeCT14.2
<i>Robust Real-Time Visual Tracking Using Dual-Frame Deep Comparison Network Integrated with Correlation Filters.</i>	
Chaudhary, Krishneel Chand (The Univ. of Tokyo), ZHAO, MOJU (The Univ. of Tokyo), Shi, Fan (The Univ. of Tokyo), Chen, Xiangyu (The Univ. of Tokyo), Okada, Kei (The Univ. of Tokyo), Inaba, Masayuki (The Univ. of Tokyo)	
17:00-17:15	WeCT14.3
<i>Estimation and Optimization of Fully-Actuated Multicopter Platform with Nonparallel Actuation Mechanism.</i>	
Jiang, Guangying (Purdue Univ), Voyles, Richard (Purdue Univ), Sebesta, Kenneth Dale (CyPhy Works), Greiner, Helen (CyPhy Works, Inc)	
17:15-17:30	WeCT14.4
<i>SpiderMAV: Perching and Stabilizing Micro Aerial Vehicles with Bio-Inspired Tensile Anchoring Systems.</i>	
Zhang, Ketao (Imperial Coll. London), Chermprayong, Pisak (Imperial), Alhinai, Talib (Imperial Coll. London), Siddall, Robert (Imperial Coll. London), Kovac, Mirko (Imperial Coll. London)	
17:30-17:45	WeCT14.5
<i>An Origami-Inspired Cargo Drone.</i>	
Kornatowski, Przemyslaw Mariusz (Ec. Pol. Federale De Lausanne (EPFL)), Mintchev, Stefano (École Pol. Fédérale De Lausanne), Floreano, Dario (Ec. Pol. Federal, Lausanne)	

WeCT15		Room 215
Computer Vision for Robotic Applications II		
Co-Chair: Rosman, Guy	Massachusetts Inst. of Tech	
16:30-16:45	WeCT15.1	
<i>Improving Condition and Environment-Invariant Place Recognition with Semantic Place Categorization.</i>		
Garg, Sourav (Queensland Univ. of Tech), Jacobson, Adam (Queensland Univ. of Tech), Kumar, Swagat (Tata Consultancy Services), Milford, Michael J (Queensland Univ. of Tech)		
16:45-17:00	WeCT15.2	
<i>A Point Sampling Algorithm for 3D Matching of Irregular Geometries.</i>		
Birdal, Tolga (Tech. Univ. of Munich), Ilic, Slobodan (Tech. Univ. Munchen)		
17:00-17:15	WeCT15.3	
<i>Visual Inertial Odometry Using Coupled Nonlinear Optimization.</i>		
Hong, Euntae (Hanyang Univ), Lim, Jongwoo (Hanyang Univ)		
17:15-17:30	WeCT15.4	
<i>Backtracking Regression Forests for Accurate Camera Relocalization.</i>		
Meng, Lili (Univ. of British Columbia), Chen, Jianhui (Univ. of British Columbia), Tung, Frederick (Univ. of British Columbia), Little, James J. (UBC), Valentin, Julien (Perceptive IO), de Silva, Clarence (The Univ. of British Columbia)		
17:30-17:45	WeCT15.5	
<i>Hybrid Control and Learning with Coresets for Autonomous Vehicles.</i>		
Rosman, Guy (Massachusetts Inst. of Tech), Paull, Liam (Massachusetts Inst. of Tech), Rus, Daniela (MIT)		
17:45-18:00	WeCT15.6	
<i>Mono-Camera Based Simultaneous Obstacle Recognition and Distance Estimation for Obstacle Avoidance of Power Transmission Lines Inspection Robot.</i>		
Yoo, Ju Han (Korea Inst. of Science and Tech), Kim, ChangHwan (Korea Inst. of Science and Tech), Kim, Dong Hwan (Korea Inst. of Science and Tech)		

WeCT16	Room 220
Wheeled Robotics	
16:30-16:45	WeCT16.1
<i>Design Analysis of TuskBot: Universal Stair Climbing 4-Wheel Indoor Robot.</i> Jonghun, Choe (KAIST), Kwon, Ukjin (Seoul National Univ), Nah, Moses C. (Seoul National Univ), Kim, Hyeongkeun (KAIST)	
16:45-17:00	WeCT16.2
<i>Path Following for Robotic Rollators Via Simulated Passivity.</i> Andreetto, Marco (Univ. of Trento), Divan, Stefano (Univ), Fontanelli, Daniele (Univ. of Trento), Palopoli, Luigi (Univ. of Trento), Zenatti, Fabiano (Univ. of Trento)	
17:00-17:15	WeCT16.3
<i>Tire Force Estimation of Unmanned Ground Vehicles on Off-Road Terrains for Navigation Decisions.</i> Wilson, Graeme Neff (Univ. of Calgary), Ramirez-Serrano, Alejandro (4Front Robotics), Sun, Qiao (Univ. of Calgary)	
17:15-17:30	WeCT16.4
<i>Dual-Task Performance Assessment Robot.</i> Yorozu, Ayanori (Keio Univ), Tanigawa, Ayumi (Keio Univ), Takahashi, Masaki (Keio Univ)	
17:30-17:45	WeCT16.5
<i>Static Fracture Tolerance of Human Metatarsal in Being Run Over by Robot.</i> fujikawa, tatsuo (Japan Automobile Res. Inst), Asano, Yoichi (Japan Automobile Res. Inst), Nishimoto, tetsuya (Coll. of Engineering, Nihon Univ), Nishikata, Rie (Fukushima Medical Univ)	
17:45-18:00	WeCT16.6
<i>Towards Position-Only Time-Delayed Control for Uncertain Euler-Lagrange Systems: Experiments on Wheeled Mobile Robots.</i> Roy, Spandan (Indian Inst. of Tech. Delhi, New Delhi, India), Kar, Indra Narayan (Electrical Engineering Dept, Indian Inst. of Tech), Lee, Jinoh (Fondazione Istituto Italiano Di Tecnologia)	

WeCT17	Room 221
Kinematics	
Chair: Merlet, Jean-Pierre	INRIA
Co-Chair: Smith, Claes Christian	KTH Royal Inst. of Tech
16:30-16:45	WeCT17.1
<i>Segmenting Humeral Submovements Using Invariant Geometric Signatures.</i>	
Krishnan, Rakesh (KTH (Royal Inst. of Tech)), Björzell, Niclas (Univ. of Gävle), Smith, Claes Christian (KTH Royal Inst. of Tech)	
16:45-17:00	WeCT17.2
<i>Evolutionary Multi-Objective Inverse Kinematics on Highly Articulated and Humanoid Robots.</i>	
Starke, Sebastian (Univ. of Hamburg, Dept. of Informatics), Hendrich, Norman (Univ. of Hamburg), Krupke, Dennis (Univ. of Hamburg), Zhang, Jianwei (Univ. of Hamburg)	
17:00-17:15	WeCT17.3
<i>On Integrating Manipulability Index into Inverse Kinematics Solver.</i>	
Dufour, Kévin (Univ. of Sherbrooke, Canada), Suleiman, Wael (Univ. of Sherbrooke)	
17:15-17:30	WeCT17.4
<i>Direct Kinematics of CDPR with Extra Cable Orientation Sensors: The 2 and 3 Cables Case with Perfect Measurement and Sagging Cables.</i>	
Merlet, Jean-Pierre (INRIA)	
17:30-17:45	WeCT17.5
<i>Development of a Novel Switchable Omnidirectional Wheel for Performing Cooperative Tasks Using Differential Drive Mobile Robots.</i>	
Canete, Luis (Fukushima Univ), Takahashi, Takayuki (Fukushima Univ)	

WeCT18		Room 223
Social Aspects		
Chair: Sanfeliu, Alberto		Univ. Pol. De Catalunya
Co-Chair: Manocha, Dinesh		Univ. of North Carolina at Chapel Hill
16:30-16:45		WeCT18.1
<i>A Two-Layer Tactical System for an Air-Hockey-Playing Robot.</i>		
Shimada, Hideaki (The Univ. of Electro-Communications), Kutsuna, Yusuke (The Univ. of Electro-Communications), Kudoh, Shunsuke (The Univ. of Electro-Communications), Suehiro, Takashi (The Univ. of Electro-Communications)		
16:45-17:00		WeCT18.2
<i>The HERA Approach to Morally Competent Robots.</i>		
Lindner, Felix (Univ. of Freiburg), Bentzen, Martin Mose (Tech. Univ. of Denmark), Nebel, Bernhard (Albert-Ludwigs-Univ. Freiburg)		
17:00-17:15		WeCT18.3
<i>Motion Analysis in Vocalized Surprise Expressions and Motion Generation in Android Robots.</i>		
Ishi, Carlos Toshinori (ATR), Minato, Takashi (ATR), Ishiguro, Hiroshi (Osaka Univ)		
17:15-17:30		WeCT18.4
<i>Learning to Pour.</i>		
Huang, Yongqiang (Univ. of South Florida), Sun, Yu (Univ. of South Florida)		
17:30-17:45		WeCT18.5
<i>Aerial Social Force Model: A New Framework to Accompany People Using Autonomous Flying Robots.</i>		
Garrell, Anais (UPC-CSIC), Garza-Elizondo, Luis (Inst. De Robòtica I Informàtica Industrial, CSIC-UPC), Villamizar, Michael (CSIC-UPC), Herrero Cotarelo, Fernando (Iri, Csic-Upc), Sanfeliu, Alberto (Univ. Pol. De Catalunya)		
17:45-18:00		WeCT18.6
<i>SocioSense: Robot Navigation Amongst Pedestrians with Social and Psychological Constraints.</i>		
Bera, Aniket (Univ. of North Carolina at Chapel Hill), Randhavane, Tanmay (Univ. of North Carolina at Chapel Hill), Prinja, Rohan (Univ. of North Carolina at Chapel Hill), Manocha, Dinesh (Univ. of North Carolina at Chapel Hill)		

WeAmPo	Ballroom Foyer
Wednesday Posters AM	
Chair: Lim, Angelica	SoftBank Robotics Europe
10:00-10:30	WeAmPo.1
<i>Evo-ROS: Integrating Evolutionary Robotics and ROS.</i>	
Moore, Jared (Grand Valley State Univ), Clark, Anthony (Missouri State Univ), Simon, Glen (Michigan State Univ), McKinley, Philip (Michigan State Univ)	
10:00-10:30	WeAmPo.2
<i>Unsupervised Spatial-Semantic Maps for Human-Robot Collaboration in Communication-Constrained Environments.</i>	
Doherty, Kevin (Massachusetts Inst. of Tech), Girdhar, Yogesh (Woods Hole Oceanographic Inst)	
10:00-10:30	WeAmPo.3
<i>Performance Boost with Hybrid Cloud Robotics.</i>	
Farokhi, Soodeh (C2RO Coll. Cloud Robotics), Vargas, Aldo (C2RO Coll. Cloud Robotics), Khanbeigi, Nazli (C2RO Robotics), Fox, Geoffrey (Indiana Univ)	
10:00-10:30	WeAmPo.4
<i>IKBT: Autonomous Symbolic Inverse Kinematics Solver.</i>	
Zhang, Dianmu (Univ. of Washington), Hannaford, Blake (Univ. of Washington)	
10:00-10:30	WeAmPo.5
<i>Closed-Loop Force Control of BLDC Motors with Applications to Multi-Rotor Aerial Vehicles.</i>	
Chung, Joseph (Johns Hopkins Univ), Garimella, Gowtham (Johns Hopkins Univ), Sheckells, Matthew (Johns Hopkins Univ), Kobilarov, Marin (Johns Hopkins Univ)	
10:00-10:30	WeAmPo.6
<i>Robotics Education for K-12 Students for Enhancing Skill Sets Prior to Entering University.</i>	
Nabeel, Muhammad (Korea Univ. of Tech. and Education), Ovais Latifee, Hiba (NED Univ.), Naqi, Obaid (EDVON), Aqeel, Kashan (EDVON), Sheikh, Huzaifa (EDVON), Arshad, Muhammad (EDVON), Khurram, Muhammad (NED Univ.)	
10:00-10:30	WeAmPo.7
<i>How Robots Help Eradicate Rework in the Industry.</i>	
Reed, Benjamin (Veerum Inc), Ramesh, Megnath (Veerum Inc)	
10:00-10:30	WeAmPo.8
<i>Interval Capture Basin for Robust Robotic Collision Avoidance.</i>	
LE MENEZ, STEPHANE (MBDA)	
10:00-10:30	WeAmPo.9
<i>ROS 2 Security.</i>	
DiLuoffo, Vincenzo (Worcester Pol. Inst. (WPI)), Michalson, William R. (Worcester Pol. Inst), Sunar, Berk (Worcester Pol. Inst. (WPI))	
10:00-10:30	WeAmPo.10
<i>Registration of Lidar-Based Point Cloud Maps Using Spatial Position of Visual Features.</i>	

Kim, Jaeseung (Yonsei Univ), Shin, Minhwan (Yonsei Univ), Jeong, Jongmin (Yonsei Univ), Park, Jin Bae (Yonsei Univ), Ikeuchi, Katsushi (Microsoft), Sinha, Sudipta (Microsoft Res)	
10:00-10:30	WeAmPo.11
<i>Origami Wheel Transformer: A Variable Diameter Wheel-Drive Robot Using an Origami Structure.</i>	
Lee, Dae-young (Seoul National Univ), Cho, Kyu-Jin (Seoul National Univ. Biorobotics Lab)	
10:00-10:30	WeAmPo.12
<i>Learning Deformable Linear Object with Finite Element and Real-Time Measurements of the 3D Deformation.</i>	
zhang, tianxue (THE CHINESE Univ. OF HONGKONG), Liu, Yunhui (Chinese Univ. of Hong Kong)	
10:00-10:30	WeAmPo.13
<i>Accurate and Robust Micro Sun Sensor Using Black Sun Effect.</i>	
Lee, Sukhan (Sungkyunkwan Univ), Saleem, Rashid (Sungkyunkwan Univ), Kim, Jaewoong (SungKyunKwan Univ)	
10:00-10:30	WeAmPo.14
<i>Grasping with Wet Adhesion: Preliminary Approach.</i>	
Ho, Van (Japan Advanced Inst. of Science and Tech), Huynh, Ngoc Van (Japan Advanced Inst. of Science and Tech)	
10:00-10:30	WeAmPo.15
<i>End to End Memory Networks for Planning.</i>	
Khan, Arbaaz (Univ. of Pennsylvania), Zhang, Clark (Univ. of Pennsylvania), Atanasov, Nikolay (Univ. of Pennsylvania), Karydis, Konstantinos (Univ. of California, Riverside), Kumar, Vijay (Univ. of Pennsylvania), Lee, Daniel D. (Univ. of Pennsylvania)	
10:00-10:30	WeAmPo.16
<i>Musical Audio Signal Restoration Using Bi-Directional LSTM.</i>	
Taniguchi, Ryosuke (Tokyo Inst. of Tech), Hoshiba, Kotaro (Tokyo Inst. of Tech), Nakadaï, Kazuhiro (Honda Res. Inst. Japan Co., Ltd)	
10:00-10:30	WeAmPo.17
<i>A Neuromorphic System for Tactile Pattern Recognition Using Extreme Learning Machine.</i>	
Rasouli, Mahdi (National Univ. of Singapore), Cabibihan, John-John (Qatar Univ), Thakor, Nitish (National Univ. of Singapore)	
10:00-10:30	WeAmPo.18
<i>A Decentralized Trust-Minimized Cloud Robotics Architecture.</i>	
Simovic, Alessandro (Univ. of Zurich), Kaestner, Ralf (ETH Zurich), Ruffi, Martin (IBM Res. GmbH)	
10:00-10:30	WeAmPo.19
<i>Human-Inspired Internal Models for Robot Arm Motions.</i>	
Luo, Dingsheng (Peking Univ), Hu, Fan (Peking Univ), Zhang, Tao (Peking Univ), Deng, Yian (Peking Univ), Nie, Mengxi (Peking Univ), Wu, Xihong (Peking Univ)	
10:00-10:30	WeAmPo.20
<i>A High Torque Modular Actuator Design for a Lower Limb Exoskeleton.</i>	
Grandmaison, Christian (Inst. of Biomedical Engineering - UNB), Quinn,	

Nathan (Univ. of New Brunswick), Losier, Yves (Univ. of New Brunswick), Sensinger, Jonathon (Univ. of New Brunswick)	
10:00-10:30	WeAmPo.21
<i>Implementation of an Autonomous Mobile Platform for Loading Explosives in Mining Applications.</i>	
Tavares Ferreira, Jhony Alan (Vale Inst. of Tech. - ITV), Xavier Fidêncio, Aline (Vale Inst. of Tech), Azpúrua, Héctor Ignacio (Univ. Federal De Minas Gerais), Freitas, Gustavo Medeiros (ITV - Inst. Tecnológico Vale), Miola, Wilson (VALE Inst. OF Tech)	
10:00-10:30	WeAmPo.22
<i>Applications of Hardware Embedded Reduced Intricacy (HERI) Hand.</i>	
Ren, Zeyu (Istituto Italiano Di Tecnologia), Zhou, Chengxu (Fondazione Istituto Italiano Di Tecnologia), Tsagarakis, Nikos (Istituto Italiano Di Tecnologia)	
10:00-10:30	WeAmPo.23
<i>Research on the Third Arm: Proposal of a Face Vector Interface for Voluntary and Intuitive Control of a Wearable Robot Arm.</i>	
Iwasaki, Yukiko (Waseda Univ), Iwata, Hiroyasu (Waseda Univ)	
10:00-10:30	WeAmPo.24
<i>Towards a Cooperative Method for 3D Magnetic Maps Generation Using Small and Autonomous Aerial Robots.</i>	
Azpúrua, Héctor Ignacio (Univ. Federal De Minas Gerais), Potje, Guilherme Augusto (Univ. Federal De Minas Gerais), Frota Rezeck, Paulo Alfredo (Federal Univ. of Minas Gerais), Freitas, Gustavo Medeiros (ITV - Inst. Tecnológico Vale), Uzeda Garcia, Luis Guilherme (Inst. Tecnológico Vale), Nascimento, Erickson (Univ. Federal De Minas Gerais (UFMG)), Guimarães Macharet, Douglas (Univ. Federal De Minas Gerais), Campos, Mario Montenegro (Univ. Federal De Minas Gerais), Pimentel, Bruno (Univ. Federal De Minas Gerais)	
10:00-10:30	WeAmPo.25
<i>High Precision Control of 3D Printed Field Robots in the Presence of Unknown Traction Coefficients.</i>	
Kayacan, Erkan (Univ. of Illinois at Urbana-Champaign), Chowdhary, Girish (Univ. of Illinois at Urbana Champaign)	
10:00-10:30	WeAmPo.26
<i>Towards a Robust Control Paradigm for Steady-State and Transient Walking with Active Transfemoral Prostheses.</i>	
Rezazadeh, Siavash (Univ. of Texas at Dallas), Gregg, Robert D. (Univ. of Texas at Dallas)	
10:00-10:30	WeAmPo.27
<i>Development of a Miniature, Low-Cost Robot for a Laboratory-Scale Underwater Collectives Testbed.</i>	
Berlinger, Florian (Harvard Univ), Dusek, Jeff (Harvard Univ), Gauci, Melvin (Harvard Univ), Nagpal, Radhika (Harvard Univ)	
10:00-10:30	WeAmPo.28
<i>Machine Learning for Prediction of Communication Strength for Relay UAV Trajectory Planner.</i>	
Ladosz, Pawel (Loughborough Univ), Oh, Hyondong (UNIST), Chen, Wenhua (Loughborough Univ)	
10:00-10:30	WeAmPo.29

<i>Coordination, Symmetry and Grouping of Redundant Movement Strategies.</i>	
Huzaifa, Umer (Univ. of Illinois at Urbana-Champaign), LaViers, Amy (Univ. of Illinois at Urbana-Champaign)	
10:00-10:30	WeAmPo.30
<i>Aerial Robots: An Impact Study of Human-Drone Interaction to Accompany People.</i>	
Garrell, Anais (UPC-CSIC), Sanfeliu, Alberto (Univ. Pol. De Catalunya)	
10:00-10:30	WeAmPo.31
<i>Dynamic Whole Body Imitation of Human Motions in Humanoid Robot.</i>	
SRIPADA, ADITYA SUDHAKAR (SRM Univ), RAMAYEE, HARISH ASOKAN (SRM Univ), RAMASAMY, SRIDHAR (Assistant Professor, SRM Univ), WARRIER, ABHISHEK (SRM Univ)	
10:00-10:30	WeAmPo.32
<i>A Platform-Invariant Architecture for High-Level Spatial Robotic Commands.</i>	
Huzaifa, Umer (Univ. of Illinois at Urbana-Champaign), Jang Sher, Anum (Univ. of Illinois at Urbana-Champaign), Jain, Varun (Univ. of Illinois at Urbana-Champaign), Li, Jialu (Univ. of Illinois at Urbana-Champaign), Zurawski, Alex (Univ. of Illinois at Urbana-Champaign), LaViers, Amy (Univ. of Illinois at Urbana-Champaign)	
10:00-10:30	WeAmPo.33
<i>Design of Shoe Plate and Experimental Validation for Small Hopping Rover on Granular Media.</i>	
Maeda, Takao (Chuo Univ), Kunii, Yasuharu (Chuo Univ), Yoshikawa, Kent (JAXA), Otsuki, Masatsugu (Japan Aerospace Exploration Agency), Yoshimitsu, Tetsuo (Japan Aerospace Exploration Agency), Kubota, Takashi (Jaxa Isas)	
10:00-10:30	WeAmPo.34
<i>Operator-Centered Human-Robot Interaction for Robotic Intervention in Harsh and Hazardous Environments.</i>	
Lunghi, Giacomo (CERN), DI CASTRO, Mario (CERN), Marin, Raul (Jaume I Univ), Masi, Alessandro (CERN (European Organization for Nuclear Res)	
10:00-10:30	WeAmPo.35
<i>Learning Point-To-Point Motions Using Partial Contraction Analysis.</i>	
Ravichandar, Harish chaandar (Univ. of Connecticut), Salehi, Iman (Univ. of Connecticut), Dani, Ashwin (Univ. of Connecticut)	
10:00-10:30	WeAmPo.36
<i>Integrated 3D Sensing and Augmented-Reality for Teleoperation.</i>	
Park, Young Soo (Argonne National Lab), Kim, Joohee (Illinois Inst. of Tech), Choi, Byung-Seon (Korea Atomic Energy Res. Inst)	
10:00-10:30	WeAmPo.37
<i>Serpentine Robotic Tails for Maneuvering and Stabilizing Mobile Robots.</i>	
Rone, William (Virginia Tech), Saab, Wael (Virginia Tech), Ben-Tzvi, Pinhas (Virginia Tech)	
10:00-10:30	WeAmPo.38
<i>HeRo: An Open Platform for Robotics Research and Education.</i>	
Frota Rezeck, Paulo Alfredo (Federal Univ. of Minas Gerais), Azpúrua, Héctor Ignacio (Univ. Federal De Minas Gerais), Chaimowicz, Luiz (Federal Univ. of Minas Gerais)	

10:00-10:30	WeAmPo.39
<i>Experimental Error Compensation of the Linear Inverted Pendulum Model for Humanoid Robot TEO.</i>	
Garcia, Juan Miguel (Carlos III Univ. of Madrid), Martinez, Santiago (Univ. Carlos III De Madrid), Pinel, Maria Dolores (Univ. Carlos III De Madrid), Balaguer, Carlos (Univ. Carlos III De Madrid)	
10:00-10:30	WeAmPo.40
<i>Using Emergency Maps to Add Not yet Explored Places into SLAM.</i>	
Mielle, Malcolm (Örebro Univ), Magnusson, Martin (Örebro Univ), Andreasson, Henrik (Örebro Univ), Lilienthal, Achim J. (Örebro Univ)	
10:00-10:30	WeAmPo.41
<i>K-Means Geometric Deployment for Optimal Cooperative Coverage Algorithm in Cluttered Area for a Fleet of Quadrotors.</i>	
BOUZID, Yasser (Univ. D'evry Val D'essonne), Bestaoui, Yasmina (Univ. of Evry), SIGUERDIDJANE, Houria (CentraleSupelec)	
10:00-10:30	WeAmPo.42
<i>SafeDrive: A Robust Lane Tracking System for Autonomous and Assisted Driving under Limited Visibility.</i>	
Mo, Jiawei (Univ. of Minnesota, Twin Cities), Sattar, Junaed (Univ. of Minnesota)	

WePmPo	Ballroom Foyer
Wednesday Posters PM	
Chair: Lim, Angelica	SoftBank Robotics Europe
16:00-16:30	WePmPo.1
<i>Humanoid Hopping Based on Centroidal Dynamics and Heuristic Foot Placement.</i>	
Xin, Songyan (Istituto Italiano Di Tecnologia (IIT)), You, Yangwei (Istituto Italiano Di Tecnologia), Zhou, Chengxu (Fondazione Istituto Italiano Di Tecnologia), Tsagarakis, Nikos (Istituto Italiano Di Tecnologia)	
16:00-16:30	WePmPo.2
<i>Long-Term Robotic Area Coverage Mission Planning.</i>	
Li, Bingxi (Michigan Tech. Univ), Moridian, Barzin (Michigan Tech. Univ), Mahmoudian, Nina (Michigan Tech. Univ)	
16:00-16:30	WePmPo.3
<i>Underwater Cave Mapping: Stereo Visual SLAM with IMU and Sonar.</i>	
Rahman, Sharmin (Univ. of South Carolina), Quattrini Li, Alberto (Univ. of South Carolina), Rekleitis, Ioannis (Univ. of South Carolina)	
16:00-16:30	WePmPo.4
<i>Early Studies of a Transmission Mechanism for MR-Guided Interventions.</i>	
Zhao, Haoran (Univ. of Houston), Liu, Xin (Univ. of Houston), Zaid, Habib (Univ. of Houston), Shah, Dipan J. (Houston Methodist DeBakey Heart & Vascular Center), Heffernan, Michael (GuidaBot, LLC), Becker, Aaron (Univ. of Houston), Tsekos, Nikolaos (Univ. of Houston)	
16:00-16:30	WePmPo.5
<i>Cognitive Mapping, Spatial Awareness and Goal Memory for a Mobile Robot Navigation System.</i>	
Zeno, Peter (Univ. of Bridgeport), Patel, Sarosh (Univ. of Bridgeport), Sobh, Tarek (Univ. of Bridgeport)	
16:00-16:30	WePmPo.6
<i>Evaluation Methodology for Teleoperation Interfaces.</i>	
Xavier Fidêncio, Aline (Vale Inst. of Tech), Tavares Ferreira, Jhony Alan (Vale Inst. of Tech. - ITV), Freitas, Gustavo (Federal Univ. of Rio De Janeiro), de Barros Monteiro, Paulo Marcos (Federal Univ. of Ouro Preto), Azpúrua, Héctor Ignacio (Univ. Federal De Minas Gerais), Rigueira Campos, Felipe (Univ. Federal De Ouro Preto), Miola, Wilson (VALE Inst. OF Tech)	
16:00-16:30	WePmPo.7
<i>Interactive Perception Based on Gaussian Process Classification Applied to Household Object Recognition & Sorting.</i>	
khan, aamir (Univ. of Glasgow), Aragon-Camarasa, Gerardo (Univ. of Glasgow), Siebert, Jan Paul (Univ. of Glasgow)	
16:00-16:30	WePmPo.8
<i>Learning a Visuomotor Controller for Real World Robotic Grasping Using Simulated Depth Images.</i>	
Viereck, Ulrich (Northeastern Univ), ten Pas, Andreas (Northeastern Univ), Saenko, Kate (ICSI & UC Berkeley EECS), Platt, Robert (Northeastern Univ)	
16:00-16:30	WePmPo.9
<i>Category Level Pick and Place Using Deep Reinforcement Learning.</i>	

Gualtieri, Marcus (Northeastern Univ), ten Pas, Andreas (Northeastern Univ), Platt, Robert (Northeastern Univ)	
16:00-16:30	WePmPo.10
<i>Autonomous UAVs for Structural Health Monitoring Using Ultrawide Band Beacons.</i>	
Dong Ho, Kang (Univ. of Manitoba), Cha, Young-Jin (Univ. of Manitoba)	
16:00-16:30	WePmPo.11
<i>Robust Real-Time Hands-And-Face Detection for Human Robot Interaction.</i>	
MohaimenianPour, SeyedMehdi (Sepehr) (Simon Fraser Univ), Vaughan, Richard (Simon Fraser Univ)	
16:00-16:30	WePmPo.12
<i>Soft Pneumatic Actuator Skin for Wearable Bidirectional Tactile Interface.</i>	
Sonar, Harshal (Indian Inst. of Tech. Bombay), Joshi, Sagar (Indian Inst. of Tech. Bombay), Robertson, Matthew (EPFL), Paik, Jamie (Ec. Pol. Federale De Lausanne)	
16:00-16:30	WePmPo.13
<i>Experimental Validation of Dynamic Legged Locomotion Utilizing a Single-DOF Robotic Leg.</i>	
Kamidi, Vinaykarthik (Robotics and Mechatronics Lab), Ben-Tzvi, Pinhas (Virginia Tech)	
16:00-16:30	WePmPo.14
<i>New Medical Robotics Standards – Aiming for Autonomous Systems.</i>	
Haidegger, Tamas (Obuda Univ. (OU)), Rudas, Imre J. (Óbuda Univ)	
16:00-16:30	WePmPo.15
<i>Smartphone-Based Interfaces for Articulated Robots.</i>	
Rodriguez, Diego (Univ. De Los Andes), Perez Quintero, Camilo Alfonso (Univ. of Alberta), Jagersand, Martin (Univ. of Alberta), Figueroa, Pablo (Univ. of Los Andes)	
16:00-16:30	WePmPo.16
<i>Robust Grasp Planning Using Domain Randomization and Deep Generative Models.</i>	
Tobin, Joshua (UC Berkeley), Duan, Yan (Univ. of California Berkeley), Welinder, Peter (California Inst. of Tech), Zaremba, Wojciech (OpenAI), Abbeel, Pieter (UC Berkeley)	
16:00-16:30	WePmPo.17
<i>Feasibility of Automated Assessment of Manual Dexterity in Parkinson's.</i>	
Oña Simbaña, Edwin Daniel (Univ. Carlos III of Madrid), Jardon Huete, Alberto (Univ. CARLOS III DE MADRID), Balaguer, Carlos (Univ. Carlos III De Madrid)	
16:00-16:30	WePmPo.18
<i>Unsupervised Learning of Hierarchical Models for Hand-Object Interactions Using Tactile Glove.</i>	
Xie, Xu (UCLA), Liu, Hangxin (Univ. of California, Los Angeles), Edmonds, Mark (Univ. of California, Los Angeles), Gao, Feng (Univ. of California, Los Angeles), Qi, SIYUAN (Univ. of California, Los Angeles), ZHU, YIXIN (Univ. of California, Los Angeles), Rothrock, Brandon (Jet Propulsion Lab. California Inst. of Tech), Zhu, Song-Chun (UCLA)	
16:00-16:30	WePmPo.19
<i>Textile Identification Using Fingertip Motion and 3D Force Sensors in an</i>	

Open-Source Gripper.

von Drigalski, Felix Wolf Hans Erich (Nara Inst. of Science and Tech), Gall, Marcus (Karlsruhe Inst. of Tech. - KIT), Cho, Sung-Gwi (Nara Inst. of Science and Tech), Ding, Ming (Nara Inst. of Science and Tech), Takamatsu, Jun (Nara Inst. of Science and Tech), Ogasawara, Tsukasa (Nara Inst. of Science and Tech), Asfour, Tamim (Karlsruhe Inst. of Tech. (KIT))

16:00-16:30 WePmPo.20

Swarming in ROS: From Design to Practical Deployment.

St-Onge, David (Ec. Pol. De Montreal), Varadharajan, Vivek shankar (Pol. Montréal), Beltrame, Giovanni (Ec. Pol. De Montreal)

16:00-16:30 WePmPo.21

Biologically Inspired Dynamic Object Tracking by Mobile Robots with a Neuromorphic Vision Sensor.

Mishra, Abhishek (SiNAPSE, NUS), Ghosh, Rohan (National Univ. of Singapore), Thakor, Nitish (National Univ. of Singapore)

16:00-16:30 WePmPo.22

Fast Multi-Contact Frictional Rigid Dynamics.

Li, Sheng (Peking Univ), Zhang, Tianxiang (Peking Univ), Wang, Guoping (Peking Univ), Sun, Hanqiu (CUHK), Manocha, Dinesh (Univ. of North Carolina at Chapel Hill)

16:00-16:30 WePmPo.23

Minimally Invasive Soft Robotic Tissue Manipulator for Safe Autonomous Surgery.

Schroeder, Tyler (Univ. of Maryland), Opfermann, Justin (Children's National Medical Center), Sachyani, Ela (Hebrew Univ. of Jerusalem), Yuanfang, Zhang (Singapore Univ. of Tech. and Design), Ge, Qi (Singapore Univ. of Tech. and Design), Magdassi, Shlomo (Hebrew Univ. of Jerusalem), Krieger, Axel (Univ. of Maryland)

16:00-16:30 WePmPo.24

Development of a Smaller Size Modular Unit for Soft Robotics.

Lee, Jun-Young (Seoul National Univ), Cho, Kyu-Jin (Seoul National Univ. Biorobotics Lab)

16:00-16:30 WePmPo.25

A Tip-Extending Catheter for Endovascular Surgery.

Hawkes, Elliot Wright (Univ. of California, Santa Barbara), Morimoto, Tania K. (Stanford Univ), Simpson, Cole Stewart (Stanford Univ), Heit, Jeremy (Stanford Medical School)

16:00-16:30 WePmPo.26

DeepIntent: Adversarial Learning for Modeling Pedestrian Intent in Autonomous Driving Interactions.

Gujjar, Pratik (Simon Fraser Univ), Vaughan, Richard (Simon Fraser Univ)

16:00-16:30 WePmPo.27

End-To-End Learning of Optical-Flow and Correlation Filters for Visual Tracking.

Zhu, Zheng (Inst. of Automation, Chinese Acad. of Sciences), Li, Jianquan (Inst. of Automation, Chinese Acad. of Sciences)

16:00-16:30 WePmPo.28

CNN Based SLAM for Monitoring Coral Reef.

Modasshir, Md (Univ. of South Carolina), Rekleitis, Ioannis (Univ. of South

Carolina)	
16:00-16:30	WePmPo.29
<i>Mobility Analysis of a Speleologist Robot with Flexible Locomotion System.</i>	
SANTOS ROCHA, FILIPE AUGUSTO (Inst. TECNOLOGICO VALE), Freitas, Gustavo (Federal Univ. of Rio De Janeiro), Magalhães, Paulo Henrique Vieira (Univ. Federal De Ouro Preto), Miola, Wilson (VALE Inst. OF Tech), Araujo, Ramon Nunes (Vale S.A), Brandi, Iuri Viana (Vale S.A)	
16:00-16:30	WePmPo.30
<i>"Human-Like" Emergent Behavior in an Evolved Agent for a Cooperative Shepherding Task.</i>	
Nalepka, Patrick (Univ. of Cincinnati), Patil, Gaurav (Univ. of Cincinnati), Annand, Colin (Univ. of Cincinnati), Weber, Brian (Univ. of Cincinnati), Kallen, Rachel W (Center for Cognition Action & Perception, Univ. of Cincinnati), Minai, Ali (Univ. of Cincinnati), Richardson, Michael (Univ. of Cincinnati)	
16:00-16:30	WePmPo.31
<i>Exploring Communicative Arm Motion for Human-Robot Interaction.</i>	
Kebude, Dogancan (Koc Univ), Sezgin, Tevfik Metin (Koc Univ), Akgun, Baris (Koc Univ)	
16:00-16:30	WePmPo.32
<i>Robust Adaptive Control of Quadrotor System with Uncertainties and Limited Authority.</i>	
Emran, Bara (The Univ. of British Columbia), Najjaran, Homayoun (Univ. of British Columbia)	
16:00-16:30	WePmPo.33
<i>Training Wheels: Two-Phase Supervised and Reinforcement Transfer Learning Applied to Map Exploration.</i>	
nikdel, payam (Simon Fraser Univ), Shrestha, Rakesh (Simon Fraser Univ), Vaughan, Richard (Simon Fraser Univ), shamshirdar, Faraz (Simon Fraser Univ)	
16:00-16:30	WePmPo.34
<i>Event-Based Robust Feature Detector under Dynamic Lighting Conditions.</i>	
Lee, Alex (Korea Advanced Inst. of Science and Tech. (KAIST)), Kim, Ayoungh (Korea Advanced Inst. of Science Tech)	
16:00-16:30	WePmPo.35
<i>FlatFish - a Compact Resident AUV.</i>	
Mimoso, Geovane (SENAI CIMATEC), Trocoli, Tiago (Brazilian Inst. of Robotics, SENAI CIMATEC), Neves, Gustavo (Brazilian Inst. of Robotics, SENAI CIMATEC), Cesar, Diego (Brazilian Inst. of Robotics, SENAI CIMATEC), Cerqueira, Romulo (Brazilian Inst. of Robotics, SENAI CIMATEC), Britto, João (Brazilian Inst. of Robotics, SENAI CIMATEC), Silva, Lucas (Brazilian Inst. of Robotics, SENAI CIMATEC), Santos, Jessivaldo (Brazilian Inst. of Robotics, SENAI CIMATEC), Brito, Rafael (Brazilian Inst. of Robotics, SENAI CIMATEC), Arjones, Gabriel (Brazilian Inst. of Robotics, SENAI CIMATEC), Lima, Camila (Brazilian Inst. of Robotics, SENAI CIMATEC), Albiez, Jan (Brazilian Inst. of Robotics, SENAI CIMATEC), Reis, Marco (Brazilian Inst. of Robotics, SENAI CIMATEC)	
16:00-16:30	WePmPo.36
<i>Simple and Fast Pointing Gesture Detection in RGB-D Images.</i>	
Azari, Bitan (Simon Fraser Univ), MohaimenianPour, SeyedMehdi (Sepehr)	

(Simon Fraser Univ), Vaughan, Richard (Simon Fraser Univ)	
16:00-16:30	WePmPo.37
<i>Towards Full Autonomy for Humanoid Robots.</i>	
Jagtap, Vinayak (Worcester Pol. Inst), Gavarraju, Sumanth Nirmal (Worcester Pol. Inst), Agarwal, Shlok (Worcester Pol. Inst), Kejrival, Sahil (Worcester Pol. Inst), Devadoss, Samyuktha (Worcester Pol. Inst), Gennert, Michael (Worcester Pol. Inst)	
16:00-16:30	WePmPo.38
<i>Efficient Factor Graph Fusion for Multi-Robot Mapping.</i>	
Natarajan, Ramkumar (Worcester Pol. Inst), Gennert, Michael (Worcester Pol. Inst)	
16:00-16:30	WePmPo.39
<i>Glass and Non-Glass Objects Classification Using Laser Rangefinders for Mobile Robots in Indoor Environments.</i>	
Jiang, Jun (The Univ. of Tokyo), Miyagusuku, Renato (The Univ. of Tokyo), Yamashita, Atsushi (The Univ. of Tokyo), Asama, Hajime (The Univ. of Tokyo)	
16:00-16:30	WePmPo.40
<i>On-Line Tracking and Ejection System for Investigating Dynamic Behavior of Running Insects.</i>	
Kawahara, Tomohiro (Kyushu Inst. of Tech), Sato, Daiki (Kyushu Inst. of Tech), Ahmad, Belal (Kyushu Inst. of Tech), Ohtsuka, Hirofumi (National Inst. of Tech. Kumamoto Coll)	
16:00-16:30	WePmPo.41
<i>Touchscreen Visual Servo Hopping: A Low-Attention UAV Interface.</i>	
Ghasemi Toudeshki, Amirmasoud (Simon Fraser Univ), Vaughan, Richard (Simon Fraser Univ)	
16:00-16:30	WePmPo.42
<i>Flexible Links for Flexible Interaction.</i>	
D'Imperio, Mariapaola (Istituto Italiano Di Tecnologia), Ludovico, Daniele (Pol. Di Torino), PIZZAMIGLIO, CRISTIANO (Pol. Di Torino/DIMEAS), Canali, Carlo (Department of Advanced Robotics, Istituto Italiano Di Tecnologia), Muscolo, Giovanni Gerardo (Italian Inst. of Tech), Caldwell, Darwin G. (Istituto Italiano Di Tecnologia), Cannella, Ferdinando (Istituto Italiano Di Tecnologia)	

ThFW1 109

Vision-Based Agile Autonomous Navigation of UAVs (Workshop)

Chair: Loiano, Giuseppe Univ. of Pennsylvania

09:00-17:30 ThFW1.1

Loiano, Giuseppe (Univ. of Pennsylvania), Scaramuzza, Davide (Univ. of Zurich), Kumar, Vijay (Univ. of Pennsylvania)

ThFW2 111

Workshop on Medical Imaging Robotics (Workshop)

Chair: Hennersperger, Christoph Tech. Univ. München

09:00-17:30 ThFW2.1

Hennersperger, Christoph (Tech. Univ. München), Stoyanov, Danail (Univ. Coll. London), Krupa, Alexandre (INRIA Rennes - Bretagne Atlantique)

ThFW3 117

Folding in Robotics (Workshop)

Chair: Felton, Samuel Northeastern Univ

09:00-17:30 ThFW3.1

Felton, Samuel (Northeastern Univ.), Aukes, Daniel (Arizona State Univ.), Cho, Kyu-Jin (Seoul National Univ. Biorobotics Lab.), Ozcan, Onur (Bilkent Univ.), Paik, Jamie (Ec. Pol. Federale de Lausanne), Tolley, Michael Thomas (Univ. of California, San Diego)

ThFW4 114

International Workshop on Lines, Planes and Manhattan Models for 3-D Mapping (LPM17) (Workshop)

Chair: Calway, Andrew Univ. of Bristol

09:00-17:30 ThFW4.1

Calway, Andrew (Univ. of Bristol), Kaess, Michael (Carnegie Mellon Univ.), Ramalingam, Srikumar (Univ. of Utah)

ThAW5 118

Smart Mechanics: Fusion of Softness and Rigidity in Robot Mechanism (Workshop)

Chair: Mochiyama, Hiromi Univ. of Tsukuba

09:00-12:30 ThAW5.1

Mochiyama, Hiromi (Univ. of Tsukuba), Suzuki, Kenji (Univ. of Tsukuba), Aiyama, Yasumichi (Univ. of Tsukuba)

ThFW6 121

Adaptive Control Methods in Assistive Technologies (Workshop)

09:00-17:30 ThFW6.1

Dallali, Houman (California State Univ. Channel Islands), Demircan, Emel (California State Univ. Long Beach), Rastgaar, Mo (Michigan Tech.)

ThFW7 122

Synergies between Learning and Interaction (Workshop)

Chair: Akgun, Baris Koc Univ

09:00-17:30 ThFW7.1

Akgun, Baris (Koc Univ.), Bullard, Kalesha (Georgia Inst. of Tech.), Chu, Vivian (Georgia Inst. of Tech.), Fitzgerald, Tesca (Georgia Inst. of Tech.), Gombolay, Matthew (Massachusetts Inst. of Tech.), Huang, Chien-Ming (Yale Univ.), Scassellati, Brian (Yale)

ThFW8 202

Shared Autonomy - Joint Learning in Human-Robot Collaboration (Workshop)

Chair: Schilling, Malte Bielefeld Univ

09:00-17:30 ThFW8.1

Schilling, Malte (Bielefeld Univ.), Burgard, Wolfram (Univ. of Freiburg), Lasota, Przemyslaw A. (MIT), Ritter, Helge Joachim (Bielefeld Univ.), Shah, Julie A. (MIT), Wrede, Britta (Bielefeld Univ.)

ThFW9 204

Best Practices in Designing Effective Roadmaps for Robotics Innovation (Workshop)

Chair: Siegel, Hallie Open Roboethics Inst

09:00-17:30 ThFW9.1

Siegel, Hallie (Open Roboethics Inst.), Moon, AJung (Univ. of British Columbia), Barfoot, Timothy (Univ. of Toronto), Croft, Elizabeth (Univ. of British Columbia), Gosselin, Clement (Univ. Laval), Kulic, Dana (Univ. of Waterloo)

ThFW10 205

Robotics-Inspired Biology (Workshop)

Chair: Gravish, Nicholas Harvard Univ

09:00-17:30 ThFW10.1

Gravish, Nicholas (Harvard Univ.), Marvi, Hamidreza (Arizona State Univ.), Li, Chen (Johns Hopkins Univ.), Astley, Henry (Georgia Inst. of Tech.)

ThFW11 207

Embodied Brain Systems Science –from Body Representation in Human Brain Toward Rehabilitation Technology– (Workshop)

Chair: An, Qi The Univ. of Tokyo

09:00-17:30 ThFW11.1

An, Qi (The Univ. of Tokyo), Ota, Jun (The Univ. of Tokyo), Asama, Hajime (The Univ. of Tokyo), Kondo, Toshiyuki (Tokyo Univ. of Agriculture and Tech.)

ThFW12 208

Assistance and Service Robotics in a Human Environment (Workshop)

Chair: Colas, Francis Inria Nancy Grand Est

09:00-17:30 ThFW12.1

Colas, Francis (Inria Nancy Grand Est), Amirat, Yacine (Univ. of Paris Est Créteil (UPEC)), Daney, David (Inria Bordeaux - Sud Ouest), Luo, Ren (National Taiwan Univ.), Mohammed, Samer (Univ. Paris Est Créteil, UPEC, France)

ThAW13	211
Agricultural Robotics: Learning from Industry 4.0 and Moving into the Future (Workshop)	
Chair: Kounalakis, Tsampikos	Aalborg Univ
09:00-12:30	ThAW13.1
Kounalakis, Tsampikos (Aalborg Univ.), Van Evert, Frits K. (Wageningen Univ. & Res.), Ball, David (Queensland Univ. of Tech.), Kootstra, Gert (Wageningen Univ.), Nalpantidis, Lazaros (Aalborg Univ.)	
ThFW14	217
Frontiers in Contact-Rich Robotic Interaction: Modeling, Optimization and Control Synthesis (Workshop)	
Chair: Zhou, Jiaji	Carnegie Mellon Univ
09:00-17:30	ThFW14.1
Zhou, Jiaji (Carnegie Mellon Univ.), Posa, Michael (Univ. of Pennsylvania), Mason, Matthew T. (Carnegie Mellon Univ.)	
ThFW15	215
Complex Collaborative Systems: Closing the Loop, Learning, and Self-Confidence (Workshop)	
Chair: Mian, Zohaib Tariq	United Tech. Res. Center
09:00-17:30	ThFW15.1
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ThFW16	220
Human Movement Understanding for Humanoid and Wearable Robots (Workshop)	
Chair: Kulic, Dana	Univ. of Waterloo
09:00-17:30	ThFW16.1
Kulic, Dana (Univ. of Waterloo), Mombaur, Katja (Heidelberg Univ.)	
ThFW17	221
Workshop on Physical Human-Robot and Human-Telerobot Interaction: From Theory to Application for Neuro-Rehabilitation (Workshop)	
Chair: Atashzar, Seyed Farokh	Western Univ. (The Univ. of Western Ontario)
09:00-17:30	ThFW17.1
Atashzar, Seyed Farokh (Western Univ. (The Univ. of Western Ontario)), Shahbazi, Mahya (Western Univ. (UWO)), Tavakoli, Mahdi (Univ. of Alberta), Patel, Rajnikant V. (The Univ. of Western Ontario)	
ThFW18	223
The 2nd Workshop on Machine Learning Methods for High-Level Cognitive Capabilities in Robotics (Workshop)	
Chair: Inamura, Tetsunari	National Inst. of Informatics
09:00-17:30	ThFW18.1
Inamura, Tetsunari (National Inst. of Informatics)	

ThBW5	118
HoloLens As a Perception Platform for Robotics (Tutorial)	
Chair: Pollefeys, Marc	ETH Zurich
14:00-17:30	ThBW5.1
Pollefeys, Marc (ETH Zurich)	

ThBW13	211
Learning for Localization and Mapping (Workshop)	
Chair: Gilitschenski, Igor	ETH Zurich
14:00-17:30	ThBW13.1
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C,CC: Session Chair, Co-Chair
*: Presentation without Publication

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Brancart, Joost	WeBT7.6	*
Brandi, Iuri Viana.....	WePmPo.29	5520
Branson, David.....	TuAT15.1	2930
Braun, Daniel Alexander	MoBT2.1	790
Bravo, Luis	TuCT13.4	4466
Brecht, Sandra V.....	MoCT5.2	1671
Briales, Jesus	MoBT7.6	1033
brito, rafael	WePmPo.35	*
Britto, João	WePmPo.35	*
Brock, Oliver.....	MoAT7	C
.....	MoAT7.3	274
.....	MoAT12.1	465
.....	MoBT12.3	1214
.....	TuBT3	C
.....	TuBT3.5	3289
.....	TuCT3.2	4017
.....	WeAT7	CC
.....	WeAT7.6	4982
Broenink, Jan	MoBT2.2	798
Bronars, Antonia.....	WeAT7.5	4976
Bronz, Murat.....	WeAT15.4	5298
Brossard, Martin.....	TuAT4.3	2486
Broucke, Mireille.....	MoAT6.2	223
Bruce, Jake	TuBT4.1	3304
Buch, Anders Glent.....	TuCT17.5	4646
Buch, Jacob Pørksen	TuBT17.3	3854
Buchan, Austin D.....	TuCT7.2	4187
Buchli, Jonas	TuCT16.4	4595
.....	WeBT4.6	5702

.....	WeCT1.3	6299
Buck, Sebastian	TuBT7.2	3439
Buckingham, David	MoAT12.3	477
Buckley, Ian.....	MoBT9.1	1078
Buckner, Trevor.....	TuBT14.3	3734
Budde genannt Dohmann, Pablo ...	TuAT6.2	2557
Buelthoff, Heinrich H.	MoPmPo.4	2311
.....	MoPmPo.7	2314
.....	TuCT17.2	4624
Bullard, Kalesha	ThFW7.1	*
Bullock, Seth	MoAT18.3	728
Buondonno, Gabriele	MoAT17.6	706
Buonocore, Luca Rosario.....	MoAT4.1	131
Burdick, Joel.....	MoCT12.5	1988
.....	TuBT18.3	3897
.....	WeAT2.6	4777
Burgard, Wolfram	MoAT15.1	583
.....	MoAT16.3	643
.....	MoCT1.5	1526
.....	MoCT5.1	1665
.....	TuAT1.4	2372
.....	TuBT1.1	3176
.....	TuBT1.4	3197
.....	TuBT4.3	3318
.....	TuBT9.6	3550
.....	WeAT1.6	4737
.....	WeCT10.4	6678
.....	ThFW8.1	*
Burgner-Kahrs, Jessica.....	WeBT5	C
.....	WeCT5.5	6470
Burkhard, Natalie.....	WeBT5.6	5744
Busch, Baptiste	TuAT11.4	2779
Buschmann, Thomas	MoBT17.6	1450
Bustamante, Gabriel.....	WeCT11.5	6729
Butler, Daniel J.	TuAT6.4	2573
Buyval, Alexander	TuAT7.5	2624
Byl, Katie	SuFW5.1	*
C		
C V Kumar, Visak.....	TuCT1.4	3946
C. da Silva, Bruno	WeBT13.3	6047
Caballero, David.....	TuBT9.5	3544
Caballero, Fernando.....	TuPmPo.15	3148
.....	TuBT8	CC
.....	TuBT8.5	3501
.....	TuCT4.4	4076
Cabibihan, John-John	WeAmPo.17	5467
Caccamo, Sergio.....	MoCT13.2	2011
Cacchione, Pamela	MoBT3.2	841
Cacucciolo, Vito.....	MoAT12.2	471
Cadena Lerma, Cesar	MoBT7.2	1005
.....	ThBW13.1	*
Cakmak, Maya	TuAT6.4	2573
.....	TuBT3.6	3296
Calderbank, Terry.....	TuPmPo.24	3157

Caldwell, Darwin G.....	MoAT2.5	73
.....	MoCT11.5	1944
.....	TuBT1.2	3184
.....	TuCT2.3	3983
.....	WeAT2.4	4762
.....	WeAT2.5	4769
.....	WeAT3.2	4791
.....	WeAT5.4	4889
.....	WeAT16.6	5353
.....	WePmPo.42	5532
.....	WeBT10.1	5908
Calinon, Sylvain.....	SuFW14.1	*
.....	SuBW16.1	*
.....	MoAT2.1	43
.....	MoAT2.3	59
.....	MoAT2.5	73
.....	TuBT1.2	3184
Calli, Berk.....	SuBW8	C
.....	SuBW8.1	*
Calway, Andrew.....	ThFW4	C
.....	ThFW4.1	*
Campeau-Lecours, Alexandre.....	TuAT18.5	3076
Campos, Mario Montenegro.....	TuAT10.4	2737
.....	WeAmPo.24	5474
Campos Macías, Leobardo Emmanuel.....	WeCT17.6	*
Canali, Carlo.....	MoCT11.5	1944
.....	TuCT2.3	3983
.....	WePmPo.42	5532
Candela, Alberto.....	TuBT16.3	3817
.....	TuBT16.4	3825
Canete, Luis.....	WeCT17.5	6979
Cannata, Giorgio.....	MoAT4	C
.....	MoAT4.4	153
.....	TuCT11	C
.....	TuCT11.1	4354
Cannella, Ferdinando.....	MoCT11	CC
.....	MoCT11.5	1944
.....	TuCT2.3	3983
.....	WePmPo.42	5532
Canoso, Adrian.....	MoBT3.2	841
Cao, Jiawei.....	MoAmPo.30	2292
Cao, Ming.....	WeBT13.6	6067
Cappelletto, Jose.....	TuCT13.5	4473
Caputo, Barbara.....	WeBT1.5	5564
.....	WeBT1.6	5572
Carabis, David.....	MoAmPo.34	2296
.....	MoPmPo.11	2318
Carbajal-Espinosa, Oscar.....	WeCT17.6	*
Carbonari, Luca.....	MoCT11.5	1944
Cardellino, Alberto.....	MoAT17.2	675
Carey, Stephen J.....	TuCT8.5	4254
Carignan, Craig.....	SuFW9	C
.....	SuFW9.1	*

Carloni, Raffaella.....	TuCT16	C
.....	TuCT16.3	4588
.....	WeAT2.3	4756
Caron, Stephane.....	WeAT8.5	5017
Carpentier, Justin.....	MoAT17.6	706
Carraro, Marco.....	TuCT6.5	4165
.....	WeCT9.3	6625
Carretero, Juan A.....	MoPmPo.8	2315
Carroll, Devin.....	TuAT10.1	2718
Caruso, David.....	TuCT12.2	4408
Carvalho, Paulo.....	MoCT5.3	1678
Casals, Alicia.....	MoAT4.5	160
Casares, Fernando.....	TuPmPo.15	3148
Casarez, Carlos.....	MoAT8.3	315
Caselitz, Tim.....	TuBT4.3	3318
Castillo, Pedro.....	WeBT11.3	5965
Catalano, Manuel Giuseppe.....	TuAT3.5	2457
.....	TuAT6.3	2565
Catt, Gavin.....	TuAT7.2	2602
Caurin, Glauco Augusto de Paula.....	MoCT4.2	1631
Cavalcanti, Ana.....	MoPmPo.47	2351
.....	TuBT17.6	3875
Cavusoglu, M. Cenk.....	WeAT9.3	5043
Cellucci, Daniel.....	TuAT10.3	2731
.....	TuCT18.2	4670
Cempini, Marco.....	MoBT8.5	1065
Cera, Angelo Brian.....	WeAT7.5	4976
Cerqueira, Romulo.....	WePmPo.35	*
Cesar, Diego.....	WePmPo.35	*
Cesic, Josip.....	MoBT7.3	1013
.....	MoCT12.2	1966
Cha, Young-Jin.....	WePmPo.10	5501
Cha, Youngsu.....	MoAT7.4	280
Chae, Hee-Won.....	MoAmPo.18	2280
Chaichaowarat, Ronnapree.....	TuAT18.4	3070
Chaimowicz, Luiz.....	WeAmPo.38	5488
Chakrabarti, Ayan.....	WeCT9.1	6609
Chalon, Maxime.....	TuAT3.6	2465
Chalvatzaki, Georgia.....	WeAT9.2	5037
Chan, Darren.....	TuCT6.4	4158
Chandler, Bryant.....	WeCT1.5	6313
Chang, Handdeut.....	WeAT2.2	4749
Chang, Hsiao-Chung.....	MoPmPo.5	2312
Chang, Jie-Min.....	MoPmPo.5	2312
Chang, Wei-Di.....	TuCT7.3	4195
Chang, Wenkai.....	MoBT6.3	974
.....	MoAmPo.39	2301
Changmin, Park.....	MoAmPo.4	2266
Chao, Kenneth.....	WeAT4.4	4848
Charaf Eddine, Sami.....	WeAT17.3	5376
Chatrasingh, Maria.....	MoAT5.5	201
Chatzilygeroudis, Konstantinos.....	MoAT2.2	51
.....	MoPmPo.24	2331
.....	TuAmPo.4	3091

Chau, Sheryl.....	TuBT18.1	3883
Chaudhary, Krishneel Chand	WeCT14.2	6837
Chaumette, Francois	TuAT15	C
.....	TuAT15.4	2948
.....	TuAT15.6	2961
.....	WeBT9	CC
.....	WeBT16.6	6199
CHAUSSE, Frédéric.....	MoCT3.2	1587
Chautems, Christophe.....	MoAT5.2	181
Chávez, Edgar.....	TuCT13.4	4466
Chawda, Vinay	WeCT3.4	6387
Chebotar, Yevgen	MoAT2.6	79
CHEMALI, Riad	MoCT6.1	1708
Chen, Ben M.	MoBT1.3	764
.....	MoAmPo.12	2274
.....	TuAmPo.23	3110
Chen, Chang-Jiun	MoCT1.4	1520
Chen, Fanfei.....	TuAT1.5	2380
Chen, Feifei.....	MoAmPo.30	2292
.....	WeBT17.6	6239
Chen, Guang.....	TuAT9.4	2699
Chen, Hao	WeAT6.1	4911
Chen, Hu	MoAmPo.36	2298
Chen, I-Ming.....	WeBT12.5	6020
Chen, Jian	MoCT3	CC
.....	MoCT3.5	1611
Chen, Jianhui	WeCT15.4	6886
Chen, Jianing	TuCT8.5	4254
Chen, Jing	WeAT15.6	5310
Chen, Kui.....	TuAT9.5	2705
CHEN, LEE-HUANG	WeAT7.5	4976
Chen, Michael Z. Q.	TuCT2.2	3977
Chen, Peng	MoCT6.4	1726
Chen, Qijun	TuCT16.6	4611
Chen, Robert.....	WeBT3.1	5622
Chen, Shinan.....	MoAmPo.5	2267
Chen, Shiyuan.....	TuBT4.4	3325
Chen, Shuxun.....	MoBT10.5	1147
Chen, Sung-Hua.....	MoPmPo.5	2312
Chen, Wenhua	WeAmPo.28	5478
.....	WeCT14.1	6831
Chen, Xi.....	TuAT9.1	2679
Chen, Xiangyu.....	WeBT11.5	5977
.....	WeCT14.2	6837
Chen, Xiaojiao.....	MoBT8.6	1071
Chen, Xiaolei.....	TuBT10.5	3582
Chen, Xiaoping.....	TuAT14.4	2910
.....	TuAT14.5	2917
.....	WeCT8.3	6582
Chen, Xiaotong.....	TuAT14.4	2910
.....	TuAT14.5	2917
Chen, Xin.....	MoAT10.1	384
Chen, Xuzhan.....	MoBT1.6	784
Chen, Yonghua	TuCT2.2	3977

Chen, Youping.....	MoBT1.6	784
Chen, Yufan	MoBT15.4	1344
Chen, Yuyang.....	WeBT11.2	5957
Chen, Zetao.....	MoAT1.2	9
.....	TuAT1	CC
Chen, Zichong.....	MoCT7.3	1762
Chen, Zihan.....	TuBT16.5	3832
Cheng, Alexis	MoCT5.5	1692
Cheng, Gordon.....	SuFW17.1	*
.....	TuBT9.1	3516
.....	WeCT3.3	6379
Cheng, Hong	MoAmPo.5	2267
Cheng, Hui	MoCT6.5	1733
.....	TuBT7.4	3452
Cheng, Kwang-Ting (Tim)	MoCT6.4	1726
Cheng, Li.....	WeBT5.1	5710
Cheng, Long.....	MoBT6.3	974
Cheng, Long.....	TuAT9.4	2699
Cheng, Nicholas.....	MoBT11.4	1181
Cheng, Shing Shin	MoCT5.4	1686
Cheng, Truman	TuAT14.3	2903
Chermpayong, Pisak.....	WeCT14.4	6849
Cherubini, Andrea	MoBT15.2	1332
.....	WeCT1.2	6293
Cheung, Kenneth C.....	TuAT10.3	2731
Chew, Chee Meng.....	TuAT2.3	2404
.....	WeBT18.5	6271
Chi, Wenzheng.....	MoAmPo.9	2271
Chikhaoui, Mohamed Taha	WeCT5.5	6470
Chinello, Francesco.....	TuAT6.2	2557
Chipalkatty, Rahul	WeBT6.6	5784
Chishiro, Hiroyuki	TuAmPo.41	3128
Chiu, WAI, YAN Philip.....	TuAT14.3	2903
Chli, Margarita.....	MoAT1.2	9
Cho, Joon-Kee	WeBT7.5	5818
Cho, Jungsoo	TuAmPo.19	3106
Cho, Kyu-Jin.....	WeAmPo.11	5462
.....	WePmPo.24	5515
.....	ThFW3.1	*
Cho, Kyunghoon.....	WeBT16.1	6163
Cho, Sung-Gwi	WePmPo.19	5510
Cho, Younggun	MoPmPo.44	2349
Choi, Bareum	TuAmPo.22	3109
Choi, Byung June.....	MoBT8	CC
.....	MoBT8.4	1059
.....	MoCT8.1	1791
Choi, Byung-Seon	WeAmPo.36	5486
Choi, Hyouk Ryeol.....	MoBT4	CC
.....	MoBT4.2	887
.....	TuAT2	CC
.....	TuAT2.4	2410
.....	TuBT11.1	3597
.....	TuCT5	C
.....	TuCT5.6	4131

.....	WeAT5	C
.....	WeAT5.5	4897
.....	WeBT17	C
.....	WeBT17.5	6233
.....	WeCT2	C
.....	WeCT2.1	6325
Choi, Hyun-Taek	SuAW6	C
.....	SuAW6.1	*
Choi, Hyundo.....	MoBT8.4	1059
.....	MoCT8.3	1805
Choi, Jaesoon	TuAmPo.22	3109
Choi, Jungsu	TuAmPo.19	3106
Choi, Kyung.....	MoAmPo.38	2300
Choi, Minkyu.....	TuAmPo.45	3131
Choi, Seongim.....	TuBT8.2	3479
Choi, Sungjoon.....	MoBT2.6	827
.....	TuCT1.2	3932
Choi, Taeyong.....	MoAmPo.11	2273
Choromanska, Anna.....	MoCT1.6	1532
Choset, Howie	MoBT4.5	907
.....	TuAT10.2	2724
.....	WeAT13.2	5204
.....	WeCT1.4	6307
Chou, Chieh	MoBT18.1	1458
Chou, Jui Jen	WeCT7	CC
.....	WeCT7.3	6541
Choudhury, Sanjiban.....	ThFW15.1	*
Choudhury, Shushman.....	TuCT17.6	4654
Chow, Der-Lin	WeAT9.3	5043
Chowdhary, Girish.....	TuPmPo.32	3165
.....	WeAmPo.25	5475
Christensen, David Johan	WeBT18.6	6277
Christensen, Heidi	MoPmPo.12	2319
Christensen, Henrik Iskov	MoAT12.6	495
Christensen, Leif	TuBT9.2	3522
Christianson, Caleb.....	MoAT12.6	495
Chrupa, Lukas	WeCT13.6	6825
Chu, Henry	WeBT5.1	5710
Chu, Kyungsung.....	TuAmPo.35	3122
Chu, Vivian.....	ThFW7.1	*
Chung, Joseph	WeAmPo.5	5457
Chung, Wan Kyun	TuAT12.4	2822
.....	TuBT12.2	3643
Chung, Woojin.....	TuAmPo.20	3107
Cianchetti, Matteo	MoAT12.2	471
.....	MoCT15.1	2092
.....	TuBT14.6	3753
Ciardo, Francesca.....	MoAmPo.31	2293
Cielniak, Grzegorz.....	TuCT4.3	4070
Cieslewski, Titus.....	MoCT16.1	2136
Cingolani, Roberto.....	MoAT17.2	675
Civera, Javier	MoCT7	C
.....	MoCT7.2	1754
.....	WeBT15	CC

.....	WeBT15.3	6134
.....	WeCT12	CC
.....	WeCT12.3	6756
Cizek, Petr.....	TuPmPo.14	3147
.....	TuCT5.2	4102
Claes, Daniel.....	WeCT12.4	6764
Clark, Anthony.....	WeAmPo.1	5453
Clark, Jesse.....	TuPmPo.31	3164
Clavera, Ignasi.....	MoCT2	CC
.....	MoCT2.1	1538
Clegg, Alexander.....	TuAT12.1	2800
Cobano, Jose A.....	MoCT6.6	1740
Cobos, Bernardo.....	TuCT10.6	4347
Cockburn, Deen Stephen.....	MoAT7.5	287
Coemert, Suat.....	MoCT5.2	1671
Cohen, Alexandra A.....	MoAT12.3	477
Colas, Francis.....	ThFW12	C
.....	ThFW12.1	*
Colasanto, Luca.....	SuFW14	C
.....	SuFW14.1	*
Cole, Kenan.....	MoCT16.3	2152
Colledanchise, Michele.....	WeBT13.2	6039
Collins, Emmanuel.....	SuAW8	C
.....	SuAW8.1	*
Colmenares-Vázquez, Josue.....	WeBT11.3	5965
Colomé, Adrià.....	TuBT1.3	3191
Colonnese, Nick.....	MoCT14.2	2055
Comba, João L. D.....	WeBT13.3	6047
Comport, Andrew Ian.....	WeCT6.5	6514
Concha, Alejo.....	MoCT7.2	1754
.....	WeCT12.3	6756
Condomines, Jean-Philippe.....	MoCT6.1	1708
.....	TuAT4.3	2486
CONG, YANG.....	WeBT10.5	5934
Congiu, Pierpaolo.....	MoAT17.2	675
Conn, Andrew.....	WeBT17.4	6227
Cooksey, Philip.....	MoBT9.6	1114
Cope, Alexander.....	MoAT9.4	364
Coppola, Mario.....	MoAT6.5	244
Cordasco, Stefano.....	WeBT2.3	5594
Cordes, Florian.....	WeAT13.4	5219
Coros, Stelian.....	TuAT10.2	2724
.....	TuBT14.5	3745
Cortes, Guillaume.....	WeBT16.4	6185
Corves, Burkhard.....	WeAT17.3	5376
.....	WeBT3.3	5638
Coscia, Brian.....	MoPmPo.13	2320
Costa, Ramon.....	TuBT13.4	3701
Cotin, Stephane.....	MoAT14.1	540
Cottrell, Garrison W.....	TuCT9.3	4282
Couraud, Laurent.....	TuAT16.4	2987
Courtecuise, Hadrien.....	MoAT14.1	540
Cramer, Nicholas.....	TuAT10.3	2731
Crawford, Ross.....	MoCT12.3	1974

.....	WeCT11.2	6707
Cremers, Daniel	MoAT6.1	215
.....	MoAT15.3	599
Crepaldi, Marco	MoAT4.6	166
Croft, Elizabeth.....	MoAT9	C
.....	MoAT9.1	342
.....	ThFW9.1	*
Crosscombe, Michael.....	TuCT10.4	4332
Crowder, Richard	MoAT18.3	728
Cruciani, Silvia.....	MoBT13.2	1245
.....	MoPmPo.39	2344
Cui, Chengqiang.....	MoAT10.1	384
Cui, Lei	WeAT7.3	4963
Cui, Maosheng	TuAT16.2	2975
CUI, Yunduan.....	MoCT2.2	1546
Culbertson, Preston.....	MoBT2.3	805
Cully, Antoine	TuBT11.3	3609
Culmer, Peter Robert	TuPmPo.41	3173
.....	WeBT5.5	5738
Cunha, Alcino	TuBT17.4	3861
Curran, William.....	MoCT2.4	1560
Cutkosky, Mark.....	WeBT5.6	5744
Cvišić, Igor.....	MoBT7.3	1013

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D'Imperio, Mariapaola	TuCT2.3	3983
.....	WePmPo.42	5532
D'Sa, Ruben	WeAT11.5	5142
Dabeer, Onkar.....	MoAT16	CC
.....	MoAT16.2	635
Dai, Hongkai.....	TuCT13.5	4473
Dai, Ran	WeAT13	CC
.....	WeAT13.6	5233
Dai, Tuo.....	TuAmPo.39	3126
Dai, Yu.....	MoAmPo.16	2278
Daley, Alexander	TuCT8.6	4261
Daley, Monica.....	SuFW7.1	*
Dalibard, Sebastien	TuBT4.6	3339
Dall'Alba, Diego	MoPmPo.22	2329
Dallali, Houman	ThFW6.1	*
Dallas, Spyridon	WeAT5.2	4877
Dambre, Joni	TuAmPo.5	3092
Danès, Patrick.....	WeCT11.5	6729
Daney, David.....	ThFW12.1	*
Dani, Ashwin	WeAmPo.35	5485
Daniilidis, Kostas	MoAT11.6	457
.....	MoBT13.4	1261
.....	TuBT3.1	3259
.....	TuCT8.1	4223
Dantam, Neil.....	SuFW17.1	*
Dantanarayana, Lakshitha	WeAT15.3	5292
Dantu, Karthik.....	WeBT11.2	5957
dapogny, arnaud	TuAT18.6	3082
Dario, Paolo.....	MoCT15.1	2092
.....	TuPmPo.4	3137

Das, Arun	MoBT18.5	1485
Dasgupta, Prithviraj (Raj)	TuBT10.2	3562
Datta, Sayantan.....	MoBT7.4	1020
DAVID, JENNIFER.....	TuCT14	CC
.....	TuCT14.4	4507
Davis, Jason.....	TuBT8.2	3479
Davis, Steven	MoAT13.6	534
Dayoub, Feras.....	WeAT12	CC
.....	WeAT12.4	5174
de Almeida, Anibal	TuBT14	C
.....	TuBT14.4	3740
de Barros Monteiro, Paulo Marcos..	WePmPo.6	5497
De Carolis, Valerio	WeCT13.3	6801
De Coninck, Elias	TuAT1.3	2366
de Croon, Guido	MoAT6	CC
.....	MoAT6.5	244
de Leng, Daniel	WeAT18.6	5445
De Luca, Alessandro	MoAT17	C
.....	MoAT17.6	706
.....	MoAmPo.10	2272
.....	TuAT17	C
.....	TuAT17.5	3034
.....	TuBT15.2	3768
.....	TuCT17	CC
.....	TuCT17.1	4617
De Magistris, Giovanni	MoBT2.5	820
de Silva, Clarence	MoAT3.4	109
.....	WeCT15.4	6886
De Simone, Daniele	WeAT14.2	5245
De Stefano, Marco	TuAT12.2	2807
De Wagter, Christophe.....	MoAT6.5	244
Deans, Matthew	TuAT8.5	2666
.....	WeCT9.6	6648
DeChant, Chad.....	TuAT3.3	2443
Decker, Ryan.....	TuBT12.4	3659
Degani, Amir.....	TuBT5	CC
.....	TuBT5.2	3352
Degrave, Jonas	TuAmPo.5	3092
Deguet, Anton	MoCT5.5	1692
Dehghan, Masood.....	TuPmPo.1	3134
.....	TuCT9.4	4290
Deimel, Raphael.....	MoAT12.1	465
.....	MoBT12	CC
.....	MoBT12.3	1214
.....	WeAT7.6	4982
Dekker, Lukas G.....	TuAT8.2	2644
Del Giudice, Giuseppe	TuAT5.5	2538
Del Prete, Andrea.....	TuBT13.5	3707
.....	WeAT5.4	4889
Della Santina, Cosimo.....	TuAT3.5	2457
Demangeat, Marie.....	TuAT11.4	2779
Demarchi, Danilo.....	MoAT4.6	166
Dembélé, Sounkalo.....	MoBT10.3	1135
Demircan, Emel.....	ThFW6.1	*

Demiris, Yiannis	TuBT11.3	3609
Demonceaux, Cédric.....	MoAT15.4	607
Denasi, Alper.....	TuPmPo.34	3167
Denei, Simone.....	MoAT4.4	153
.....	TuCT11.1	4354
Deng, Hao	TuAmPo.42	3129
deng, hongbin.....	TuAT2.1	2392
Deng, Xiang.....	TuCT15.3	4544
Deng, Yian.....	WeAmPo.19	5469
Deng, Zongquan.....	TuBT2.3	3232
Denis, Kathleen	MoAT4.3	145
Deprest, Jan	MoAT4.3	145
.....	WeBT5.2	5717
Dequidt, Jeremie	TuAT14.2	2896
Desai, Jaydev P.	MoCT5	CC
.....	MoCT5.4	1686
.....	TuAT5	C
.....	TuAT5.1	2512
Detry, Renaud	MoAT7.1	258
Detweiler, Carrick.....	MoAT18.1	713
.....	TuBT8.6	3509
Devadoss, Samyuktha	WePmPo.37	5527
Devasia, Santosh	TuPmPo.17	3150
.....	TuPmPo.26	3159
.....	TuPmPo.28	3161
Devine, Cameron	TuPmPo.28	3161
Devreker, Alain.....	WeBT5.2	5717
Dewan, Ayush	TuBT9.6	3550
deYoung, Brad	WeBT14.3	6091
Dharmasiri, Thanuja	MoCT1.2	1506
Dhoedt, Bart	TuAT1.3	2366
Di Caro, Gianni.....	MoCT9.5	1862
DI CASTRO, Mario.....	MoAmPo.25	2287
.....	WeAmPo.34	5484
Di Cicco, Maurilio	WeAT12.6	5188
Diaz Jimenez, Tomas.....	MoAT12.5	489
Diaz-Rodriguez, Miguel.....	WeBT9.2	5874
Díaz-Rodríguez, Miriam	WeCT17.6	*
Dietrich, Alexander.....	MoAT17.5	698
.....	WeAT17.2	5368
Dietz, Christian.....	MoBT5.4	942
.....	MoBT12.6	1231
Diez, F. Javier	MoBT6.1	962
Digani, Valerio.....	MoBT9.2	1084
Digumarti, Krishna Manaswi.....	WeBT17.4	6227
Dille, Michael.....	TuAT8.5	2666
Dillmann, Rüdiger.....	TuCT16.1	4574
DiLuoffo, Vincenzo	WeAmPo.9	5460
DiMaio, Simon P.....	SuFW4.1	*
Dimarogonas, Dimos V.	MoCT9.2	1839
Dimitrov, Velin	TuCT13.3	4458
Ding, Ming	WePmPo.19	5510
Ding, Wei.....	MoAT16.2	635
Ding, Yanran	MoAT8.1	301

Ding, Ye.....	MoCT5.6	1700
Dini, Amir.....	TuCT11.2	4360
Diotalevi, Francesco.....	MoAT4.6	166
Diperi, Julien.....	MoPmPo.30	2336
.....	TuBT7.3	3445
Dissanayake, Gamini.....	MoCT3.1	1579
.....	TuCT4.1	4055
.....	TuCT6.6	4173
.....	WeAT15.3	5292
.....	WeBT5.4	5730
.....	WeCT11.4	6723
Divan, Stefano.....	MoBT3.4	857
.....	WeCT16.2	6915
Djellab, Badis.....	WeAT17.5	5390
Do, Hyun Min.....	MoAmPo.11	2273
Do, Khac Duc.....	WeAT7.3	4963
Dockter, Rodney.....	MoBT5.3	935
Dodge, Austin.....	TuAmPo.17	3104
Dogramadzi, Sanja.....	WeCT8.6	6601
Doherty, Kevin.....	WeAmPo.2	5454
Dolan, John M.....	TuCT14.2	4495
Dollar, Aaron.....	SuBW8.1	*
.....	MoAT7.6	294
.....	MoBT11.1	1159
.....	MoCT11.6	1952
.....	TuBT10.4	3575
.....	WeCT4.5	6434
Domenichelli, Daniele E.....	MoAT17.2	675
Dometios, Athanasios.....	WeAT9.1	5031
Donatelli, Cassandra M.....	MoAT12.3	477
Dong, Chiyu.....	TuCT14.2	4495
Dong, Siyuan.....	MoAT4.2	137
Dong, Wenbo.....	TuBT8.1	3473
Dong Ho, Kang.....	WePmPo.10	5501
Dongwook, Lee.....	MoPmPo.34	2340
Dorazio, Silvia.....	TuAT16.4	2987
Dornhege, Christian.....	TuBT1.4	3197
.....	WeAT1.6	4737
Doshi, Neel.....	TuCT2.1	3970
Downs, Anthony.....	SuFW15.1	*
Draelos, Mark.....	TuAT6.1	2550
Drevelle, Vincent.....	WeAT15.2	5285
Driess, Danny.....	MoAT2.4	65
Drotman, Dylan.....	MoAT12.6	495
.....	WeBT17.1	6207
Drummond, Tom.....	MoCT1.2	1506
DU, XINXIN.....	MoBT1.1	750
Du, Yegui.....	WeBT14.2	6083
Du, Yunlong.....	WeAT18.4	5429
Du, Yuyang.....	TuPmPo.12	3145
Duan, Fei.....	MoPmPo.3	2310
Duan, Yan.....	WePmPo.16	5507
Dubé, Renaud.....	MoBT7.2	1005
Dubey, Geetesh.....	MoBT15.1	1325

Duchaine, Vincent	MoAT7.5	287
.....	TuBT1.6	3211
Duckett, Tom	MoBT3.5	865
.....	TuCT4.3	4070
Dudek, Gregory	MoAT16.5	656
.....	TuCT7.3	4195
.....	WeBT3.5	5653
.....	WeBT14.6	6111
.....	WeBT18	CC
Dudek, Piotr	TuCT8.5	4254
Duecker, Daniel Andre	TuCT7.2	4187
Dueri, Daniel	WeAT4.6	4862
Dufek, Jan	WeBT14.5	6105
Dufour, Kévin	WeCT17.3	6967
Duncan, Brittany	TuAT11.1	2759
Dupeyroux, Julien	MoPmPo.30	2336
.....	TuBT7.3	3445
Duriez, Christian	TuAT14.2	2896
.....	TuAT14.6	2924
Durner, Maximilian	WeAT10.3	5086
Dusek, Jeff	WeAmPo.27	5477
Dutta, Ayan	TuBT10.2	3562
Dzeladini, Florin	WeAT5.6	4903

E

Echols-Jones, Piers	MoAT12.3	477
Eckenstein, Nick	TuBT10.1	3556
Edmonds, Mark	TuBT9.4	3536
.....	WePmPo.18	5509
.....	WeCT9.2	6617
Edmunds, Riley	WeAT7.5	4976
Edwards, Laurence	TuAT8.5	2666
Edwards, William	WeBT3.2	5630
Egashira, Asuka	MoAT9.5	371
Egerstedt, Magnus	MoBT9.1	1078
Ehrhard, Henry	TuCT10.6	4347
El Hafi, Lotfi	TuCT14.6	4523
El Makrini, Ilias	MoCT4.1	1625
El-Ayat, Khaled	TuBT10.3	3568
El-Shawa, Sahba	MoAT9.1	342
Elael de Melo Soares, Eduardo	TuBT13.4	3701
Elamvazhuthi, Karthik	TuCT10.6	4347
Elbaum, Sebastian	MoAT18.1	713
Elfes, Alberto	TuAT7.2	2602
Elimelech, Khen	WeBT4.1	5668
Ellingson, Gary	WeBT1.4	5557
Elliott, Sarah	TuAT6.4	2573
Emadi, Hamid	MoCT13.6	2041
Emran, Bara	WePmPo.32	5523
Endler, markus	MoBT6.2	968
Endo, Gen	TuAT9	CC
.....	TuAT9.6	2711
.....	WeBT7.2	5796
Endo, Mitsuru	WeCT2.3	6337
Engelhardt, Frank	TuBT6.2	3394

Engelmann, Francis	WeCT10.2	6662
Englert, Peter	MoAT2.4	65
Englot, Brendan.....	TuAT1	C
.....	TuAT1.5	2380
.....	WeAT16	CC
.....	WeAT16.1	5318
Englsberger, Johannes	TuCT15	CC
.....	TuCT15.6	4566
Enzenhofer, Andreas.....	MoAmPo.27	2289
Eppner, Clemens.....	SuFW14.1	*
.....	MoAT7.3	274
.....	TuCT3.2	4017
Erickson, Zackory.....	TuAT12.1	2800
.....	WeAT18.1	5406
eriksson, anders	WeCT11.2	6707
Erkent, Ozgur	WeAT3.6	4821
Escande, Adrien	WeBT15.4	6142
Esmaeili, Kamran	TuAmPo.15	3102
Estandia, Alvaro	TuCT16.5	4603
Esteveny, Laure	MoAT4.3	145
Estevez, David	WeCT6.1	6484
Eto, Haruna	TuAmPo.31	3118
Eudes, Alexandre	TuCT12.2	4408
Eustice, Ryan	TuAmPo.2	3089
Even, Jani.....	TuAT18.2	3057
.....	TuPmPo.33	3166
Everett, Michael.....	MoBT15.4	1344
F		
Fabisch, Alexander.....	TuCT7.1	4179
Fácil, José M.	MoCT7.2	1754
Fahad, Muhammad	WeBT14.4	6098
Faigl, Jan.....	TuPmPo.5	3138
.....	TuPmPo.14	3147
.....	TuCT5.2	4102
.....	WeBT3.4	5646
Falco, Pietro	WeAT1.2	4709
Fallon, Maurice.....	MoBT17.2	1420
Falotico, Egidio.....	TuBT14.6	3753
Fan, Huijie	WeBT10.5	5934
Fan, Ruifeng.....	TuAT2.5	2416
Fan, Xiuyi	MoAmPo.22	2284
Fan, Yongxiang	MoBT13.5	1268
.....	TuAT3.1	2428
Fang, Cheng.....	MoBT17.4	1436
.....	MoCT18.6	2255
Fang, Lu	TuCT4	CC
.....	TuCT4.2	4063
Fang, Yongkun	TuPmPo.22	3155
.....	TuBT15.1	3761
Fankhauser, Péter.....	TuBT5.3	3359
Fantacci, Claudio.....	MoBT17	CC
.....	MoBT17.1	1412
Fantuzzi, Cesare	MoBT9.2	1084
.....	TuBT11.4	3617

Faraji, Salman	WeBT8.1	5825
Farazi, Hafez	WeBT15.1	6118
Faria, Miguel.....	TuAT11.6	2794
.....	TuBT11.5	3623
Farokhi, Soodeh	WeAmPo.3	5455
Farrell, Logan	MoAmPo.14	2276
.....	TuBT16.1	3803
Farshidian, Farbod	TuCT16.4	4595
.....	WeBT4.6	5702
Fasquelle, Benjamin.....	TuAT15.2	2936
Fassbender, Dennis	TuBT13.1	3681
.....	WeAT16.4	5340
Fathy, Mahmood	MoAT14.4	561
Fay, Aidan	TuBT6.5	3415
Fearing, Ronald.....	MoAT8	C
.....	MoAT8.3	315
.....	TuBT5	C
.....	TuBT5.1	3345
Featherstone, Roy.....	WeAT16.6	5353
Fehr, Marius	MoBT16.1	1367
Fei-Fei, Li	TuCT1.3	3938
Feil-Seifer, David.....	WeCT9.6	6648
Fekete, Sándor.....	MoBT9.4	1098
Felton, Samuel	MoCT12	C
.....	MoCT12.4	1980
.....	ThFW3	C
.....	ThFW3.1	*
Feng, Chunhan.....	TuCT10.6	4347
Feng, Di.....	WeCT3.3	6379
Feng, Junbing.....	MoAmPo.7	2269
Feng, Rong.....	MoPmPo.33	2339
Feng, Will	TuCT6.1	4137
FEO, EDUARDO	MoCT9.5	1862
Ferguson, Alan	MoPmPo.13	2320
Fernandez, Raul.....	WeCT6.1	6484
Fernandez-Lopez, Gerardo.....	TuCT13.5	4473
Fernández-Moral, Eduardo	WeBT6.1	5750
.....	WeBT6.2	5756
Fernando, Nipuna Rasandun	WeCT7.6	6561
Fernando, Samuel.....	MoPmPo.12	2319
Fernbach, Pierre.....	TuBT13.5	3707
Ferraguti, Federica	TuBT11.4	3617
Ferrari, Paolo.....	WeAT14.2	5245
Ferreira, Antoine.....	MoAT10.3	396
Ferrer, Gonzalo	MoBT3.6	873
Ferreri, Florent.....	TuPmPo.33	3166
Ferrolho, Henrique	TuAT13.1	2844
Ficuciello, Fanny	MoAT4.1	131
.....	MoBT18.2	1465
Fidon, Lucas.....	WeBT5.2	5717
Figueroa, Pablo	WePmPo.15	5506
Fikri, Muhamad Rausyan	MoAmPo.40	2302
Fink, Jonathan.....	TuPmPo.29	3162
Finn-Henry, Michael	WeBT14.1	6075

Fiorenti, Daniele	TuBT7.6	3466
Fiorini, Paolo	MoPmPo.22	2329
Fiorio, Luca.....	MoAT17.2	675
.....	MoAT17.3	682
Firouzeh, Amir	MoAT8.2	307
Fischer, Gregory Scott	SuFW4.1	*
.....	MoCT5.3	1678
Fisher, Callen	MoCT15.5	2122
Fitch, Robert.....	TuBT16.2	3809
Fitzgerald, Tesca.....	ThFW7.1	*
Fitzpatrick, Laura.....	WeBT14.4	6098
Flaspohler, Genevieve	MoAT1.1	1
Fleseriu, Cristian	MoAT18.5	742
Floreano, Dario.....	MoAT5.2	181
.....	MoAmPo.32	2294
.....	TuCT7.4	4203
.....	WeBT17.3	6221
.....	WeCT14.5	6855
Focchi, Michele	WeAT5.4	4889
.....	WeAT16.6	5353
Fofi, David	MoAT15.4	607
Folinus, Charlotte	TuAT18.1	3050
Folkesson, John	TuAT9.1	2679
.....	WeAT10.1	5071
Follmer, Sean	WeAT17.1	5361
Folmer, Hendrik.....	MoBT2.2	798
Fong, Philip	MoBT16.6	1404
Fong, Terrence.....	TuAT8.5	2666
Font-Llagunes, Josep Maria.....	MoPmPo.46	2350
Fontanelli, Daniele.....	MoBT3.4	857
.....	WeCT16.2	6915
Fontanelli, Giuseppe Andrea.....	MoAT4.1	131
.....	MoBT18.2	1465
Fonte, Aicha	WeCT1.2	6293
Forssen, Per-Erik	WeBT15.5	6149
Fossel, Joscha-David.....	WeCT12.4	6764
Fougerolle, Yohan.....	MoAT15.4	607
Fox, Geoffrey.....	WeAmPo.3	5455
Fraś, Jan	WeBT2.5	5610
Fraisse, Philippe.....	WeCT1	CC
.....	WeCT1.2	6293
Franco Barbosa, Gustavo	MoCT4.2	1631
Frank, Jared	TuBT6.6	3423
Franzius, Mathias.....	MoBT14.5	1312
Fraundorfer, Friedrich.....	MoBT14.3	1298
Frazzoli, Emilio.....	WeAT4.1	4828
Freda, Luigi	MoCT13.2	2011
Freitas, Gustavo	WePmPo.6	5497
.....	WePmPo.29	5520
Freitas, Gustavo Medeiros	WeAmPo.21	5471
.....	WeAmPo.24	5474
Fresk, Emil	TuCT12.5	4430
Frintrop, Simone.....	MoPmPo.20	2327
.....	WeAT6.5	4938

Fritsche, Paul	TuAT9.2	2686
Frota Rezeck, Paulo Alfredo	WeAmPo.24	5474
.....	WeAmPo.38	5488
Fu, Li-Chen.....	TuAT11	C
.....	TuAT11.2	2767
.....	TuCT6.2	4145
Fu, Qinqing.....	TuCT2.6	4002
Fuh, Jerry	WeBT17.6	6239
Fujie, Masakatsu G.	MoPmPo.36	2342
Fujihara, Motoharu	WeAT11.2	5122
fujikawa, tatsuo.....	WeCT16.5	6935
Fujita, Masahiro.....	MoCT12.6	1996
Fujiwara, Ami.....	WeAT7.1	4950
Fujiwara, Michitaka.....	MoAmPo.43	2304
Fukuda, Tomohiro	MoAmPo.43	2304
Fukuda, Toshio.....	MoAT13.4	522
.....	TuAT2.2	2398
.....	TuAT16.3	2981
.....	WeAT11.2	5122
Fukuhara, Hiroya.....	TuAT1.2	2360
Fukushima, Tetsuharu.....	WeCT5.6	6477
Fuller, Sawyer	WeBT11	CC
.....	WeBT11.2	5957
Fumagalli, Matteo.....	TuCT16.3	4588
Funke, Joseph.....	TuAT7.3	2610
Furet, Benoît.....	MoBT18.4	1479
Furnémont, Raphaël.....	MoCT15.6	2129
Furno, Lidia	WeBT18.6	6277
Furukawa, Tomonari	TuCT6	CC
.....	TuCT6.6	4173
.....	WeAT15	C
.....	WeAT15.3	5292
G		
Gaathon, Adar	TuBT5.2	3352
Gabaldon, Joaquin	TuAT4.6	2506
Gabdullin, Aidar.....	TuAT7.5	2624
Gabler, Volker	WeBT16.2	6171
Gabriel, Daniel.....	TuPmPo.13	3146
.....	WeBT11.6	5985
Gafford, Joshua.....	TuBT12.1	3635
Galea, Brendan	MoCT6.2	1714
Galeazzi, Roberto.....	WeBT18.6	6277
Galiana, Ignacio	MoCT5.6	1700
Gall, Marcus	WePmPo.19	5510
Gambardella, Luca.....	MoCT9.5	1862
Gamboia Higuera, Juan Camilo.....	TuCT7.3	4195
Gamborino, Edwinn.....	TuAT11.2	2767
Gandhi, Dhiraj	TuCT1.5	3954
Gans, Nicholas (Nick).....	TuPmPo.25	3158
.....	TuBT12	CC
.....	TuBT12.5	3667
Gao, Fei.....	TuBT13.2	3687
Gao, Feng	TuBT9.4	3536
.....	WePmPo.18	5509

.....	WeCT9.2	6617
Gao, Ge.....	MoPmPo.20	2327
.....	WeAT6.5	4938
Gao, Haibo.....	TuBT2.3	3232
Gao, Hao.....	MoCT2.6	1573
Gao, Jian.....	MoAT10.1	384
Gao, Liming.....	TuAT17.4	3028
Gao, Tianshuang.....	MoCT13.6	2041
GAO, Wenliang.....	WeCT11.3	6715
Gao, Yang.....	MoCT3.3	1595
Gao, Yanyan.....	MoCT3.5	1611
Gaponov, Igor.....	TuBT6.3	3401
Garbini, Joseph.....	TuPmPo.17	3150
.....	TuPmPo.28	3161
Garcia, Henrique Borges.....	MoCT4.2	1631
Garcia, Juan Miguel.....	WeAmPo.39	5489
Garcia, Nicolas.....	TuBT4.6	3339
Garcia, Rafael.....	WeBT13.3	6047
Garcia de Marina, Hector.....	WeAT15.4	5298
Garcia Gonzalez, Javier.....	TuAmPo.18	3105
García Morales, Diana.....	TuPmPo.15	3148
Garcia Peraza Herrera, Luis.....	WeBT5.2	5717
Garcia Ricardez, Gustavo Alfonso..	TuCT14.6	4523
Garg, Animesh.....	TuCT1.3	3938
Garg, Sourav.....	WeCT15.1	6863
Garimella, Gowtham.....	TuAT7.3	2610
.....	WeAmPo.5	5457
Garnier, Sébastien.....	MoBT18.4	1479
Garrell, Anais.....	WeAmPo.30	5480
.....	WeCT18.5	7011
Garza-Elizondo, Luis.....	WeCT18.5	7011
Gaschler, Andre K.....	MoAT18.4	734
Gassaway, Jason.....	MoCT13.3	2019
Gasteratos, Antonios.....	TuCT9	CC
.....	TuCT9.2	4274
Gauci, Melvin.....	WeAmPo.27	5477
Gaud, Ayush.....	TuAT15.5	2954
Gautam, Shivam.....	TuBT16.4	3825
Gauthier, Michael.....	MoAT10.5	409
Gavarraju, Sumanth Nirmal.....	WePmPo.37	5527
Gawel, Abel Roman.....	MoBT7.2	1005
GAY-BELLILE, VINCENT.....	MoCT3.2	1587
Gaz, Claudio Roberto.....	MoAmPo.10	2272
.....	TuAT17.5	3034
Ge, Qi.....	WePmPo.23	5514
Ge, Yuming.....	TuBT13.3	3695
Gehring, Christian.....	TuBT5.3	3359
Geiger, Andreas.....	MoCT7.1	1747
Genewein, Tim.....	MoBT2.1	790
Gennert, Michael.....	WePmPo.37	5527
.....	WePmPo.38	5528
Georgakis, Georgios.....	WeAT6.2	4917
Georgiev, Nikola.....	MoCT12.5	1988
.....	WeAT2.6	4777

Gerena, Edison	MoCT10.3	1890
Gerstmayr, Johannes	MoPmPo.21	2328
Ghadirzadeh, Ali.....	TuAT1.1	2352
Ghavamzadeh, Amir	TuBT6.1	3386
Masoud.....		
.....	TuCT3.5	4040
Ghannadi, Borna	MoAT13.1	503
Ghasemi Toudeshki, Amirmasoud ..	WePmPo.41	5531
Ghazi-Zahedi, Keyan.....	MoAT12.1	465
Gholami Shahbandi, Saeed	MoAT15.6	621
Ghosh, Rohan	WePmPo.21	5512
Ghosh, Sourish.....	MoBT7.5	1027
Giamou, Matthew	TuCT9.5	4296
Gianni, Mario	MoCT13.2	2011
Giardini Lahr, Gustavo Jose.....	MoCT4.2	1631
Giataganas, Petros.....	MoAT5.6	209
Gilardoni, Simone.....	MoAmPo.25	2287
Gilitschenski, Igor	MoCT18.1	2220
.....	TuBT8.3	3485
.....	ThBW13	C
.....	ThBW13.1	*
Girdhar, Yogesh	MoAT1	C
.....	MoAT1.1	1
.....	WeAmPo.2	5454
Girerd, Cedric	WeBT3.6	5661
Giri, Shashank.....	MoCT16.2	2144
Gkioxari, Georgia	TuCT6.1	4137
Glassner, Samantha.....	TuCT18.3	4678
Gleason, Rodney.....	TuCT5.1	4096
Gleicher, Michael.....	TuCT11.6	4392
Glick, Paul	MoBT11.3	1173
Glover, Arren	TuBT15.3	3775
Goepp, Dorian	MoAT2.2	51
Goh, Chun Fan.....	WeAT13.3	5211
Goldberg, Benjamin.....	TuCT2.1	3970
Goldman, Daniel.....	TuCT15.5	4558
Golemo, Florian.....	WeBT15.3	6134
Gombolay, Matthew	ThFW7.1	*
Gomez Balderas, Jose Ernesto.....	WeBT11.3	5965
Gondokaryono, Radian	MoCT5.3	1678
Gong, Chaohui	WeCT1.4	6307
González-Jiménez, Javier.....	MoBT7.6	1033
Goodrich, Michael A.....	WeCT1.5	6313
GOPALAKRISHNAN, BHARATH.....	MoBT9.3	1090
Görner, Michael.....	MoPmPo.20	2327
Gosine, Raymond G.....	TuCT12.3	4416
.....	WeAT4.3	4842
Gosselin, Clement.....	TuAT18	C
.....	TuAT18.5	3076
.....	TuCT17	C
.....	TuCT17.3	4632
.....	ThFW9.1	*
GOTO, TATSUHIKO	MoCT15.3	2106
Gowaiker, Radhika	MoAT16.2	635

Goyal, Raman	MoCT14.1	2049
Goza, S. Michael	MoAmPo.14	2276
Grammatikopoulou, Maria	TuAT16.5	2995
Grandmaison, Christian.....	WeAmPo.20	5470
Grant, Darion.....	MoAmPo.15	2277
Gras, Gauthier.....	MoAT5.6	209
.....	TuAT5.3	2525
Gräter, Johannes.....	TuCT4.5	4083
Gravish, Nicholas	ThFW10	C
.....	ThFW10.1	*
Greatwood, Colin.....	TuCT8.5	4254
Greenslade, Mac	TuPmPo.40	3172
Gregg, Robert D.	TuAmPo.1	3088
.....	WeAmPo.26	5476
Greiner, Helen	WeCT14.3	6843
Grieco, Juan Carlos.....	TuCT13.5	4473
Griffin, Robert J.	MoAT17.1	668
Grioli, Giorgio	TuAT3.5	2457
Grisetti, Giorgio	WeAT12.6	5188
Groenhuis, Vincent.....	MoBT5.2	929
.....	MoPmPo.22	2329
Grondin, Francois.....	TuAT4.2	2480
Groothuis, Stefan S.	WeAT2.3	4756
Grossmann, Bjarne	WeCT13.2	6793
Grotz, Markus.....	MoBT17.3	1428
Gruebele, Alexander	MoAT5.1	174
Gruijthuisen, Caspar.....	MoAT4.3	145
.....	WeBT5.2	5717
Grupen, Rod.....	TuAT3.2	2435
Grzechnik, Slawomir	MoAT16.2	635
Gu, Gwang Min	TuBT11.6	3629
Gu, Haowei.....	WeAT11.4	5135
Gu, Jason	MoAmPo.7	2269
Gu, Qingyi	WeBT10.4	5928
Gu, Tianyi	TuAT13.4	2865
Gu, Xuejun	TuBT12.5	3667
Gu, Yunjin.....	MoBT12.2	1208
Gu, Zhaoyuan.....	MoPmPo.23	2330
Gualtieri, Marcus	TuBT3.2	3267
.....	WePmPo.9	5500
Guan, Yanming	MoCT10.2	1884
Guan, Yisheng.....	MoCT4	CC
.....	TuAT10	CC
.....	TuAT10.6	2752
.....	TuCT2	CC
guan, yong.....	TuAT12.6	2836
.....	WeCT6.6	6520
Guan, Yuwei.....	MoCT6.5	1733
Guarino Lo Bianco, Corrado.....	WeBT16.3	6178
GUDI, Siva Leela Krishna Chand....	TuPmPo.31	3164
Guerin, Frank	WeAT6.3	4923
Guerneve, Thomas.....	MoAT15.5	615
Guerrero, Josechu.....	WeBT6.2	5756
Guimarães Macharet, Douglas.....	WeAmPo.24	5474

Guizilini, Vitor	TuCT4.6	4089
Gujjar, Pratik.....	WePmPo.26	5517
Gul, Jahan Zeb.....	MoAmPo.38	2300
Güler, Püren.....	WeBT10.6	5941
Gunawan, Gunawan.....	WeBT18.5	6271
Guo, Jiangzhen	MoAT5.5	201
Guo, Jin.....	WeBT17.2	6214
GUO, Yao.....	TuCT9.6	4304
Guo, Yi	WeBT14.4	6098
Gupta, Aayush.....	WeAT15.5	5304
Gupta, Abhinav.....	TuCT1.5	3954
Gupta, Kamal	TuAT13	CC
.....	TuAmPo.8	3095
.....	TuAmPo.21	3108
Gupta, Naman.....	TuBT2.5	3247
Gyongyosi, Marc	TuCT8.6	4261
H		
Ha, ChangSu.....	MoAT11.2	430
Ha, Qishen	WeAT10.6	5108
Ha, Sehoon	TuCT1.4	3946
Haberland, Matt.....	TuCT10.6	4347
Habibi, Golnaz.....	TuCT9.5	4296
Habra, Timothee.....	MoBT17.3	1428
Hada, Yoshiro.....	TuAmPo.36	3123
Haddadin, Sami.....	WeAT17.2	5368
.....	WeAT17.5	5390
Hager, Gregory.....	WeBT13.5	6059
Haghighat, Bahar	TuCT18.1	4662
Hagiwara, Yoshinobu	MoBT2.4	812
Haidegger, Tamas.....	SuFW4.1	*
.....	WePmPo.14	5505
Haji Hosseinnejad, Soroosh	WeCT2.5	6349
Hajieghrary, Hadi.....	MoCT16.4	2159
Haldane, Duncan.....	TuBT5.1	3345
HALIYO, Dogan Sinan	MoCT10.3	1890
Hall, David	WeAT12.4	5174
Halliday, David	MoAT18.5	742
Halperin, Dan	MoCT13.1	2004
Hamamoto, Shinya.....	WeAT17.6	5398
Hamaya, Masashi.....	TuAT18.3	3064
Hambuchen, Kimberly.....	MoAmPo.14	2276
.....	TuBT16.1	3803
Hammond, Zachary.....	MoAT5.1	174
.....	WeAT17.1	5361
Han, Fei.....	TuPmPo.29	3162
Han, Lei.....	TuCT4.2	4063
Han, Zhedong.....	TuAT17.4	3028
Hangl, Simon.....	MoAT3.2	95
Hannaford, Blake.....	SuFW4.1	*
.....	TuAT5	CC
.....	TuAT5.6	2544
.....	TuBT9	C
.....	TuBT9.5	3544
.....	WeAmPo.4	5456

Haouchine, Nazim	MoAT14.1	540
Haque, Musad	TuBT2.6	3253
Hara, Tomohito.....	TuPmPo.2	3135
Harada, Kensuke.....	MoCT11.3	1930
.....	WeAT18.4	5429
Harada, Tatsuya.....	WeAT10.6	5108
Harata, Yuji.....	WeAT14.6	5270
Hargrove, Levi.....	MoBT8.5	1065
Harrison, William	SuFW15.1	*
Haschke, Robert.....	MoCT17.4	2201
Haschke, Tobias.....	WeBT3.3	5638
Hasegawa, Akiyuki	TuAT16.3	2981
Hasegawa, Komei	TuAT11.5	2787
Hasegawa, Shun	MoBT11.2	1165
Hasegawa, Yasuhisa.....	MoAT13.4	522
.....	TuAT16.3	2981
Hashimoto, Hideki	MoPmPo.43	2348
Hashimoto, Kenji	WeAT17.6	5398
.....	WeCT7.4	6547
Hashimoto, Manabu	TuPmPo.44	3175
Hassan, Heba.....	TuBT10.3	3568
Hassan, Taimoor	MoCT15.1	2092
Hattenberger, Gautier.....	WeAT15.4	5298
Hatzfeld, Christian	MoBT4.3	893
.....	MoAmPo.19	2281
Hauert, Sabine	TuCT10	CC
.....	TuCT10.4	4332
Haus, Jan Niklas	MoCT4.4	1644
Hauser, Kris.....	TuAT6	C
.....	TuAT6.1	2550
.....	WeAT4	C
.....	WeAT4.5	4854
Hauser, Simon.....	WeAT5.6	4903
Hausman, Karol.....	TuAT13.6	2881
Havoutis, Ioannis.....	MoAT2.5	73
Hawes, Nick	WeBT1.5	5564
Hawke, Jeffrey.....	WeAT10.5	5100
Hawkes, Elliot Wright	MoAT5	C
.....	MoAT5.1	174
.....	WePmPo.25	5516
Hawley, Louis	WeAT8.2	4997
Hayashi, Syota	WeCT7.4	6547
He, Hongsheng	MoAT15	C
.....	MoCT8.5	1819
.....	MoPmPo.29	2335
.....	WeBT1	C
He, Keliang.....	WeAT16.2	5326
He, Shida.....	TuCT9.4	4290
He, Sifeng.....	MoAT10.1	384
He, Yunbo	MoAT10.1	384
Hebdon, Matthew	SuAW16.1	*
Hebert, Mitchell	WeBT6.6	5784
Hedayatpour, Mojtaba.....	TuAmPo.3	3090
.....	WeAT11.1	5116

Heffernan, Michael	WePmPo.4	5496
Hegedus, Michael James	TuAmPo.21	3108
Heiden, Eric	TuAT13.6	2881
Heikkilä, Janne	TuCT12.1	4400
Heinrich, Benjamin C.	TuBT13.1	3681
Heintz, Fredrik	WeAT18.6	5445
Heinzemann, Christian	MoBT15.5	1352
Heit, Jeremy	WePmPo.25	5516
Hekmati, Alireza	TuAmPo.8	3095
Held, David	MoCT2.1	1538
Helwa, Mohamed K.	WeAT1.1	4702
Henderson, Peter	TuCT7.3	4195
Henderson, Thomas C.	MoAmPo.22	2284
Henderson, Travis	WeAT11.5	5142
Hendrich, Norman	WeCT17.2	6959
Henein, Mina	MoCT3.6	1617
Heng, Lionel	MoCT7.1	1747
Hennersperger, Christoph	ThFW2	C
.....	ThFW2.1	*
Hennes, Daniel	WeCT12.4	6764
Henze, Bernd	MoAT17.5	698
Herath, Damitha Chandana	SuFW11.1	*
Heredia, Guillermo	MoBT6.6	993
Hereid, Ayonga	MoAT18.2	720
Herrero Cotarelo, Fernando	WeCT18.5	7011
Hertle, Andreas	WeBT13.4	6053
Hess, Juergen Michael	SuFW14.1	*
.....	WeAT18.5	5437
Hessinger, Markus	MoBT4.3	893
.....	MoCT8	CC
.....	MoCT8.6	1825
.....	MoAmPo.19	2281
Hewlett, Joseph	WeAT17.4	5382
Hicks, Dion	WeBT9.6	5900
Higuchi, Hirofumi	WeAT5.1	4869
Higuma, Tomohito	MoAT13.3	515
Hildebrandt, Arne-Christoph	MoBT17.6	1450
.....	MoPmPo.19	2326
Hilder, James	MoAT18.5	742
Hirabayashi, Masato	MoPmPo.36	2342
Hirabayashi, Yuto	MoAT13.5	528
Hirai, Shinichi	TuAT14	C
.....	TuAT14.1	2888
Hirata, Yasuhisa	MoCT11.4	1938
.....	TuBT18	C
.....	TuBT18.5	3909
Hiratsuka, Shigeyoshi	TuBT4.2	3312
Hirche, Sandra	TuAT6.2	2557
Hitz, Gregory	MoBT16.3	1383
Hlavac, Vaclav	TuAT3	C
.....	TuBT3.3	3274
Ho, Van	SuFW10.1	*
.....	WeAmPo.14	5464
.....	WeBT12.4	6013

Hoang, Phi Tien.....	MoBT4.2	887
.....	WeBT17.5	6233
Hochgeschwender, Nico	TuBT6.2	3394
Hoelzl, Gerold.....	MoAT9.2	350
Hoenig, Wolfgang.....	MoAT6.6	250
Hofbaur, Michael	TuCT11.2	4360
Hoffman, Rachel.....	TuCT18.5	4694
Hoffmann, Frank.....	WeBT4.3	5681
Hogan, Neville	TuAT18.1	3050
.....	TuCT11.4	4376
Hogil, Lee	MoPmPo.34	2340
Hollinger, Geoffrey	MoCT13.4	2025
Holtz, Jarrett	MoCT18.3	2236
Homer, Martin.....	TuCT10.4	4332
Hong, Dennis.....	TuBT5.4	3366
Hong, Euntae	WeCT15.3	6879
Hong, Heeseung	TuAmPo.30	3117
Hong, Hyunki.....	TuBT4.5	3333
Hongmin, Lee	MoAmPo.3	2265
Hopper, Douglas	TuAmPo.7	3094
Horaud, Radu	TuCT6.3	4150
Horikawa, Yuta	MoAT9.5	371
Horvat, Tomislav	TuAT9.3	2692
.....	TuBT5.5	3372
.....	WeAT5.6	4903
Hoshi, Yuuna.....	WeAT18.1	5406
Hoshiba, Kotaro.....	TuPmPo.13	3146
.....	WeAmPo.16	5466
.....	WeBT11.6	5985
Hosokawa, Naoya	TuAT16.1	2969
Hossain, Mohammed Raju.....	WeBT9.6	5900
Hottiger, Gabriel	TuAT8.4	2658
Houben, Sebastian.....	MoCT18.2	2228
How, Jonathan Patrick	MoBT15.4	1344
.....	MoBT15.6	1359
.....	MoCT9.4	1854
.....	TuCT9.5	4296
.....	TuCT14.1	4487
Howard, Ayanna.....	MoPmPo.17	2324
.....	TuAmPo.47	3133
Howard, Thomas.....	TuCT13.1	4442
Hsiao, Kai-Wen	MoAT11.3	437
Hsieh, M. Ani.....	MoCT9.1	1831
.....	MoCT16.4	2159
.....	TuAmPo.14	3101
Hu, Cheng	TuCT2.6	4002
Hu, Fan.....	WeAmPo.19	5469
HU, Ying.....	MoPmPo.6	2313
.....	WeCT5.3	6455
Hu, Yu	MoAT1.3	17
Hu, Yue	WeBT8.4	5846
Huaman, Ana	MoBT3.1	835
Huang, Bidan.....	WeAT3.3	4797
Huang, Chien-Ming	ThFW7.1	*

Huang, Chong	MoCT6.4	1726
Huang, Chun-Yi.....	WeCT7.3	6541
Huang, Guoquan	MoCT7.5	1776
.....	WeCT12.2	6749
Huang, Hailin.....	TuAmPo.34	3121
Huang, He	MoAT13.2	509
Huang, Justin	MoBT3.2	841
.....	TuBT3.6	3296
Huang, Kai.....	TuAT9.4	2699
Huang, Kaihong.....	MoBT18.6	1491
Huang, Li	MoAT10.6	415
Huang, Lixi	TuCT2.2	3977
Huang, Qiang	TuAT2.2	2398
Huang, Shoudong	MoCT3.1	1579
.....	WeBT5.4	5730
HUANG, SIQI	WeAT9.3	5043
Huang, Tiffany A.....	TuCT4.5	4083
Huang, Yongqiang.....	WeCT18.4	7005
Huang, Yulan.....	MoAT15.2	591
Huang, Zhenjie	WeAT18.4	5429
Huber, Gerold.....	WeBT16.2	6171
Huber, Meghan.....	TuAT18.1	3050
.....	TuCT11.4	4376
Hughes, Owen.....	TuCT14.5	4515
Huletski, Arthur.....	WeCT12.5	6770
Huo, Zhaoyuan.....	MoAT12.6	495
Hur, Pilwon	WeAT4	CC
.....	WeAT4.4	4848
Hüsing, Mathias.....	WeAT17.3	5376
.....	WeBT3.3	5638
Huskić, Goran.....	TuBT7.2	3439
Hussain, Irfan	MoBT11.6	1194
Hustig-Schultz, Dawn	TuCT2.5	3996
Hutchinson, Jack.....	TuBT14.1	3722
Hutter, Andreas	MoAT14.3	553
Hutter, Marco.....	TuAT8.4	2658
.....	TuBT5.3	3359
.....	TuCT16.5	4603
.....	WeBT1.3	5549
Huynh, Ngoc Van	WeAmPo.14	5464
Huzaifa, Umer	WeAmPo.29	5479
.....	WeAmPo.32	5482
Hvězda, Jakub.....	MoPmPo.40	2345
Hwang, Gilgueng.....	TuAT16	C
.....	TuAT16.4	2987
Hwang, Jinsun.....	MoBT13.6	1275
Hwang, Jungsik.....	TuAmPo.45	3131
Hwangbo, Jemin.....	TuBT5.3	3359
.....	WeBT1.3	5549
Hyeyun, Jeong	MoAmPo.4	2266
Hyung, Hyun-Jun.....	MoPmPo.34	2340
I		
Iagnemma, Karl.....	TuCT14.4	4507
Ibargüen González, Luis Azareel	TuBT7.2	3439

Icer, Esra	TuBT10.3	3568
Ichikawa, Akihiko	TuAT16.3	2981
.....	WeAT11.2	5122
Iikawa, Shingo	MoBT8.1	1041
.....	TuBT18.4	3903
IIZUKA, Masaki	TuPmPo.44	3175
Ijspeert, Auke	TuAT9.3	2692
.....	TuBT5.5	3372
.....	WeAT5.6	4903
.....	WeBT8.1	5825
Ikeda, Keisuke	TuAT8.1	2638
Ikeda, Takahiro	WeAT11.2	5122
Ikeuchi, Katsushi	TuPmPo.39	3171
.....	WeAmPo.10	5461
Ila, Viorela	MoCT3.6	1617
Ilic, Slobodan	MoAT14.3	553
.....	TuAmPo.26	3113
.....	WeCT15.2	6871
Ilievski, Marko	TuAmPo.12	3099
Im, Hyun-Soo	TuAmPo.27	3114
Imai, Michita	TuAT11.5	2787
Inaba, Masayuki	MoAT9.6	377
.....	MoAT17.4	690
.....	MoBT11.2	1165
.....	MoBT11.5	1188
.....	TuCT15.2	4537
.....	WeAT7.2	4956
.....	WeAT8.1	4990
.....	WeAT8.3	5003
.....	WeAT10.4	5092
.....	WeAT14.1	5239
.....	WeBT7.3	5804
.....	WeBT11.5	5977
.....	WeCT14.2	6837
Inamura, Tetsunari	MoBT2	CC
.....	MoBT2.4	812
.....	TuBT9	CC
.....	TuBT9.1	3516
.....	ThFW18	C
.....	ThFW18.1	*
Incocciati, Francesco	WeAT3.1	4785
Indelman, Vadim	TuAT7.4	2617
.....	WeBT4.1	5668
Ingvast, Johan	MoBT12.2	1208
Inoue, Roberto	TuCT4.6	4089
Inoue, Tadanobu	MoBT2.5	820
Iordachita, Ioan Iulian	MoAT5.5	201
Irmisch, Patrick	MoBT12.3	1214
Ishi, Carlos Toshinori	WeAT16.3	5333
.....	WeCT18.3	6998
Ishibashi, Keitaro	TuAmPo.40	3127
Ishida, Tatsuzo	TuAT9.5	2705
Ishiguro, Hiroshi	WeAT16.3	5333
.....	WeCT18.3	6998

Ishiguro, Yasuhiro	MoAT9.6	377
.....	WeAT8.1	4990
Ishihara, Kosuke.....	WeAT8.4	5011
ISHII, Hiroyuki	TuAT2.2	2398
.....	TuAmPo.40	3127
Ishii, Idaku	MoBT6.5	986
.....	MoBT10.4	1141
ISHII, Shinji.....	MoPmPo.43	2348
Ishikawa, Jun.....	MoAmPo.13	2275
Ishikawa, Masatoshi	WeBT10.6	5941
Ishikawa, Tatsuya.....	TuCT15.2	4537
Ishiki, Takahiro	WeBT11.6	5985
Islam, Md Jahidul	TuCT7.3	4195
Isler, Volkan.....	TuBT8.1	3473
.....	WeBT12.6	6027
Itadera, Shunki	MoAT13.4	522
ito, kazuyuki.....	MoPmPo.37	2343
Ito, Satoshi	TuPmPo.27	3160
Ito, Seigo	TuBT4	CC
.....	TuBT4.2	3312
Ivan, Vladimir.....	TuAT13.1	2844
Iversen, Thorbjørn Mosekjær	TuCT17.5	4646
Iwasaki, Shingo	WeAT5.1	4869
Iwasaki, Tetsuya.....	TuBT5.4	3366
Iwasaki, Yukiko.....	WeAmPo.23	5473
Iwata, Hiroyasu.....	MoAT5	CC
.....	MoAT5.3	187
.....	WeAmPo.23	5473
Izatt, Joseph	TuAT6.1	2550
Izumi, Kondo	MoAT13.4	522
J		
Jacobs, Henry	TuCT14.5	4515
Jacobson, Adam.....	TuBT4.1	3304
.....	WeCT10.1	6654
.....	WeCT15.1	6863
Jadhav, Saurabh	WeBT17.1	6207
Jaeyoung, Jung.....	MoAmPo.3	2265
Jafari, Aghil.....	MoBT4.6	915
Jagersand, Martin.....	MoPmPo.33	2339
.....	TuAT11	CC
.....	TuAT11.3	2773
.....	TuPmPo.1	3134
.....	TuBT15	C
.....	TuBT15.5	3791
.....	TuCT9.4	4290
.....	WePmPo.15	5506
Jagtap, Vinayak.....	WePmPo.37	5527
Jain, Varun	WeAmPo.32	5482
jaiprakash, Anjali	WeCT11.2	6707
Jamali, Nawid	MoAT4.6	166
Jamone, Lorenzo.....	MoBT13.6	1275
Janabi-Sharifi, Farrokh	TuAmPo.3	3090
.....	WeAT11.1	5116
Jang, Junwon	WeBT7	CC

.....	WeBT7.5	5818
Jang Sher, Anum.....	WeAmPo.32	5482
Janz, Alexej.....	TuCT18.4	4686
Jaquier, Noémie.....	MoAT2.3	59
.....	TuBT1.2	3184
Jardon Huete, Alberto.....	WePmPo.17	5508
Jaspers, Hanno.....	WeAT16.4	5340
Jatavallabhula, Krishna Murthy.....	MoCT7.4	1769
Javaux, Allan.....	MoAT4.3	145
Javed, Hifza.....	MoPmPo.17	2324
.....	TuAmPo.47	3133
Jayaram, Kaushik.....	TuCT2.1	3970
Jayasekara, A.G.B.P.....	WeCT8.1	6567
Jelavic, Edo.....	TuCT16.4	4595
Jenelten, Fabian.....	TuBT5.3	3359
Jenkins, Merritt.....	WeAT12.2	5162
Jenkins, Odest Chadwicke.....	TuBT3.4	3281
Jenks, Andrew.....	TuPmPo.24	3157
Jensfelt, Patric.....	TuAT9.1	2679
.....	WeAT10.1	5071
Jenson, Devon.....	WeAT11.5	5142
Jeon, Hyeong-Seok.....	TuBT18.2	3889
Jeon, Jeongmin.....	WeAT5.5	4897
Jeon, Myoungsoon.....	MoPmPo.17	2324
.....	TuAmPo.47	3133
Jeon, Wonseok.....	MoAT7.4	280
Jeon, Young Jae.....	TuAmPo.35	3122
Jeong, Hyobin.....	MoCT17.6	2214
.....	WeAT14.5	5263
Jeong, Jinyong.....	WeAT15.1	5277
Jeong, Jongman.....	TuAmPo.38	3125
Jeong, Jongmin.....	TuPmPo.39	3171
.....	WeAmPo.10	5461
Jeong, YongJun.....	TuBT18.2	3889
Jia, Bingxi.....	MoCT3.5	1611
Jia, Daoyuan.....	WeCT6.4	6506
Jia, Guanglu.....	TuAmPo.34	3121
Jia, Wenchuan.....	WeAT7.4	4969
Jiang, Cansen.....	MoAT15.4	607
Jiang, Daimin.....	MoCT2.6	1573
Jiang, Guangying.....	WeCT14.3	6843
Jiang, Hao.....	TuAT14.4	2910
.....	TuAT14.5	2917
Jiang, Jun.....	WePmPo.39	5529
jiang, Steve.....	TuBT12.5	3667
Jiang, Zhongliang.....	WeCT5.3	6455
Jiang, Zhuangyi.....	TuAT9.4	2699
Jin, Maolin.....	TuBT11.6	3629
Jin, Pengju.....	WeBT6.4	5770
Jin, Sangrok.....	MoPmPo.35	2341
Jin, Yusong.....	TuAT14.5	2917
Jing, Wei.....	WeAT13.3	5211
Jing, Yuchen.....	MoAmPo.41	2303
Jo, Hyunkyeong.....	TuAmPo.43	3130

Jo, Inseong.....	MoBT8.3	1053
Jo, Kyungmin.....	TuAmPo.22	3109
Johansson, Karl H.....	MoCT9.2	1839
John, Stephen William.....	MoBT8.2	1047
Johnson, Aaron.....	TuCT3.1	4009
Johnson, David M.S.....	WeBT6.6	5784
Johnson, Elliot.....	MoCT13.3	2019
Johnson, Jeffrey.....	MoPmPo.25	2332
Johnson, Megan.....	MoBT3.2	841
Johnson, Michelle J.....	MoBT3.2	841
Johnson, Reed.....	MoBT5.3	935
Johnson-Roberson, Matthew.....	TuAT4.6	2506
.....	TuAmPo.2	3089
.....	TuCT14	C
.....	TuCT14.5	4515
.....	WeCT6	CC
.....	WeCT6.3	6498
Johnston, Benjamin.....	TuPmPo.31	3164
JOLY, Cyril.....	TuBT4.6	3339
Jones, Dominic.....	TuPmPo.41	3173
.....	WeBT5.5	5738
Jones, Dylan.....	MoCT13.4	2025
Jonghun, Choe.....	WeCT16.1	6908
Joos, Karen.....	TuAT5.5	2538
Jorda, Mikael.....	MoCT17.1	2178
Jordan, Julian.....	MoBT15.3	1338
Jorgensen, Stefan.....	WeBT3.1	5622
Joseph, Francis.....	TuCT10.2	4318
Joshi, Arjun.....	TuBT12.4	3659
Joshi, Girish.....	TuPmPo.32	3165
Joshi, Kedar.....	TuBT2.5	3247
Joshi, Sagar.....	WePmPo.12	5503
Joukov, Vladimir.....	MoCT12.2	1966
.....	MoCT18.5	2249
Joyce, Russell.....	MoAT18.5	742
Jud, Dominic.....	TuAT8.4	2658
Jung, Hosang.....	MoBT4.2	887
.....	WeBT17.5	6233
Jung, Kwangyik.....	TuPmPo.16	3149
.....	TuPmPo.30	3163
Junyeong, Jo.....	MoAmPo.3	2265
K		
Kaboli, Mohsen.....	WeCT3.3	6379
Kadam, Sudin.....	TuBT2.5	3247
Kaess, Michael.....	WeCT6	C
.....	WeCT6.4	6506
.....	ThFW4.1	*
Kaestner, Ralf.....	WeAmPo.18	5468
Kafash Hoshiar, Ali.....	MoCT10.4	1896
Kagerer, Florian.....	TuBT18.1	3883
Kaiser, Peter.....	WeCT1.1	6285
Kakiuchi, Yohei.....	MoAT9.6	377
.....	MoAT17.4	690
.....	TuCT15.2	4537

.....	WeAT7.2	4956
.....	WeAT8.1	4990
.....	WeAT14.1	5239
Kakogawa, Atsushi.....	MoBT14	CC
.....	MoBT14.4	1306
Kalakrishnan, Mrinal.....	MoAT2.6	79
Kalisky, Tom.....	WeBT17.1	6207
Kallen, Rachel W.....	WePmPo.30	5521
Kalouche, Simon.....	TuCT5.4	4116
Kamadan, Abdullah.....	WeBT4.4	5687
Kamedula, Malgorzata.....	WeBT2.3	5594
Kamel, Mina.....	MoAT6.4	236
Kamenev, Alexey.....	TuCT8.4	4247
Kamezaki, Mitsuhiro.....	TuAT9.5	2705
Kamidi, Vinaykarthik.....	WePmPo.13	5504
.....	WeCT2.4	6343
Kamon, Masayuki.....	MoAT17.4	690
Kanada, Ayato.....	WeBT2.6	5616
Kanan, Christopher.....	MoBT1.4	770
Kanda, Takayuki.....	TuPmPo.33	3166
Kaneishi, Mamoru.....	MoBT10.4	1141
Kaneko, Alex Masuo.....	MoAT14	CC
.....	MoAT14.6	575
Kaneko, Hiroyuki.....	WeAT5.1	4869
Kaneko, Makoto.....	MoBT10.6	1153
Kaneko, Makoto.....	TuAT16.1	2969
.....	TuBT18	CC
Kaneko, Taisei.....	TuAT9.5	2705
Kanellakis, Christoforos.....	MoCT9.2	1839
Kanemoto, Yoshiki.....	WeAT5.1	4869
Kang, Changkoo.....	TuBT8.2	3479
.....	TuCT6.6	4173
Kang, Hansol.....	TuAT2.4	2410
.....	TuCT5.6	4131
.....	WeAT5.5	4897
Kang, Sang Hoon.....	TuAmPo.43	3130
.....	TuBT11.6	3629
Kangmok, Lee.....	MoAmPo.3	2265
Kannala, Juho.....	TuCT12.1	4400
Kannan, Anitha.....	TuCT6.1	4137
Kanoulas, Dimitrios.....	WeBT10.1	5908
Kantor, George.....	WeAT12.2	5162
Kanzaki, Ryohei.....	MoCT15.4	2114
Kapila, Vikram.....	TuBT6.6	3423
Kappler, Daniel.....	MoAT7.2	266
.....	WeAT1.4	4723
Kapusta, Ariel.....	WeAT18.1	5406
Kar, Indra Narayan.....	WeCT16.6	6943
Karaman, Sertac.....	TuBT17.2	3846
Karapetyan, Nare.....	MoCT9.3	1847
Karapetyan, Vazgen.....	MoBT16.6	1404
Karasawa, Takumi.....	WeAT10.6	5108
Karavas, George K.....	WeAT9.6	5065
Karavas, Nikolaos.....	MoCT5.6	1700

Karayiannidis, Yiannis.....	SuFW1	C
.....	SuFW1.1	*
.....	MoCT11.1	1914
Karkowski, Philipp.....	WeCT1.6	6319
Karnan, Haresh.....	MoCT14.1	2049
Kartashov, Dmitriy.....	WeCT12.5	6770
Karydis, Konstantinos.....	WeAmPo.15	5465
Kasai, Takara.....	WeCT5.6	6477
Kashino, Zendai.....	WeCT9.5	6640
Kashiri, Navvab.....	SuFW7	C
.....	SuFW7.1	*
.....	WeAT2.4	4762
.....	WeAT2.5	4769
.....	WeBT2	C
.....	WeBT2.3	5594
Kassabian, Paul.....	TuCT10.5	4339
Kasyanov, Anton.....	WeCT10.2	6662
Katano, Takahiro.....	TuAT9.5	2705
Katdare, Pulkit.....	TuBT2.5	3247
Kato, Akira.....	MoPmPo.36	2342
Kato, Yuka.....	TuPmPo.11	3144
Kaufmann, Elia Marc.....	MoCT16.1	2136
Kaushik, Meha.....	MoBT9.3	1090
Kaushik, Rituraj.....	MoAT2.2	51
Kavathekar, Paritosh.....	MoBT4.1	879
Kavraki, Lydia.....	WeAT16.2	5326
Kawahara, Tomohiro.....	WePmPo.40	5530
Kawaharazuka, Kento.....	MoBT11.5	1188
.....	WeAT7.2	4956
.....	WeBT7.3	5804
Kawamura, Akihiro.....	MoAT9.5	371
Kawamura, Masaya.....	MoBT11.5	1188
.....	WeAT7.2	4956
.....	WeBT7.3	5804
Kawasaki, Koji.....	WeBT11.5	5977
Kawashima, Ryuta.....	WeAT9.4	5050
Kayacan, Erdal.....	WeBT12	C
.....	WeBT12.5	6020
Kayacan, Erkan.....	WeAmPo.25	5475
Kazakova, Vera.....	TuAT4.5	2500
Kazanzides, Peter.....	SuFW4	C
.....	SuFW4.1	*
.....	MoCT5	C
.....	MoCT5.5	1692
.....	TuBT16	C
.....	TuBT16.5	3832
Kazhoyan, Gayane.....	MoAT3.3	103
Kebude, Dogancan.....	WePmPo.31	5522
Kee, Vincent.....	WeBT6.6	5784
Kehl, Wadim.....	MoAT14.3	553
Kejriwal, Sahil.....	WePmPo.37	5527
Keller, Brenton.....	TuAT6.1	2550
Keller, James.....	TuAT8.3	2650
Kemp, Charlie.....	WeAT18.1	5406

Ken, Ichiryu	TuAT9.5	2705
Kenmogne, Ide-Flore.....	WeAT15.2	5285
Kennedy, Monroe	MoBT13.4	1261
Kensicher, Thibault.....	WeCT5.1	6440
Kerdegar, Hamideh	MoPmPo.12	2319
Kerl, Christian.....	MoAT15.3	599
Kermani, Mehrdad R.	WeBT12	CC
.....	WeBT12.2	5999
.....	WeCT2.2	6331
Khadem, Mohsen	SuFW12.1	*
Khalil, Islam S.M.....	MoAT9.2	350
.....	MoAT10	C
.....	MoCT10.6	1908
khan, aamir.....	WePmPo.7	5498
Khan, Arbaaz.....	WeAmPo.15	5465
Khan, Fouzia	TuAT5.4	2532
.....	TuPmPo.34	3167
Khanbeigi, Nazli	WeAmPo.3	5455
Khanna, Raghav.....	MoCT18.1	2220
Khatib, Maram	TuBT15.2	3768
Khatib, Oussama.....	MoBT4.4	900
.....	MoCT17.1	2178
Kheddar, Abderrahmane	WeAT8	C
.....	WeAT8.5	5017
.....	WeBT15	C
.....	WeBT15.4	6142
KHELLOUFI, Abdellah	MoBT15.2	1332
Khin, Phone May.....	MoBT11.4	1181
.....	TuAT10.5	2745
Khorrami, Farshad.....	MoCT1	C
.....	MoCT1.6	1532
Khoshelham, Kourosh.....	MoBT14.6	1318
Khurram, Muhammad.....	WeAmPo.6	*
Kibleur, Pierre.....	TuCT2.4	3989
Kientz, Terry	TuAT10.1	2718
Kiesel, Scott	TuAT13.4	2865
Kiguchi, Kazuo	MoAT13.3	515
KIKUCHI, Yasunori.....	MoAT8.6	336
Kikui, Kensuke.....	WeCT2.3	6337
Kilian, Jack	WeAT11.5	5142
Kim, Ayoung	MoPmPo.44	2349
.....	TuBT7.1	3431
.....	WeAT15.1	5277
.....	WePmPo.34	5525
Kim, ChangHwan	WeCT15.6	6902
Kim, Do-Hyeong.....	MoPmPo.31	2337
Kim, Dong Hwan	WeCT15.6	6902
Kim, Dongwon.....	TuBT11.6	3629
Kim, Gon-Woo.....	MoPmPo.18	2325
.....	MoPmPo.31	2337
.....	MoPmPo.32	2338
.....	TuAmPo.27	3114
Kim, H. Jin.....	MoCT6.3	1720
.....	TuBT2.4	3240

Kim, Hackchan	MoAT11.2	430
Kim, HoKeun	WeAT18.1	5406
Kim, Hoyeon.....	MoBT10.1	1120
Kim, Hwa Soo.....	TuAmPo.29	3116
.....	TuAmPo.30	3117
Kim, Hwi-su	MoAmPo.8	2270
.....	MoAmPo.11	2273
Kim, Hyeongkeun	WeCT16.1	6908
Kim, Hyungjin	TuPmPo.30	3163
Kim, Jaeseung.....	TuPmPo.39	3171
.....	WeAmPo.10	5461
Kim, Jaewoong.....	WeAmPo.13	5463
Kim, Jehyeok.....	TuAmPo.35	3122
.....	TuPmPo.3	3136
.....	TuPmPo.37	3169
Kim, Jeonghun	MoBT8.4	1059
Kim, Jin Seob	MoAT5.5	201
Kim, Jin-Gyu.....	TuAmPo.38	3125
Kim, Jinhyun.....	TuAmPo.28	3115
Kim, JinWhan	MoAT16.6	662
KIM, JIWOONG.....	TuAmPo.20	3107
Kim, Jong-In	TuBT18.2	3889
Kim, Jongwon.....	MoPmPo.35	2341
.....	TuAmPo.29	3116
.....	TuAmPo.30	3117
.....	TuAmPo.35	3122
.....	TuPmPo.3	3136
.....	TuPmPo.37	3169
Kim, Joohee	WeAmPo.36	5486
Kim, Joohyung.....	WeBT8.6	5861
Kim, Jun-Sik	MoAT9.3	358
.....	WeBT12.1	5991
Kim, Jung	MoAmPo.37	2299
.....	WeAT2.2	4749
Kim, Jung Hoon.....	MoBT17.5	1444
Kim, Keonwoo	TuPmPo.3	3136
Kim, Kijung	TuAmPo.29	3116
.....	TuAmPo.30	3117
.....	TuAmPo.35	3122
Kim, Kristina	WeBT14.1	6075
Kim, Kun ho.....	TuBT18.3	3897
Kim, Kwang	TuAT2.6	2422
Kim, Kyunam.....	MoAT11.5	451
Kim, Kyungrock	MoCT8.1	1791
.....	WeBT7.5	5818
Kim, Min Jun.....	TuAT12.4	2822
Kim, Minjae.....	TuBT12.2	3643
Kim, MinJun.....	MoAT10.6	415
.....	MoBT10.1	1120
Kim, Sangbae.....	TuAT17.6	3042
.....	TuCT5.3	4108
Kim, Sangjoon J.	WeAT2.2	4749
Kim, Sungmin.....	MoAT5.5	201
Kim, Sungmin.....	MoCT5.5	1692

Kim, Suseong	MoCT6.3	1720
Kim, Uikyum	MoBT4.2	887
.....	WeAT5.5	4897
.....	WeCT2.1	6325
Kim, Wansoo	TuCT11.3	4368
Kim, Wonhui	WeCT6.3	6498
kim, Yong Bum	TuCT5.6	4131
.....	WeCT2.1	6325
Kim, Yong-Jae	MoBT8.4	1059
.....	MoCT8.1	1791
.....	TuBT18.2	3889
Kim, Youngji	TuBT7.1	3431
Kim, youngsoo	TuAmPo.29	3116
Kim, Youngsoo	TuAmPo.30	3117
Kimura, Shunsuke	WeCT7.4	6547
Kingry, Nathaniel	WeAT13.6	5233
Kinugawa, Jun	MoCT11.4	1938
.....	TuAT12	CC
.....	TuAT12.5	2830
.....	TuAT18.4	3070
Kirchhoff, Jérôme	MoAT11.1	422
Kirchner, Frank	TuBT9.2	3522
.....	WeAT13.4	5219
Kirschniak, Andreas	MoBT4.3	893
Kishen, Ashwin	TuCT18.3	4678
Kisner, Hannes	WeBT9.1	5868
Kissener, Konrad	MoCT4.4	1644
.....	MoPmPo.1	2308
Kiziltas, Gullu	WeBT4.4	5687
Klamt, Tobias	TuCT13.2	4450
Kleinbort, Michal	TuPmPo.21	3154
Kleiner, Alexander	WeAT16	C
.....	WeAT16.5	5346
Klingner, Anke	MoCT10.6	1908
Klischat, Moritz	MoBT17.6	1450
Kneip, Laurent	MoBT14.6	1318
Knepper, Ross A	WeCT13.5	6817
Knizhnik, Gedaliah	WeCT7.1	6526
Knoll, Alois	TuAT9.4	2699
Knoop, Espen	WeAT7.6	4982
Knowles, Martyn Richard Huw	MoPmPo.13	2320
Kobayashi, Akinari	MoCT11.4	1938
Kobayashi, Kento	WeBT2.4	5602
Kobayashi, Yo	MoPmPo.36	2342
Kobayashi, Yukinori	TuCT4.1	4055
Kobilarov, Marin	TuAT7.3	2610
.....	WeAmPo.5	5457
.....	WeBT13.5	6059
Kochanek, Nicholas	MoPmPo.4	2311
.....	MoPmPo.7	2314
Kochenderfer, Mykel	MoBT2.3	805
Koditschek, Daniel	TuBT13.6	3714
Koh, Je-Sung	TuCT2.1	3970
Koizumi, Ayanori	WeAT17.6	5398

Kojima, Kunio	MoAT9.6	377
.....	TuCT15.2	4537
.....	WeAT8.1	4990
.....	WeAT8.3	5003
Kojima, Ryosuke	TuPmPo.13	3146
.....	WeBT11.6	5985
Kojio, Yuta	TuCT15.2	4537
Kolling, Andreas	WeAT16.5	5346
Kollmer, Markus	MoCT5.2	1671
Komatsu, Hirone.....	MoCT12.6	1996
Komatsu, Mayumi.....	MoBT8.2	1047
Komendera, Erik.....	TuCT18	C
.....	TuCT18.3	4678
Kompatsiari, Kyveli.....	MoAmPo.31	2293
Komurasaki, Yuki	MoBT14.4	1306
Kondak, Konstantin	WeAT11.3	5128
Kondo, Toshiyuki.....	ThFW11.1	*
Kong, Kyoungchul	TuAmPo.19	3106
Kong, Weisheng	WeAT9.4	5050
Konyo, Masashi.....	MoCT12.6	1996
Koo, Ja Choon.....	TuBT11.1	3597
.....	WeBT17.5	6233
Koo, Jungmo	TuPmPo.30	3163
Kootstra, Gert	ThAW13.1	*
Kornatowski, Przemyslaw Mariusz..	WeCT14.5	6855
Kosecka, Jana.....	WeAT6	C
.....	WeAT6.2	4917
.....	WeAT6.6	4944
Koshiishi, Takeshi	WeAT5.1	4869
Kosuge, Kazuhiro.....	MoCT11.4	1938
.....	TuAT12.5	2830
.....	TuAT18.4	3070
Kounalakis, Tsampikos	ThAW13	C
.....	ThAW13.1	*
Koutsoukis, Konstantinos.....	WeAT5.2	4877
Kovac, Mirko.....	WeCT14.4	6849
Koval, Michael.....	WeBT4.5	5694
Kovecses, Jozsef	MoAmPo.27	2289
.....	MoPmPo.46	2350
.....	WeAT17	CC
.....	WeAT17.4	5382
Kowalewski, Timothy.....	MoBT5	CC
.....	MoBT5.3	935
KOZAI, Kentaro	TuPmPo.44	3175
Kozaki, Yuta	MoCT8.4	1813
Kraemer, Noah	MoAT9.1	342
Kraft, Dirk	TuCT17.5	4646
Kragic, Danica.....	TuAT1.1	2352
.....	TuPmPo.6	3139
.....	WeBT10.6	5941
Kramer, Rebecca	TuBT14.3	3734
Kranz, Matthias	MoAT9.2	350
Krasnosky, Kristopher	WeBT14.4	6098
Krebs, Florian	MoCT4.3	1637

Krell, Mario Michael.....	TuBT9.2	3522
.....	TuCT7.1	4179
Kreuzer, Edwin.....	TuCT7.2	4187
.....	WeBT18.3	6257
Kriegel, Simon.....	WeBT16.5	6191
Krieger, Axel.....	TuBT12.4	3659
.....	WePmPo.23	5514
Krieger, Yannick S.....	MoBT5.4	942
.....	MoBT12.6	1231
.....	MoCT5.2	1671
Krinkin, Kirill.....	WeCT12.5	6770
Krishna, Madhava.....	MoBT7.4	1020
.....	MoBT9.3	1090
.....	MoCT7.4	1769
.....	TuAT15.5	2954
.....	TuCT14.3	4501
.....	WeBT2.2	5587
Krishnamoorthy, Sai.....	TuBT6.6	3423
Krishnamurthy, Prashanth.....	MoCT1.6	1532
Krishnan, Girish.....	MoBT12.1	1202
Krishnan, Rakesh.....	MoPmPo.39	2344
.....	WeCT17.1	6951
Kristanto, Harris.....	MoBT13.6	1275
Kroeze, Zachary.....	MoAT6.2	223
Kronander, Klas.....	TuCT1.6	3962
Krouglicof, Nicholas.....	WeBT9.6	5900
Kruger, Volker.....	WeCT13.2	6793
Krupa, Alexandre.....	TuAT15.3	2942
.....	ThFW2.1	*
Krupke, Dennis.....	WeCT17.2	6959
Krupke, Dominik Michael.....	MoBT9.4	1098
Kruszewski, Alexandre.....	TuAT14.2	2896
Kry, Paul G.....	MoCT6.2	1714
Ku, Li Yang.....	TuAT3.2	2435
Kuang, Minchi.....	WeBT11.4	5971
Kuàng, wen wei.....	WeAT18.4	5429
Kuball, Clara-Maria.....	MoBT12.6	1231
Kubota, Keisuke.....	MoAT13.5	528
Kubota, Takashi.....	WeAT7.1	4950
.....	WeAmPo.33	5483
Kubus, Daniel.....	MoCT4.4	1644
.....	MoPmPo.1	2308
Kucner, Tomasz Piotr.....	SuFW2	C
.....	SuFW2.1	*
.....	MoAT15.6	621
Kudoh, Shunsuke.....	WeCT18.1	6985
Kudryavtsev, Andrey V.....	MoBT10.3	1135
Kuemmerle, Rainer.....	TuBT4.3	3318
Kuhner, Andreas.....	MoCT5.1	1665
Kuindersma, Scott.....	WeBT4.2	5674
Kukreja, Sunil, L.....	MoBT11.4	1181
Kularatne, Dhanushka.....	MoCT16.4	2159
.....	TuAmPo.14	3101
Kulic, Dana.....	MoCT12.2	1966

.....	MoCT18.5	2249
.....	TuAT1.6	2386
.....	ThFW9.1	*
.....	ThFW16	C
.....	ThFW16.1	*
Kulich, Miroslav	MoPmPo.40	2345
Kulkarni, Adwait.....	TuBT12.5	3667
Kumagai, Grace	TuBT14.5	3745
Kumar, Gourav	TuAT15.5	2954
Kumar, Sachin.....	TuPmPo.42	*
Kumar, Swagat.....	WeCT15.1	6863
Kumar, Vijay	MoBT13.4	1261
.....	MoCT9.1	1831
.....	MoCT9.6	1870
.....	TuAT8.3	2650
.....	TuAT10.4	2737
.....	TuAT13.5	2873
.....	TuCT8.1	4223
.....	WeAmPo.15	5465
.....	ThFW1.1	*
Kumle, Julian.....	WeAT2.3	4756
Kumon, Makoto	WeBT11.6	5985
Kumra, Sulabh.....	MoBT1.4	770
Kunii, Yasuharu	WeAmPo.33	5483
Kuntz, Alan	WeCT5.4	6463
Kuo, Anthony.....	TuAT6.1	2550
Kuo, Che-Nan.....	WeCT7.3	6541
Kuper, Jan	MoBT2.2	798
Kupnik, Mario	MoBT4.3	893
.....	MoCT8.6	1825
.....	MoAmPo.19	2281
Kurabayashi, Daisuke	MoCT15	CC
.....	MoCT15.4	2114
.....	MoAmPo.40	2302
Kurazume, Ryo.....	MoAT9	CC
.....	MoAT9.5	371
Kuri, Miwa.....	TuAT8.1	2638
Kuroda, Mitsuhide	WeAT5.1	4869
Kuroda, Yohei.....	WeCT5.6	6477
Kurumaya, Shunichi	WeBT7.2	5796
Kutsuna, Yusuke	WeCT18.1	6985
Kutsuzawa, Kyo.....	MoCT14.4	2069
Kuwajima, Yu	MoAT12.2	471
Kwak, Bokeon	TuBT2.1	3218
Kwak, Su-Hui.....	TuAmPo.46	3132
Kwiatkowski, Jennifer	MoAT7.5	287
Kwon, Ukjin	WeCT16.1	6908
Kyrki, Ville.....	WeBT4	C
.....	WeBT4.5	5694
L		
La, Hung.....	TuAT8	CC
.....	TuAT8.6	2673
.....	WeCT9	C
.....	WeCT9.6	6648

Ladosz, Pawel	WeAmPo.28	5478
.....	WeCT14.1	6831
Laganiere, Robert.....	TuPmPo.43	3174
Laghi, Marco.....	TuAT6.3	2565
Lagriffoul, Fabien.....	TuBT9.3	3528
Lahijanian, Morteza	WeAT16.2	5326
Laidlow, Tristan	WeCT12.1	6741
Lakic, Branka.....	WeAT18.5	5437
Lakshman, Mythreya	MoAT16.2	635
Laliberte, Thierry	TuCT17.3	4632
Lam, Quoc.....	TuBT14.2	3728
Lambert, Pierre.....	MoAT10.5	409
Lan, Menglu.....	TuAmPo.23	3110
Lanari, Leonardo	WeAT14.2	5245
Lancaster, Patrick.....	TuAT3.4	2449
Lane, David	WeCT13.3	6801
Lange, Johann.....	WeBT18.3	6257
Langlois, Kevin	WeBT7.4	5812
Lanillos, Pablo	WeCT3.3	6379
larrieu, nicolas	MoCT6	C
.....	MoCT6.1	1708
Larsson, Daniel	WeAT9.6	5065
Larsson, Johan.....	TuAT8.2	2644
Laschi, Cecilia	MoAT12.2	471
.....	MoCT15.1	2092
.....	TuBT14.6	3753
Lasota, Przemyslaw A.....	ThFW8.1	*
Latif, Yasir	WeAT10.2	5079
Lau, Tessa.....	MoBT3.2	841
Laugier, Christian	SuFW13.1	*
Laumond, Jean-Paul	MoAT17.6	706
Laurent, Guillaume J.	TuAT16.6	3001
Laurenzi, Arturo.....	WeBT2.3	5594
Lauri, Mikko	MoPmPo.20	2327
.....	WeAT6	CC
.....	WeAT6.5	4938
Lauzon, Jean-Samuel	TuAT4.2	2480
LaValle, Steven M	TuAT17.3	3021
Laven, Robin C.....	TuPmPo.40	3172
LaViers, Amy	WeAmPo.29	5479
.....	WeAmPo.32	5482
Lawry, Jonathan	TuCT10.4	4332
Le, Phi-Hung	WeAT6.6	4944
Le, Tiffany.....	WeBT6.6	5784
Lê, Tuấn Anh.....	MoCT10.4	1896
Le, Tuan	TuAT8.6	2673
LE MENEZ, STEPHANE.....	WeAmPo.8	5459
Learned-Miller, Erik	TuAT3.2	2435
Lebel, Philippe.....	TuAT18.5	3076
Lebesnerais, Guy	TuCT12.2	4408
Leclerc, Julien	TuBT12.3	3651
.....	WeCT5.1	6440
Lecuyer, Anatole	WeBT16.4	6185
Lee, Alex	WePmPo.34	5525

Lee, Beom-Hee	TuBT4.5	3333
.....	WeBT10.3	5922
Lee, Boram.....	WeAT6.4	4930
Lee, Chan.....	TuPmPo.35	3168
Lee, Dae-young.....	WeAmPo.11	5462
Lee, Daniel D.....	MoCT14.5	2077
.....	TuCT15.3	4544
.....	WeAT6.4	4930
.....	WeAmPo.15	5465
Lee, Deok-Won	TuBT18.2	3889
Lee, Dongheui	TuBT15.4	3783
.....	WeAT1.2	4709
Lee, Donghyun	TuPmPo.39	3171
Lee, Dongjun	MoAT11.2	430
Lee, Gihyeon	TuAmPo.28	3115
Lee, Gim Hee	MoBT1.3	764
Lee, Giuk	MoCT5.6	1700
Lee, Hyosang	MoAmPo.37	2299
Lee, Hyuk Jin.....	TuBT11.1	3597
Lee, Hyunwook.....	TuAmPo.46	3132
Lee, Hyunyoung	TuAT2.4	2410
.....	TuCT5.6	4131
.....	WeAT5.5	4897
Lee, Jangwon	MoCT1.1	1498
Lee, Jeongsoo.....	MoBT8.3	1053
Lee, Jinhoh.....	TuCT11.3	4368
.....	WeAT3.2	4791
.....	WeCT16.6	6943
Lee, Jongwon	MoBT8.4	1059
.....	MoCT8.1	1791
Lee, Jongwoo	MoBT17.5	1444
Lee, Jun-Young.....	WePmPo.24	5515
Lee, Junseok	MoAT7.4	280
Lee, Jusuk	MoCT8.3	1805
.....	WeBT7.5	5818
Lee, Kang Kyu.....	MoCT17.6	2214
.....	WeAT14.5	5263
Lee, Kiju	TuAmPo.10	3097
.....	WeCT2.6	6355
Lee, Kyeong Ha.....	TuBT11.1	3597
Lee, Kyungjae	TuCT1.2	3932
Lee, Mei-Hua.....	TuBT18.1	3883
Lee, Minhyung.....	MoBT8.4	1059
.....	MoCT8.1	1791
Lee, Sang-Chul	TuAmPo.38	3125
Lee, Sang-Duck.....	MoAmPo.17	2279
Lee, Sang-Eui.....	MoCT8.3	1805
Lee, Sang-Wook.....	WeBT12.1	5991
Lee, Sean	MoAT16.2	635
Lee, Sehyung	TuAT4.1	2472
Lee, Seung Hee	TuPmPo.30	3163
Lee, Su-Lin	WeAT3.3	4797
Lee, Sukhan	WeAmPo.13	5463
Lee, W.-H.	MoAmPo.15	2277

Lee, Woongyong	TuAT12.4	2822
Lee, Yoon Haeng	TuAT2.4	2410
.....	TuCT5.6	4131
.....	WeAT5.5	4897
.....	WeCT2.1	6325
Lee, Younbaek	MoBT8.4	1059
.....	MoCT8.1	1791
Lee, Young Hun	TuAT2.4	2410
.....	TuCT5.6	4131
.....	WeAT5.5	4897
Leemann, Philipp.....	TuAT8.4	2658
Lefeber, Dirk.....	MoCT4.1	1625
Lefeber, Dirk.....	MoCT15.6	2129
.....	WeBT7.4	5812
Lefeber, Dirk.....	WeBT7.6	*
Lefort-Piat, Nadine	MoBT10.3	1135
Lehmann, Hagen.....	MoAT17.2	675
Lehner, Hannah.....	WeBT16.5	6191
Lehner, Peter.....	TuAT13.2	2852
Leibe, Bastian.....	WeCT10.2	6662
Leibfried, Felix.....	MoBT2.1	790
Leibrandt, Konrad.....	MoAT5.4	193
.....	MoAT5.6	209
Lenac, Kruno	MoBT7.3	1013
Lenz, Alexander	WeCT8.6	6601
Lenzi, Tommaso.....	MoBT8.5	1065
Leonard, John	WeBT1.1	5533
.....	ThBW13.1	*
Leonard, Simon	TuBT12.4	3659
Leonessa, Alexander.....	MoAT17.1	668
Leong, Ching Ying, Florence.....	WeBT5.3	5723
Lepora, Nathan.....	WeAT3.5	4813
.....	WeCT3	CC
.....	WeCT3.1	6363
Létourneau, Dominic.....	TuAT4.2	2480
Leutenegger, Stefan.....	WeCT12	C
.....	WeCT12.1	6741
Levine, David.....	TuAmPo.6	3093
Levine, Sergey	MoAT2.6	79
Lewis, Andrew	TuBT9.5	3544
Lewis, Jeremy	WeBT3.2	5630
Li, Adrian	MoAT2.6	79
Li, Bai	TuBT13.3	3695
Li, Bing	MoPmPo.6	2313
Li, Bing	MoPmPo.42	2347
Li, Bing	TuAmPo.34	3121
Li, Bingxi.....	WePmPo.2	5494
Li, Bo	MoCT1.3	1514
Li, Boren.....	TuCT6.6	4173
Li, Cao	TuBT2.3	3232
Li, Chang	TuAT2.2	2398
Li, Chen	ThFW10.1	*
li, en.....	MoAmPo.39	2301
Li, Guotao.....	TuAmPo.34	3121

Li, Hanjun	TuCT10.6	4347
Li, Haoang	MoBT14.2	1290
Li, Hongxiang	WeBT14.2	6083
Li, Huawei	MoAT10.1	384
Li, Jialu	WeAmPo.32	5482
Li, Jianquan	WePmPo.27	5518
.....	WeBT10.4	5928
Li, Jiaxin	MoBT1.3	764
.....	TuAmPo.23	3110
Li, Jie	TuAmPo.2	3089
Li, Jimmy	MoAT16.5	656
.....	TuCT7.3	4195
Li, Kang	TuAT2.2	2398
Li, Liang	MoBT7.1	999
Li, Liang	WeAT2.1	4743
Li, Lu	MoBT4.5	907
Li, Ning	TuBT12.6	3675
Li, Patrick	WeAT15.5	5304
Li, Pu	TuBT13.3	3695
Li, Rui	WeAT2.1	4743
Li, Sheng	WePmPo.22	5513
.....	WeCT4	CC
.....	WeCT4.3	6420
Li, Shibao	TuAT16.2	2975
Li, Shile	TuBT15.4	3783
Li, Shuai	TuBT9.5	3544
Li, Teng	MoAT3.4	109
Li, Wei	MoAT18.5	742
Li, Wei	MoPmPo.42	2347
Li, Wei	MoPmPo.47	2351
.....	TuBT17.6	3875
Li, Wenbin	WeCT12.1	6741
Li, Wenqi	WeBT5.2	5717
Li, Xiang	MoCT4.5	1652
Li, Xiao	TuBT17.1	3840
Li, Xiaojian	MoBT10.5	1147
Li, Xiaoning	TuAT2.3	2404
Li, Xiaoqing	WeAT2.1	4743
Li, Xiaowei	MoAT1.3	17
Li, Yan	MoPmPo.29	2335
Li, Yangmin	MoAT10.1	384
Li, Yangming	TuBT9.5	3544
Li, Yibin	MoAmPo.7	2269
Li, Yong-Dong	TuAT12.6	2836
Li, You-Fu	TuCT9.6	4304
.....	WeAT6.1	4911
Li, Zexiang	WeAT4.2	4835
.....	WeAT11.4	5135
li, zheng	TuAT14.3	2903
Li, Zhi	TuCT7.6	4215
Li, Zi-Jun	TuCT6.2	4145
Liang, Hongbo	WeAT8.4	5011
Liang, Xinquan	WeBT17.2	6214
liang, zize	MoBT6.3	974

.....	MoAmPo.39	2301
Liarokapis, Minas	MoAT7.6	294
.....	MoCT11	C
.....	MoCT11.6	1952
Likar, Nejc	MoCT17.3	2193
Likhachev, Maxim.....	SuAW8.1	*
Lilienthal, Achim J.	SuFW2.1	*
.....	MoAT15.6	621
.....	MoBT16	CC
.....	MoBT16.4	1390
.....	WeAmPo.40	5490
Lim, Angelica.....	MoAmPo	C
.....	MoPmPo	C
.....	TuAmPo	C
.....	TuPmPo	C
Lim, Bokman	WeBT7.5	5818
Lim, Jongwoo	TuAT4.1	2472
.....	WeCT15.3	6879
Lima, Camila	WePmPo.35	*
Lima, Pedro U.	MoAmPo.32	2294
Lin, Hongbin	WeAT18.4	5429
Lin, Hsien-Chung.....	MoBT13.5	1268
.....	TuAT3.1	2428
Lin, Jonathan.....	MoCT18.5	2249
Lin, Kewei.....	TuAT10.6	2752
Lin, Liang.....	TuBT7.4	3452
Lin, Lillian	TuAmPo.11	3098
Lin, Lishan	MoCT6.5	1733
Lin, Szu-Yu.....	WeCT7.3	6541
Lin, Wei	WeAT13.3	5211
Lin, Yi	TuBT13.2	3687
Lin, Yuan	WeBT14.2	6083
Lindenroth, Lukas.....	TuAT14.6	2924
.....	TuBT14.1	3722
Lindner, Felix.....	WeCT18.2	6991
Ling, Yonggen	MoBT16.2	1375
Lioutikov, Rudolf.....	WeAT13.5	5225
Lipson, Hod	TuCT18.2	4670
Lipton, Jeffrey.....	TuBT6.5	3415
Lisini Baldi, Tommaso	WeCT3.6	6400
Little, James J.	WeCT15.4	6886
Liu, An-Sheng.....	TuCT6.2	4145
Liu, Chang	MoCT12.4	1980
Liu, Chang	TuPmPo.10	3143
Liu, Chang	WeAT8.4	5011
liu, chaoran.....	WeAT16.3	5333
Liu, Chengju	TuCT16.6	4611
Liu, Dikai.....	WeCT7.5	6555
Liu, George H. Z.....	TuCT2.2	3977
Liu, Hangxin	TuBT9.4	3536
.....	WePmPo.18	5509
.....	WeCT9.2	6617
Liu, Hongbin	SuFW10	C
.....	SuFW10.1	*

.....	TuAT14	CC
.....	TuAT14.6	2924
.....	TuBT14.1	3722
Liu, Hongsen	WeBT10.5	5934
Liu, Jia	MoCT10.2	1884
Liu, Jindong	MoAT5.6	209
Liu, Karen	TuAT12.1	2800
.....	TuCT1.4	3946
Liu, Lantao.....	WeBT13	C
.....	WeCT13	CC
.....	WeCT13.1	6785
Liu, Li.....	TuAT5.2	2518
Liu, Miao.....	MoBT15	CC
.....	MoBT15.4	1344
.....	MoCT9.4	1854
Liu, Ming.....	MoAT1	CC
.....	MoAT1.5	31
Liu, Peidong	MoCT7.1	1747
Liu, Peilin.....	MoCT16.5	2165
Liu, Shice.....	MoAT1.3	17
Liu, Sikang.....	TuAT13.5	2873
Liu, Stefan Boson	MoBT15.5	1352
Liu, Tao	WeCT2.6	6355
Liu, Tian.....	TuCT2.6	4002
Liu, Tianbo.....	TuCT8.3	4239
LIU, XIAODONG	MoAmPo.12	2274
Liu, Xiaolong.....	TuBT12.6	3675
Liu, Xilong.....	WeBT10.4	5928
Liu, Xin	WePmPo.4	5496
Liu, Xinghua	TuAT14.4	2910
.....	TuAT14.5	2917
Liu, Xinyu.....	MoAT12	CC
.....	MoAT12.5	489
Liu, Yang	TuAmPo.10	3097
Liu, Yanheng	MoAmPo.4	2266
Liu, Yaowei.....	TuAT16.2	2975
Liu, Yen-Chen	WeAT13.6	5233
Liu, Yong	MoCT3	C
.....	MoCT7.5	1776
Liu, Yunhui	MoCT4.5	1652
.....	MoCT5.5	1692
.....	MoAmPo.20	2282
.....	MoAmPo.28	2290
.....	WeAmPo.12	*
Liu, Zhaoming.....	MoPmPo.42	2347
Liu, Zhongchang.....	MoCT6.5	1733
.....	TuBT7.4	3452
Liu, Zhongxuan.....	MoAmPo.36	2298
.....	MoAmPo.42	*
Liu, Ziwei	MoCT5.5	1692
Lizarralde, Fernando	WeBT10	C
.....	WeBT10.2	5916
Llofri, Martin.....	MoBT16.6	1404
Lodi Rizzini, Dario	MoAT16.4	649

Lofaro, Daniel	TuPmPo.9	3142
Loianno, Giuseppe	TuAT8.3	2650
	TuCT8.1	4223
	ThFW1	C
	ThFW1.1	*
Long, Xianchao	TuCT13.3	4458
Lonsford, Jarrett	MoBT10.1	1120
	TuAmPo.16	3103
Lopes, Manuel	TuAT11.4	2779
	WeBT15.3	6134
Lopes, Pedro Filipe Alhais	TuBT14.4	3740
Lopez, Brett	MoBT15.6	1359
Lopez-Nicolas, Gonzalo	WeBT6.2	5756
Lorenz, Michael	WeAT17.3	5376
	WeBT3.3	5638
Losier, Yves	WeAmPo.20	5470
Lottes, Philipp	WeAT12.1	5155
Lou, Yunjiang	MoCT14	C
	MoCT14.3	2063
Lourakis, Manolis	TuBT15.6	3797
Low, Jin Huat	MoBT11.4	1181
LU, Bo	WeBT5.1	5710
Lu, Dongcai	WeCT8.3	6582
Lu, Haojian	MoCT10.5	1902
Lu, Xiaohu	MoBT14.2	1290
Lu, Yi	TuAT5.2	2518
Luck, Kevin Sebastian	WeAT3.4	4805
Ludovico, Daniele	TuCT2.3	3983
	WePmPo.42	5532
Lueth, Tim C.	MoBT5.4	942
	MoBT12.6	1231
	MoCT5.2	1671
Luettel, Thorsten	TuBT13.1	3681
Luft, Lukas	WeCT10.4	6678
Lunghi, Giacomo	WeAmPo.34	5484
Luo, Dingsheng	WeAmPo.19	5469
Luo, Ming	MoCT15.2	2099
Luo, Ren	MoCT1.4	1520
	ThFW12.1	*
Luo, Shuangqi	WeAT18.4	5429
Luo, Yudong	TuAT2.1	2392
	TuAT2.6	2422
Lussier Desbiens, Alexis	TuAT4.2	2480
Lütkebohle, Ingo	MoBT15.5	1352
LV, Jixin	TuCT4.1	4055
Lyu, Ximin	WeAT4.2	4835
	WeAT11.4	5135
M		
M. Gutierrez-Farewik, Elena	MoPmPo.39	2344
Ma, Chao	WeAT2.1	4743
Ma, Jiayi	MoBT14.1	1283
Ma, Lingni	MoAT15.3	599
Ma, Qianli	MoCT5.5	1692
Ma, Shugen	MoBT14.4	1306

.....	WeAT7	C
.....	WeAT7.4	4969
.....	WeBT7.1	5790
.....	WeBT18	C
.....	WeBT18.1	6245
Ma, Xin	MoAmPo.7	2269
Ma, Yi	WeBT9.5	5892
Ma, Zhibei.....	WeCT13.1	6785
MacCurdy, Robert	TuCT18.2	4670
Macedo, Nuno	TuBT17.4	3861
Machairas, Konstantinos	WeAT5.2	4877
Maciejewski, Anthony A.	MoCT4	C
.....	WeAT18.3	5421
Madaan, Ratnesh	TuBT8.4	3493
Maeda, Guilherme Jorge.....	TuAT11.4	2779
Maeda, Shingo	MoAT12.2	471
Maeda, Takanobu	MoAmPo.21	2283
Maeda, Takao	WeAmPo.33	5483
Maffra, Fabiola	MoAT1.2	9
Magalhães, Paulo Henrique Vieira..	WePmPo.29	5520
Magdassi, Shlomo.....	WePmPo.23	5514
Maggiali, Marco	MoAT17.2	675
Magistro, Daniele	WeAT9.4	5050
Magnusson, Martin.....	SuFW2.1	*
.....	MoAT15	CC
.....	MoAT15.6	621
.....	MoBT16.4	1390
.....	TuCT4	C
.....	TuCT4.3	4070
.....	WeAmPo.40	5490
Magrini, Emanuele	TuCT17.1	4617
Mahadev, Arun	MoBT9.4	1098
.....	TuAmPo.13	3100
.....	TuCT10.1	4310
Mahmoudian, Nina	WePmPo.2	5494
Mahoney, Art	WeCT5.4	6463
Mahony, Robert.....	MoCT3.6	1617
Maia, Marco.....	MoBT6.1	962
Maier, Moritz.....	WeAT11.3	5128
Majewicz, Ann	MoPmPo.15	2322
.....	MoPmPo.16	2323
Majidi, Carmel	TuBT14.4	3740
Majji, Manoranjan.....	MoCT14.1	2049
Majumdar, Srinjoy	WeAT18.5	5437
Maki, Atsuto.....	TuAT1.1	2352
Makino, Shogo	MoBT11.5	1188
.....	WeAT7.2	4956
.....	WeBT7.3	5804
Makita, Satoshi.....	MoAmPo.21	2283
.....	MoAmPo.35	2297
Malav, Ramavtar	MoPmPo.44	2349
Maldonado, Fabien.....	WeCT5.4	6463
Malekshahi, Saunon Rod	WeAT7.5	4976
Maley, James	WeCT12.2	6749

Malley, Melinda	WeCT7.2	6533
Malmir, Mohsen.....	TuCT9.3	4282
Malvezzi, Monica.....	MoBT11.6	1194
Malzahn, Jörn.....	SuFW7.1	*
.....	WeAT2.4	4762
.....	WeAT2.5	4769
.....	WeBT2.3	5594
Manamanchaiyaporn, Laliphat	MoAT10.4	402
Manchester, Zachary.....	WeBT4.2	5674
Mancini, Massimiliano	WeBT1.6	5572
Manderson, Travis.....	TuCT7.3	4195
Mandlekar, Ajay Uday	TuCT1.3	3938
Manjanna, Sandeep	WeBT14.6	6111
Mann, George K. I.....	TuCT12.3	4416
.....	WeAT4.3	4842
Manocha, Dinesh	MoBT9.3	1090
.....	MoBT13.3	1253
.....	TuAT7	C
.....	TuAT7.6	2630
.....	WeAT13	C
.....	WePmPo.22	5513
.....	WeCT4	C
.....	WeCT4.3	6420
.....	WeCT18	CC
.....	WeCT18.6	7018
Mansard, Nicolas.....	MoAT17.6	706
Mansfeld, Nico.....	WeAT17.2	5368
.....	WeAT17.5	5390
Mansouri, Masoumeh.....	TuBT9.3	3528
Manti, Mariangela.....	TuBT14.6	3753
Manzoor, Sheryl	MoBT10.1	1120
Mao, Huitan	MoAT11.6	457
Maragos, Petros	WeAT9.1	5031
Marani, Giacomo	SuFW9.1	*
Marchand, Eric	TuAT15	CC
.....	TuAT15.2	2936
.....	WeAT15.2	5285
.....	WeBT16.4	6185
Marchand, Nicolas.....	WeBT11.3	5965
margan, alessio	WeBT2.3	5594
Marin, Raul	WeAmPo.34	5484
Mariottini, Gian Luca	WeBT6.6	5784
Maris, Bogdan Mihai.....	MoPmPo.22	2329
Marjovi, Ali.....	TuCT2.4	3989
Markham, Andrew	WeCT12.6	6777
Markovic, Ivan	MoBT7	C
.....	MoBT7.3	1013
.....	MoCT12	CC
.....	MoCT12.2	1966
Marmol, Andres.....	WeCT11.2	6707
Marshall, James A. R.	MoAT9.4	364
Marshall, Joshua A.....	TuAT8.2	2644
Martin, Sean.....	TuCT12.6	4436
Martín-Martín, Roberto	TuBT3.5	3289

Martinelli, Agostino	TuCT12.4	4422
Martinet, Philippe	SuFW13	C
.....	SuFW13.1	*
Martinez, Santiago	WeAmPo.39	5489
Martinez-Hernandez, Uriel	WeCT11.6	6735
Martinoli, Alcherio	MoBT9.5	1106
.....	TuCT2.4	3989
.....	TuCT18.1	4662
Martins, Renato	WeBT6.1	5750
Martinson, Eric	MoBT3.1	835
Marton, Zoltan-Csaba	WeAT10.3	5086
.....	WeBT9.1	5868
Marvel, Jeremy	TuPmPo.18	3151
Marvi, Hamidreza	ThFW10.1	*
Mashimo, Tomoaki	WeBT2.6	5616
Masi, Alessandro	MoAmPo.25	2287
.....	WeAmPo.34	5484
Mason, Matthew T.	TuCT3.1	4009
.....	ThFW14.1	*
Masri, Diar	TuCT5.2	4102
Massouh, Nizar	WeBT1.5	5564
Masuda, Yuya	TuPmPo.27	3160
Matas, Jiri	TuCT12.1	4400
Mathijssen, Glenn	MoCT15.6	2129
Matich, Sebastian	MoBT4.3	893
.....	MoAmPo.19	2281
Matikainen, Pyry	WeBT6.4	5770
Matsubara, Hiroyuki	TuBT4.2	3312
Matsubara, Takamitsu	MoCT2.2	1546
.....	TuAT18.3	3064
Matsuda, Yasuhiro	WeCT5.6	6477
Matsumoto, Yoshio	MoAT14.5	569
Matsumoto, Yuya	MoPmPo.36	2342
Matsuno, Fumitoshi	MoPmPo.37	2343
Matsuo, Tadashi	TuAT1.2	2360
matsuo, yuki	WeBT2.4	5602
Matsuura, Daisuke	WeCT2.3	6337
Matsuzawa, Takashi	WeAT17.6	5398
.....	WeCT7.4	6547
Matteucci, Matteo	TuBT7	CC
.....	TuBT7.6	3466
Matthies, Larry	MoAT7.1	258
Maturana, Daniel	TuBT8.4	3493
.....	WeCT10.6	6691
Maurer, Christoph	MoCT5.1	1665
Maurice, Pauline	TuCT11.4	4376
Maushart, Florian	MoCT9.1	1831
Mavrakis, Nikos	TuCT3.5	4040
Mavrogiannis, Christoforos	WeCT13.5	6817
Mayol, Walterio	TuCT8.5	4254
Maza, Ivan	MoCT6.6	1740
Mazuran, Mladen	TuBT1.1	3176
Mazzolai, Barbara	MoCT15.1	2092
McBride, James	MoCT16.2	2144

McCann, Connor	MoBT11.1	1159
McCann, Lance	TuPmPo.28	3161
McCool, Christopher Steven	WeAT12.4	5174
McDaid, Liam	MoAT18.5	742
McGuire, Kimberly	MoAT6.5	244
McKinley, Philip	WeAmPo.1	5453
McKinney, Chris	MoCT9.3	1847
McLain, T.W.	WeBT1.4	5557
McMahon, James	MoAT3.1	87
McMahon, Sean M	WeAT9.5	5057
McMahon, Troy	TuCT3.4	4032
McPhee, John J.....	MoAT13.1	503
McWilliams, Jessica	WeCT7.1	6526
Mead, Ross	SuFW18.1	*
.....	MoAT9.1	342
Medeiros, Henry	TuPmPo.18	3151
.....	TuPmPo.20	3153
.....	WeBT12.3	6005
Medeiros, Thomas.....	TuAmPo.9	3096
Mees, Oier.....	TuBT1.1	3176
Meger, David Paul.....	MoAT16.5	656
Mehrabi, Naser.....	MoAT13.1	503
mehrandezh, mehran	TuAmPo.3	3090
.....	TuAmPo.21	3108
.....	WeAT11.1	5116
Mehrez, Mohamed W.....	WeAT4.3	4842
Meier, Franziska.....	WeAT1.4	4723
Meier, Martin	MoCT17.4	2201
Melenbrink, Nathan	TuCT10.5	4339
Melo, Francisco S.....	TuAT11.6	2794
.....	TuBT11.5	3623
Melo, Kamilo.....	TuAT9.3	2692
.....	TuBT5.5	3372
.....	WeAT5.6	4903
Menegatti, Emanuele	TuCT6.5	4165
.....	WeCT9.3	6625
Meng, Lili	MoAT3.4	109
.....	WeCT15.4	6886
Meng, Max Q.-H.	MoAT3.4	109
.....	MoBT5.6	954
.....	MoAmPo.2	2264
.....	MoAmPo.9	2271
.....	TuAT5.2	2518
.....	WeBT14.2	6083
Menon, Samir	MoBT4.4	900
Mercado Ravell, Diego Alberto.....	MoBT6.1	962
Merckaert, Kelly.....	MoCT4.1	1625
Mérida Floriano, Macarena	TuPmPo.15	3148
Merino, Luis.....	MoAT3	C
.....	MoAT3.6	123
.....	TuPmPo.15	3148
.....	TuBT8	C
.....	TuBT8.5	3501
.....	TuCT4.4	4076

Merkt, Wolfgang Xaver.....	TuAT13.1	2844
Merlet, Jean-Pierre.....	WeCT17	C
.....	WeCT17.4	6973
Mesanan, George.....	TuCT15.6	4566
Metka, Benjamin.....	MoBT14.5	1312
Metta, Giorgio.....	MoAT17.2	675
.....	MoAT17.3	682
.....	MoAmPo.31	2293
Mian, Zohaib Tariq	ThFW15	C
.....	ThFW15.1	*
Miao, Fei.....	TuCT15.3	4544
Miao, Zhihuai.....	MoPmPo.6	2313
Michalatos, Panagiotis	TuCT10.5	4339
Michalson, William R.....	WeAmPo.9	5460
Michaud, Francois	TuAT4.2	2480
Mielle, Malcolm.....	WeAmPo.40	5490
Mikulski, Dariusz	WeCT8.2	6575
Milam, Mark B.	WeBT3.1	5622
Milford, Michael J	TuBT4.1	3304
.....	WeAT9.5	5057
.....	WeAT10.2	5079
.....	WeCT10.1	6654
.....	WeCT15.1	6863
Millar, Matthew	WeCT9.2	6617
Millard, Alan Gregory.....	MoAT18	CC
.....	MoAT18.5	742
Miller, Justin	TuCT14.1	4487
Miller-Jackson, Tiana	WeBT17.2	6214
Mimoso, Geovane	WePmPo.35	*
Min, Huaqing	TuAmPo.33	3120
Min, Zhe	MoBT5.6	954
Minai, Ali.....	WePmPo.30	5521
Minato, Takashi.....	WeCT18.3	6998
Mintchev, Stefano.....	TuCT7.4	4203
.....	WeCT14.5	6855
Miola, Wilson	WeAmPo.21	5471
.....	WePmPo.6	5497
.....	WePmPo.29	5520
Miquel, Thierry.....	MoCT6.1	1708
Mishra, Abhishek.....	WePmPo.21	5512
Misra, Sarthak	SuFW12.1	*
.....	TuAT5.4	2532
.....	TuPmPo.34	3167
Missura, Marcell	MoCT14	CC
.....	MoCT14.5	2077
Mitash, Chaitanya.....	MoAT14.2	546
Mitchell, Ian	MoAT3.4	109
Mitchinson, Ben.....	TuPmPo.7	3140
Mithrakumar, Jananan.....	MoBT4.4	900
Mitiche, Amar	MoAmPo.22	2284
Miyagusuku, Renato.....	WePmPo.39	5529
Miyamoto, Atsushi	WeCT5.6	6477
Miyasaka, Muneaki.....	TuAT5.6	2544
.....	TuBT9.5	3544

Miyazawa, Alvaro	MoPmPo.47	2351
.....	TuBT17.6	3875
Mizoue, Kouji.....	TuAT16.1	2969
Mizumura, Yujiro	TuAmPo.40	3127
Mizushima, Kaori.....	MoBT13.1	1237
.....	MoCT11.2	1922
Mo, Jiawei	WeAmPo.42	5492
Mo, Jixue	MoPmPo.6	2313
Mochiyama, Hiromi.....	MoAT11	CC
.....	MoAT11.3	437
.....	ThAW5	C
.....	ThAW5.1	*
Modasshir, Md.....	WePmPo.28	5519
MohaimenianPour, SeyedMehdi	WePmPo.11	5502
(Sepehr)		
.....	WePmPo.36	5526
Mohammadi, Alireza.....	WeBT5.3	5723
Mohammed, Samer.....	ThFW12.1	*
Mohd Faudzi, Ahmad `Athif.....	MoCT15.3	2106
.....	WeBT7.2	5796
Mohseni, Kamran	WeBT18.2	6251
Mohta, Kartik	TuAT13.5	2873
Mokaram, Saeid	MoPmPo.12	2319
Mokhtari, Vahid	WeBT13.1	6033
Mollard, Yoan	TuAT11.4	2779
.....	WeBT15.3	6134
Molledo, Marta	WeBT7.4	5812
Mombaur, Katja	WeBT8.4	5846
.....	ThFW16.1	*
Monica, Riccardo.....	WeCT6.2	6490
Monteiro, João Carlos	WeBT10.2	5916
Montesano, Luis	MoCT7.2	1754
Montufar, Guido.....	MoAT12.1	465
Moon, AJung	ThFW9.1	*
Moon, Deaho	MoAT11.5	451
Moon, Hyungpil	TuBT11.1	3597
.....	WeBT17.5	6233
Moore, Jared	WeAmPo.1	5453
Morachioli, Annagiulia	TuPmPo.4	3137
Morales, Antonio	MoAT7.2	266
Morales Bieze, Thor Enrique.....	TuAT14.2	2896
Morales Saiki, Luis Yoichi	TuAT18	CC
.....	TuAT18.2	3057
.....	TuPmPo.33	3166
.....	TuBT7	C
.....	TuBT7.5	3458
Mordig, Maximilian	TuCT18.1	4662
Morellas, Vassilios.....	WeBT15.6	6155
Moreno-Noguer, Francesc	WeBT6.5	5777
Moretti, Caio Benatti.....	MoCT4.2	1631
Moridian, Barzin	WePmPo.2	5494
Morihiro, Daiki	MoPmPo.9	2316
Morimoto, Jun.....	TuAT18.3	3064
.....	TuCT11.5	4384

Morimoto, Tania K.....	WePmPo.25	5516
Morita, Ryosuke.....	TuPmPo.27	3160
Morito, Takayuki.....	WeBT11.6	5985
Morton, Scott.....	WeAT11.6	5149
Moser, Tim Fabian.....	MoBT5.4	942
Moshe, Vardi.....	WeAT16.2	5326
Motto Ros, Paolo.....	MoAT4.6	166
Mouret, Jean-Baptiste.....	SuBW16	C
.....	SuBW16.1	*
.....	MoAT2	CC
.....	MoAT2.2	51
.....	MoPmPo.24	2331
.....	TuAmPo.4	3091
Mourikis, Anastasios.....	WeCT10	C
.....	WeCT10.3	6670
Moutarde, Fabien.....	TuBT4.6	3339
Muffert, Maximilian.....	TuCT4.5	4083
Mukherjee, Ranjan.....	TuBT18.1	3883
Mukhopadhyay, Shayok.....	MoBT16.5	1397
Mulla, David.....	WeBT15.6	6155
Munaro, Matteo.....	WeCT9.3	6625
Munawar, Asim.....	MoBT2.5	820
Munich, Mario Enrique.....	MoBT16.6	1404
.....	WeAT16.5	5346
Murakami, Kenta.....	MoBT8.2	1047
Murali, Srivathsan.....	WeBT15.2	6126
Murao, Yoshiki.....	TuBT18.5	3909
Muratore, Luca.....	WeBT2.3	5594
Murillo, Ana Cristina.....	WeBT15.3	6134
Murko, Cornelia.....	TuCT11.2	4360
Murphy, Robin.....	MoAmPo.24	2286
.....	WeBT14.5	6105
Murray, Richard.....	WeBT13.2	6039
Murrieta-Cid, Rafael.....	TuCT13.4	4466
Musca, Jeanne-Marie.....	MoAT12.3	477
Muscolo, Giovanni Gerardo.....	WePmPo.42	5532
Musić, Selma.....	TuAT6.2	2557
Mustafin, Ruslan.....	TuAT7.5	2624
Mustaniemi, Janne.....	TuCT12.1	4400
Muthugala Arachchige, Viraj	WeCT8.1	6567
Jagathpriya Muthugala.....		
Mutlu, Mehmet.....	WeAT5.6	4903
Muxfeldt, Arne.....	MoCT4.4	1644
.....	MoPmPo.1	2308
Myeong, Wancheol.....	TuPmPo.16	3149
Myung, Hyun.....	TuPmPo.16	3149
.....	TuPmPo.30	3163
N		
NA, JUNHAN.....	WeBT18.4	6264
Na, Youngjin.....	WeAT2.2	4749
Nabae, Hiroyuki.....	TuAT9.6	2711
Nabeel, Muhammad.....	MoBT4.6	915
.....	WeAmPo.6	*
Nagai, Mamoru.....	WeAT7.1	4950

Nagamatsu, Yuya.....	WeAT14.1	5239
NAGAO, Daisuke	WeCT5.6	6477
Nagatani, Keiji	TuAT8	C
.....	TuAT8.1	2638
Nagayama, Kazuki	MoPmPo.37	2343
Nager, Yannik.....	WeAT4.1	4828
Nagpal, Radhika.....	WeAmPo.27	5477
.....	WeCT7.2	6533
Nagura, Yuki.....	MoBT8.1	1041
Nagy, Geoff	MoPmPo.14	2321
Nah, Moses C.....	WeCT16.1	6908
Najjaran, Homayoun.....	MoBT1	C
.....	MoBT1.6	784
.....	WePmPo.32	5523
Nakadai, Kazuhiro	TuPmPo.13	3146
.....	WeAmPo.16	5466
.....	WeBT11	C
.....	WeBT11.6	5985
Nakamoto, Hideichi	TuAmPo.31	3118
Nakamura, Takashi	TuPmPo.24	3157
Nakamura, Taro	MoBT8.1	1041
.....	TuBT18.4	3903
.....	WeAT7.1	4950
Nakamura, Yuki.....	TuAT16.3	2981
Nakao, Manabu	TuAmPo.36	3123
Nakashima, Kazuto	MoAT9.5	371
Nakatake, Toyoharu.....	WeAT7.1	4950
Nakhaeinia, Danial	TuPmPo.43	3174
Nalepka, Patrick	WePmPo.30	5521
Nalpantidis, Lazaros.....	WeAT1.3	4716
.....	ThAW13.1	*
Napoli, Michael.....	TuCT13.1	4442
Naqi, Obaid	WeAmPo.6	*
Narang, Sahil.....	TuAT7.6	2630
Narayan, Meenakshi	MoPmPo.16	2323
Nardi, Daniele.....	TuCT10.3	4325
Nascimento, Erickson.....	WeAmPo.24	5474
Naseer, Tayyab	MoCT1.5	1526
Natale, Lorenzo	MoAT4.6	166
.....	MoAT17.2	675
.....	MoAT17.3	682
.....	MoBT17.1	1412
Natarajan, Ramkumar	WeAT13.1	5196
.....	WePmPo.38	5528
Nava, Gabriele	MoCT17.2	2186
Navarro, Benjamin.....	WeCT1.2	6293
Navarro-Alarcon, David	MoAmPo.26	2288
Nawroj, Ahsan.....	TuBT10.4	3575
.....	WeCT4.5	6434
Nebel, Bernhard	WeBT13.4	6053
.....	WeCT18.2	6991
Nefian, Ara	TuAT8.5	2666
Nefti-Meziani, Samia	MoAT13.6	534
Nejat, Goldie.....	WeCT9.5	6640

Nelakuditi, Srihari	TuPmPo.8	3141
Nelson, Bradley J.	MoAT5.2	181
Nelson, Carl.....	TuBT10	CC
.....	TuBT10.2	3562
Nemec, Bojan.....	MoCT17.3	2193
Neubert, Peer	TuAT4.4	2493
Neumann, Gerhard.....	WeAT13.5	5225
.....	WeBT4.5	5694
Neunert, Michael	WeBT4.6	5702
Neupert, Carsten	MoBT4.3	893
Neves, Gustavo	WePmPo.35	*
Neves dos Santos, Filipe.....	TuBT17.4	3861
Newbrook, Leonard	MoAT18.5	742
Newman, Wyatt	WeAT9.3	5043
Ng, Sze Hang	TuAT14.3	2903
Nguyen, Anh.....	WeBT10.1	5908
Nguyen, Canh Toan	MoBT4.2	887
.....	WeBT17.5	6233
Nguyen, Dung	WeAT1.5	4731
Nguyen, Kim-Doang	WeCT7.5	6555
Nguyen, Thien-Minh	MoCT3.4	1603
Nguyen, Tien Dat	MoBT4.2	887
.....	WeBT17.5	6233
Nguyen, Trung.....	TuCT12.3	4416
Nguyen, Ty	WeAT1.5	4731
NICODEME, Claire.....	MoPmPo.26	2333
Nicolis, Davide.....	WeCT3.5	6393
Nie, Mengxi	WeAmPo.19	5469
Niekum, Scott	TuAT17.1	3007
.....	WeAT18.5	5437
Niemeyer, Günter.....	TuBT2	C
.....	TuBT2.2	3224
.....	WeCT3	C
.....	WeCT3.4	6387
Nieto, Juan	MoAT6.4	236
.....	MoBT7.2	1005
.....	MoBT16.1	1367
.....	MoBT16.3	1383
.....	MoCT18.1	2220
.....	TuBT8.3	3485
Niitani, Yusuke	MoBT11.2	1165
nikdel, payam	WePmPo.33	5524
Nikolaidis, Eleftherios	MoAT9.4	364
Nikolakopoulos, George	MoCT9.2	1839
.....	TuCT12.5	4430
Nillahoot, Nantida	MoAmPo.1	2263
Nilles, Alexandra	TuAT17.3	3021
Ninomiya, Yoshiki.....	TuBT7.5	3458
Nir, Omer.....	TuBT5.2	3352
Nishikata, Rie	WeCT16.5	6935
Nishimoto, tetsuya.....	WeCT16.5	6935
Nishimura, Toshihiro	MoBT13.1	1237
.....	MoCT11.2	1922
Nissler, Christian	WeBT9.1	5868

Niu, Wenlong.....	TuBT16.5	3832
Nobili, Simona.....	MoBT17.2	1420
Noda, Tomoyuki.....	TuAT18.3	3064
.....	TuCT11.5	4384
Noe Dobra, Eldar.....	TuBT16.3	3817
Noh, Johan.....	WeBT2.5	5610
Nohara, Shumpei.....	TuPmPo.27	3160
Nomura, Akito.....	MoCT12.6	1996
Nomura, Yurika.....	MoAmPo.13	2275
Noohi, Ehsan.....	TuBT11.2	3603
Nori, Francesco.....	MoCT17.2	2186
.....	WeBT11.1	5949
Nowakowski, Mathieu.....	TuBT4.6	3339
Nozawa, Shunichi.....	MoAT9.6	377
.....	MoAT17.4	690
.....	TuCT15.2	4537
.....	WeAT8.1	4990
.....	WeAT8.3	5003
Nunes, Urbano.....	SuFW13.1	*
Nycz, Christopher J.....	MoCT5.3	1678
O		
O'Brien, Kevin.....	TuAmPo.6	3093
O'Kane, Jason.....	TuPmPo.8	3141
.....	TuCT3	C
.....	TuCT3.6	4048
.....	WeBT3.2	5630
Odelga, Marcin.....	MoPmPo.4	2311
.....	MoPmPo.7	2314
.....	TuCT17.2	4624
Oehlerking, Jens.....	MoBT15.5	1352
Oetomo, Denny.....	WeBT5.3	5723
Ogasawara, Tsukasa.....	TuCT14.6	4523
.....	WePmPo.19	5510
Ogata, Kunihiro.....	MoAT13.5	528
.....	MoAT14.5	569
OGAWA, AKIHITO.....	TuAmPo.31	3118
Ogawa, Masaru.....	TuBT4.2	3312
Ogren, Petter.....	MoCT13.2	2011
.....	WeBT13.2	6039
Oguchi, Kentaro.....	MoBT3.1	835
Ogunmolu, Olalekan.....	TuPmPo.25	3158
.....	TuBT12.5	3667
Oh, Hyondong.....	WeAmPo.28	5478
.....	WeCT14.1	6831
Oh, Hyunjoo.....	TuAmPo.14	3101
Oh, Jaesung.....	MoCT17.6	2214
.....	WeAT14.5	5263
Oh, Jun Ho.....	MoCT17.6	2214
.....	WeAT14.5	5263
Oh, Sehoon.....	TuAmPo.46	3132
.....	TuPmPo.35	3168
Oh, Songhwai.....	MoBT2	C
.....	MoBT2.6	827
.....	TuCT1	C

.....	TuCT1.2	3932
.....	WeBT16.1	6163
Oh, Taekjun.....	TuPmPo.30	3163
Oh, Yonghwan.....	MoBT17.5	1444
Oh, Yoonseon.....	MoBT2.6	827
Ohara, Kenichi.....	WeAT11.2	5122
Ohkawa, Takeshi.....	TuPmPo.38	3170
Ohnishi, Yoshinori.....	MoBT6.5	986
Ohta, Mitsuhiko.....	TuBT4.2	3312
Ohtsuka, Hirofumi.....	WePmPo.40	5530
Ojha, Suman.....	TuPmPo.31	3164
Okabe, Keisuke.....	TuBT18.5	3909
Okada, Kei.....	MoAT9.6	377
.....	MoAT17.4	690
.....	MoBT11.2	1165
.....	MoBT11.5	1188
.....	TuCT15.2	4537
.....	WeAT7.2	4956
.....	WeAT8.1	4990
.....	WeAT8.3	5003
.....	WeAT10.4	5092
.....	WeAT14.1	5239
.....	WeBT7.3	5804
.....	WeBT11.5	5977
.....	WeCT14.2	6837
Okamoto, Jun.....	WeCT2.3	6337
Okamura, Allison M.....	MoAT5.1	174
.....	MoCT14.2	2055
Okino, akihisa.....	WeAT11.2	5122
Okui, Manabu.....	MoBT8.1	1041
.....	TuBT18.4	3903
Okuno, Hiroshi G.....	WeBT11.6	5985
Oleynikova, Helen.....	MoBT16.1	1367
Oliveira, Gabriel.....	TuBT9.6	3550
Oliveira, Paulo.....	WeAT5.6	4903
Olivieri de Souza, Bruno José.....	MoBT6.2	968
Ollero, Anibal.....	MoBT6	C
.....	MoBT6.6	993
.....	MoCT6	CC
.....	MoCT6.6	1740
Ollivier, Yannick.....	TuAT16.4	2987
Olmeda, Mar.....	MoCT5.2	1671
Omar, Aljanaideh.....	TuAT5.6	2544
Omidshafiei, Shayegan.....	MoCT9.4	1854
Oña Simbaña, Edwin Daniel.....	WePmPo.17	5508
Onal, Cagdas.....	MoCT15	C
.....	MoCT15.2	2099
ONEill, John.....	MoBT5.3	935
.....	TuAmPo.25	3112
Ong, Aaron.....	TuCT10.2	4318
Ooga, Jun'ichiro.....	MoCT15.3	2106
Oomichi, Takeo.....	MoPmPo.37	2343
.....	WeAT11.2	5122
OOTSU, Kanemitsu.....	TuPmPo.38	3170

Opfermann, Justin	TuBT12.4	3659
	WePmPo.23	5514
Ore, John-Paul	MoAT18.1	713
Oriolo, Giuseppe	WeAT14.2	5245
Orosz, Gabor	TuAmPo.37	3124
Orsolino, Romeo	WeAT5.4	4889
	WeAT16.6	5353
Ospina, Diego	MoAT8.5	330
Oswald, Martin R.	WeBT15.2	6126
Ota, Jun	ThFW11.1	*
Otsubo, Takuya	MoAmPo.35	2297
Otsuka, Masahiro	TuAmPo.32	3119
Otsuki, Masatsugu	WeAmPo.33	5483
Ott, Christian	MoAT17.5	698
	TuCT15.6	4566
	WeAT11.3	5128
	WeAT17.5	5390
	WeBT8.5	5853
Otte, Christoph	WeBT9.4	5886
Oulmas, Ali	MoCT10.1	1878
Ourselin, Sebastien	MoAT4.3	145
	WeBT5.2	5717
Ovais Latifee, Hiba	WeAmPo.6	*
Owan, Parker	TuPmPo.17	3150
Ozaslan, Tolga	TuAT8.3	2650
Ozawa, Ryuta	MoPmPo.9	2316
	WeAT18.2	5414
Ozcan, Onur	ThFW3.1	*
P		
Pěnička, Robert	TuPmPo.5	3138
	WeBT3.4	5646
Pacchierotti, Claudio	TuBT6.4	3407
Pacelli, Vincent	TuBT13.6	3714
Pacoret, Cécile	MoCT10.3	1890
Paden, Brian	WeAT4.1	4828
Padir, Taskin	TuCT13	CC
	TuCT13.3	4458
Paez Granados, Diego Felipe	TuAT18.4	3070
Pagnin, Andrea	MoAT17.2	675
Paik, Jamie	MoAT8.2	307
	MoBT12.5	1225
	WePmPo.12	5503
	WeBT2.1	5580
	WeBT17.3	6221
	ThFW3.1	*
Paiva, Ana	TuAT11.6	2794
Pajarinen, Joni	WeBT4	CC
	WeBT4.5	5694
Pal, Arghya	TuCT14.3	4501
Palazzolo, Emanuele	MoAmPo.29	2291
Paletta, Lucas	TuCT11.2	4360
Palopoli, Luigi	MoBT3.4	857
	WeCT16.2	6915
Pan, Li-Han	WeCT7.3	6541

Pan, Zherong.....	MoBT13.3	1253
Pandey, Gaurav	MoCT16.2	2144
.....	MoPmPo.44	2349
Pandya, Harit.....	TuAT15.5	2954
Pang, Fumin	MoCT7.3	1762
Pangercic, Andrej.....	MoAT6.1	215
Pannek, Jürgen	WeAT4.3	4842
Paolini, Robert.....	TuCT3.1	4009
Paolo, Giuseppe.....	MoAT1.5	31
Papadopoulos, Evangelos.....	WeAT5.2	4877
Papageorgiou, Xanthi S.	WeAT9.1	5031
.....	WeAT9.2	5037
Papanikolopoulos, Nikos	WeAT11	C
.....	WeAT11.5	5142
.....	WeAT11.6	5149
.....	WeBT15.6	6155
Pape, Christian.....	TuCT18.4	4686
Papon, Jeremie	MoAT7.1	258
Paranawithana, Ishara	MoBT10.2	1128
Paraschos, Alexandros	WeAT13.5	5225
Parastegari, Sina.....	TuBT11.2	3603
Parasuraman, Ramvijas.....	MoCT13.2	2011
Pardo, Diego	WeBT4.6	5702
Parigi-Polverini, Matteo	WeAT3.1	4785
.....	WeCT3.5	6393
Paris, Jascha Normen.....	WeBT3.3	5638
Parisi, Simone	TuCT17.4	4640
Park, Chanhun	MoAmPo.8	2270
.....	MoAmPo.11	2273
Park, Chung Hyuk	MoPmPo.17	2324
.....	TuAmPo.47	3133
Park, Daehyung.....	WeAT18.1	5406
Park, Dongil.....	MoAmPo.8	2270
.....	MoAmPo.11	2273
Park, Hae-Won.....	MoAT8.1	301
Park, Jin Bae	TuPmPo.39	3171
.....	WeAmPo.10	5461
Park, Jung-Min	MoAT9.3	358
Park, Junghoon	WeAT2.2	4749
park, kyungseo.....	MoAmPo.37	2299
Park, Sumin.....	TuPmPo.37	3169
Park, Yeon gyu.....	MoBT8.3	1053
Park, Young Jin.....	MoCT8.1	1791
.....	MoCT8.3	1805
Park, Young Soo	WeAmPo.36	5486
Parmiggiani, Alberto.....	MoAT17	CC
.....	MoAT17.2	675
.....	MoAT17.3	682
Parness, Aaron.....	MoBT11.3	1173
Parsapour, Mahsa.....	TuAT9.3	2692
Paschal, Thibaut.....	TuCT7.4	4203
Pascucci, Carlo Alberto.....	WeAT4.6	4862
Passama, Robin.....	MoBT15.2	1332
Patel, Amir.....	MoCT15.5	2122

.....	TuCT15.1	4529
Patel, Naman.....	MoCT1.6	1532
Patel, Niravkumar.....	MoCT5.3	1678
Patel, Rajnikant V.....	SuFW12.1	*
.....	WeBT6.3	5764
.....	ThFW17.1	*
Patel, Sarosh.....	WePmPo.5	*
Patil, Gaurav.....	WePmPo.30	5521
Patlan Rosales, Pedro Alfonso.....	TuAT15.3	2942
Patoglu, Volkan.....	WeBT4.4	5687
Pattacini, Ugo.....	MoAT17.2	675
.....	MoBT17.1	1412
Paudel, Danda Pani.....	MoAT15.4	607
Paull, Liam.....	WeCT15.5	6894
Paus, Fabian.....	WeCT1.1	6285
Pautrat, Remi.....	TuAmPo.4	3091
Pavlichenko, Dmytro.....	TuCT3.3	4024
Pavone, Marco.....	WeBT3.1	5622
Paxton, Chris.....	WeBT13.5	6059
Payeur, Pierre.....	TuPmPo.43	3174
Pearson, Martin.....	TuPmPo.7	3140
Pecka, Martin.....	WeCT4.2	6414
Peckman, Nicolas.....	WeCT5.4	6463
Pecora, Federico.....	TuBT9.3	3528
Pedro, Leonardo Marquez.....	MoCT4.2	1631
Pei, Ling.....	MoCT16.5	2165
Peiret, Albert.....	MoPmPo.46	2350
Peñate-Sánchez, Adrián.....	WeBT6.5	5777
Peng, Yuan-Chih.....	MoPmPo.11	2318
Peng, Zhen.....	MoBT2.1	790
Penin, Bryan.....	WeBT16.6	6199
Penumarthy, Phani Krishna.....	TuPmPo.8	3141
Perdereau, Véronique.....	TuAT18.6	3082
Pereira, Aaron.....	TuCT13.6	4479
Perez, Tristan.....	WeAT12.4	5174
Perez Grau, Francisco Javier.....	TuBT8.5	3501
Perez Quintero, Camilo Alfonso.....	MoPmPo.33	2339
.....	TuAT11.3	2773
.....	TuPmPo.1	3134
.....	TuCT6	C
.....	TuCT9.4	4290
.....	WePmPo.15	5506
Perez-Yus, Alejandro.....	WeBT6.2	5756
Perri, Simone.....	WeBT16.3	6178
Perry, Joel C.....	MoCT8.6	1825
.....	TuPmPo.23	3156
Peternel, Luka.....	TuCT11.3	4368
Peters, Jan.....	TuCT17.4	4640
.....	WeAT13.5	5225
.....	WeBT4.5	5694
Petersen, Henrik Gordon.....	TuBT17	C
.....	TuBT17.3	3854
Peterson, Cammy.....	TuCT12.6	4436
Petillot, Yvan R.....	MoAT15.5	615

.....	MoBT17.2	1420
Petric, Tadej	SuFW14.1	*
Petrik, Vladimir	TuBT3.3	3274
Petrovic, Ivan.....	MoBT7.3	1013
.....	MoCT12.2	1966
Peynot, Thierry	WeCT11.2	6707
Pfanne, Martin	TuAT3	CC
.....	TuAT3.6	2465
Pfeiffer, Jonas H.....	MoBT5.4	942
.....	MoBT12.6	1231
Pfeiffer, Kai.....	WeBT15.4	6142
Pfrunder, Andreas	TuAT7.2	2602
Pham, Huy.....	WeCT9.6	6648
Pham, Huy Nguyen	TuBT14.2	3728
Pham, Trung.....	WeAT10	CC
.....	WeAT10.2	5079
Phan, Luong Tin	TuAT2.4	2410
.....	TuCT5.6	4131
.....	WeAT5.5	4897
Philippsen, Roland	TuCT14.4	4507
Phung, Hoa	MoBT4.2	887
.....	WeBT17.5	6233
Piaskowy, W. Tony.....	TuPmPo.28	3161
Piater, Justus.....	SuFW1.1	*
.....	MoAT3.2	95
.....	WeAT3.6	4821
Piazza, Cristina	TuAT3.5	2457
Pick, Marc-André.....	WeBT18.3	6257
Pieber, Michael.....	MoPmPo.21	2328
Pierobon, Marco	TuCT6.5	4165
Pieropan, Alessandro	WeBT10.6	5941
Pilitsis, Julie.....	MoCT5.3	1678
Pillai, Sudeep	WeBT1.1	5533
.....	ThBW13.1	*
Pilotti, Pablo	WeAT16.5	5346
Pimentel, Bruno.....	WeAmPo.24	5474
Pinel, Maria Dolores	WeAmPo.39	5489
Pingsmann, Markus.....	MoCT8.6	1825
Pinho, Armando.....	WeBT13.1	6033
Pinto, José.....	WeCT13.6	6825
Pinto, Lerrel Joseph	TuCT1.5	3954
Piskarev, Egor.....	WeBT17.3	6221
Pitonakova, Lenka.....	MoAT18.3	728
PIZZAMIGLIO, CRISTIANO	TuCT2.3	3983
.....	WePmPo.42	5532
Planche, Benjamin	MoAT14.3	553
Plancher, Brian.....	WeBT4.2	5674
Platt, Robert	TuBT3.2	3267
.....	WePmPo.8	5499
.....	WePmPo.9	5500
Pocius, Rey	MoCT2.4	1560
Pogue, Alexandra.....	TuBT5.4	3366
Poisson, Gérard	TuCT16.2	4582
.....	WeCT1.2	6293

Pokorny, Florian T.....	TuPmPo.6	3139
Polden, Joseph.....	WeAT13.3	5211
Pollefeys, Marc.....	MoCT7.1	1747
.....	WeBT15.2	6126
.....	ThBW5	C
.....	ThBW5.1	*
Polushin, Ilia G.....	WeBT6.3	5764
Polydoros, Athanasios S.....	WeAT1.3	4716
Polygerinos, Panagiotis.....	TuBT14.2	3728
Polzin, Julian.....	MoBT4.3	893
Poonawala, Hasan A.....	TuAT17.1	3007
Pope, Morgan.....	TuBT2.2	3224
Popovic, Marija.....	MoBT16.3	1383
Porzi, Lorenzo.....	WeBT6.5	5777
Posa, Michael.....	ThFW14.1	*
Posner, Ingmar.....	MoCT2.3	1552
.....	WeAT10.5	5100
Potena, Ciro.....	WeAT12.6	5188
Potje, Guilherme Augusto.....	WeAmPo.24	5474
Poulakakis, Ioannis.....	SuFW5	C
.....	SuFW5.1	*
.....	WeAT8.6	5025
.....	WeAT14	C
.....	WeAT14.3	5251
.....	WeBT8	C
.....	WeBT8.3	5840
Pratt, Jerry.....	MoAT17.1	668
Prattichizzo, Domenico.....	MoBT11.6	1194
Prattichizzo, Domenico.....	TuAT6.2	2557
.....	TuBT6.4	3407
.....	WeCT3.6	6400
Preiss, James.....	MoAT6.6	250
premachandra, Chinthaka.....	TuAmPo.32	3119
Prescott, Tony J.....	MoPmPo.12	2319
.....	TuPmPo.7	3140
.....	WeCT11	CC
.....	WeCT11.6	6735
Pretto, Alberto.....	WeAT12.6	5188
Preucil, Libor.....	MoPmPo.40	2345
Prinja, Rohan.....	WeCT18.6	7018
Proença, Pedro F.....	MoCT3.3	1595
Pronobis, Andrzej.....	MoBT1	CC
.....	MoBT1.2	756
Prorok, Amanda.....	MoCT9	C
.....	MoCT9.1	1831
.....	MoCT9.6	1870
.....	TuAT10.4	2737
Protzel, Peter.....	TuAT4.4	2493
Pu, Huayan.....	WeAT7.4	4969
.....	WeBT18.1	6245
Pu, Li.....	MoCT7.3	1762
Pucci, Daniele.....	MoCT17.2	2186
.....	WeBT11.1	5949
Puri, Puneet.....	WeCT6.4	6506

Q		
Qi, Hang	TuBT10.5	3582
QI, SIYUAN	TuBT9.4	3536
.....	WePmPo.18	5509
Qiao, Hong	WeAT2.1	4743
QIN, LEI.....	TuAT2.3	2404
QIN, Tong.....	TuCT8.2	4231
Qin, Wubing B.	TuAmPo.37	3124
Qin, Xuebin.....	TuCT9.4	4290
Qiu, Kejie.....	MoCT7.6	1784
Qiu, Xiaoxiao	TuAT5.2	2518
Qu, Juntian.....	MoAT12.5	489
Qu, Ying	WeCT6.6	6520
Quartaro, Amy.....	TuCT18.3	4678
Quattrini Li, Alberto.....	TuPmPo.8	3141
.....	WePmPo.3	5495
Queen, Kendall.....	MoBT13.4	1261
Quenzel, Jan	MoCT18.2	2228
Quinn, Nathan	MoPmPo.8	2315
.....	WeAmPo.20	5470
R		
Raahemifar, Kaamran	MoAT14.4	561
Rabenorosa, Kanty.....	TuAT16	CC
.....	TuAT16.6	3001
.....	WeBT3.6	5661
Radwan, Noha.....	WeAT1.6	4737
Rafter, Abigail.....	TuBT2.6	3253
Rahbar, Faezeh.....	TuCT2.4	3989
Rahman, Md Mahbubur.....	WeCT9.4	6633
Rahman, Nahian	MoCT11.5	1944
Rahman, Sharmin	WePmPo.3	5495
Rahman, Taufiq.....	WeBT9.6	5900
Rai, Roshan.....	MoBT3.2	841
Raineri, Marina	WeBT16.3	6178
Raitor, Michael	MoAT5.1	174
Rajappa, Sujit.....	TuCT17.2	4624
Rajaraman, Mabarar.....	WeAT13.3	5211
Rajasekaran, Siddharthan.....	WeAT13.1	5196
Rajput, Omer	WeBT9.4	5886
Rakita, Daniel	TuCT11.6	4392
Raldua Veuthey, Jaime	WeAT17.5	5390
Rama, Roberto	MoAT2.2	51
Ramakrishnan, Ashwin.....	TuBT12.3	3651
Ramalingam, Srikumar.....	ThFW4.1	*
Raman, Vasumathi.....	TuBT17.2	3846
.....	WeBT13.5	6059
RAMASAMY, SRIDHAR.....	WeAmPo.31	5481
RAMAYEE, HARISH ASOKAN	WeAmPo.31	5481
Ramesh, Megnath.....	WeAmPo.7	5458
Ramezani, Milad.....	MoBT14.6	1318
Ramirez-Amaro, Karinne.....	SuFW17	C
.....	SuFW17.1	*
.....	TuBT9.1	3516
Ramirez-Serrano, Alejandro.....	MoAT8.5	330

.....	WeCT16.3	6923
Ramon Soria, Pablo	MoBT6.6	993
Ramos, Fabio	TuCT4.6	4089
.....	ThBW13.1	*
Ramstedt, Simon	TuCT17.4	4640
Ranasinghe, Ravindra	WeAT15.3	5292
Randazzo, Marco	MoAT17.2	675
Randhavane, Tanmay	WeCT18.6	7018
Ranganathan, Rajiv	TuBT18.1	3883
Rangaprasad, Arun Srivatsan	MoBT4.5	907
Ranzani, Tommaso	MoBT5.1	921
Rao, Rajesh P. N.	MoBT1.2	756
Rapp, Brian	WeCT9.4	6633
Rappaport, Micha	WeCT13.4	6809
Raschpichler, Cole	TuPmPo.24	3157
Rasmussen, Christopher	MoAmPo.33	2295
Rasouli, Mahdi	WeAmPo.17	5467
Rastgaard, Mo	ThFW6.1	*
Ratliff, Nathan	WeAT1.4	4723
Ravichandar, Harish chaandar	WeAmPo.35	5485
Rea, Francesco	TuAmPo.12	3099
Reardon, Christopher M.	TuPmPo.29	3162
Rebello, Jason	MoBT18.5	1485
Rechy Romero, Adrian	TuAT7.2	2602
Redpath, Richard	MoCT2.5	1567
Reed, Benjamin	WeAmPo.7	5458
Régnier, Stéphane	MoCT10	C
.....	MoCT10.1	1878
.....	MoCT10.3	1890
Reid, Ian	MoBT1.3	764
.....	WeAT10.2	5079
Reiling, Mark	TuCT16.3	4588
Reina, Andreagiovanini	MoAT9.4	364
Reiner, Matthias	MoCT4.3	1637
Reis, Marco	WePmPo.35	*
Reiter, Austin	MoCT5.5	1692
Reithmeier, Eduard	TuCT18.4	4686
Reitmayr, Gerhard	MoAT16.2	635
Rekleitis, Ioannis	MoCT9	CC
.....	MoCT9.3	1847
.....	TuPmPo.8	3141
.....	WePmPo.3	5495
.....	WePmPo.28	5519
.....	WeBT3	C
.....	WeBT3.2	5630
.....	WeCT10	CC
Remazeilles, Anthony	SuFW1.1	*
Remy, C. David	MoPmPo.27	2334
.....	TuCT5	CC
.....	TuCT5.1	4096
Ren, Guangli	WeCT6.6	6520
Ren, Haibing	MoAmPo.36	2298
Ren, Hongliang	MoBT5	C
.....	MoBT5.6	954

.....	MoBT11.4	1181
Ren, Zeyu.....	MoAT8.4	323
.....	WeAmPo.22	5472
Ren, Zhongqiang.....	WeCT1.4	6307
Renaud, Pierre.....	WeBT3.6	5661
Repiso, Ely.....	MoBT3.6	873
Resnick, Blake.....	TuCT8.6	4261
Reyes, Fabian.....	WeBT7.1	5790
Reynaerts, Dominiek.....	MoAT4.3	145
Reza, Md.....	WeAT6.2	4917
Rezazadeh, Siavash.....	TuAmPo.1	3088
.....	WeAmPo.26	5476
Reznichenko, Yevgeniy.....	TuPmPo.20	3153
Rhode, Kawal.....	TuAT14.6	2924
.....	TuBT14.1	3722
Riano, Lorenzo.....	SuFW14.1	*
Ribeiro, Manuel António.....	WeCT13.6	6825
Ribeiro, Pedro.....	MoPmPo.47	2351
.....	TuBT17.6	3875
Ricci, Elisa.....	WeBT1.6	5572
.....	WeBT6.5	5777
Rice, Franklin.....	WeAT7.5	4976
Richards, Arthur.....	MoCT16	C
.....	MoCT16.6	2172
Richardson, Adam.....	TuAT3.3	2443
Richardson, Michael.....	WePmPo.30	5521
Richardson, Thomas.....	TuCT8.5	4254
Rickert, Markus.....	MoAT18	C
.....	MoAT18.4	734
Riek, Laurel D.....	TuCT6.4	4158
Riestock, Maik.....	TuBT6.2	3394
Rigueira Campos, Felipe.....	WePmPo.6	5497
Rinner, Bernhard.....	MoAT6.3	230
Risi, Sebastian.....	TuCT18.2	4670
Ritter, Helge Joachim.....	MoCT17.4	2201
.....	ThFW8.1	*
Rives, Patrick.....	WeBT6.1	5750
.....	WeBT6.2	5756
Rixen, Daniel.....	MoBT17.6	1450
.....	MoPmPo.19	2326
Roa, Maximo A.....	SuBW8.1	*
.....	MoAT17.5	698
Roberge, Etienne.....	TuBT1.6	3211
Roberts, Jonathan.....	MoCT12.3	1974
.....	WeCT11.2	6707
Robertson, Matthew.....	MoBT12.5	1225
.....	WePmPo.12	5503
Robuffo Giordano, Paolo.....	TuAT6.5	2581
.....	TuAT15.6	2961
.....	TuBT6	CC
.....	TuBT6.1	3386
.....	WeBT16	CC
.....	WeBT16.6	6199
Rocco, Paolo.....	WeAT3.1	4785

.....	WeCT3.5	6393
.....	WeCT8.5	6595
Rocha, Rui.....	TuBT14.4	3740
Rodrigues Mucchiani, Caio Cesar.....	MoBT3.2	841
Rodriguez, Diego.....	WePmPo.15	5506
Rodriguez Guerrero, Carlos.....	WeBT7.4	5812
Rodriguez Salazar, Leopoldo.....	MoCT6.6	1740
Roehm, Hendrik.....	MoBT15.5	1352
Roehrbein, Florian.....	TuAT9.4	2699
Roennau, Arne.....	TuCT16.1	4574
Roesthuis, Roy.....	TuAT5.4	2532
Rogers, Simon.....	WeCT11.1	6699
ROGNANT, Mathieu.....	MoAT11.4	445
Rogowski, Louis.....	MoAT10.6	415
roh, hyunchul.....	WeAT15.1	5277
Roh, Se-gon.....	MoBT8.4	1059
.....	MoCT8.1	1791
Rojas, Juan.....	TuAT10.6	2752
.....	TuCT16	CC
.....	WeAT18	CC
.....	WeAT18.4	5429
Rojas, Nicolas.....	WeAT3.5	4813
Romanoni, Andrea.....	TuBT7.6	3466
Romero, Osvaldo.....	WeAT7.5	4976
Rone, William.....	WeAmPo.37	5487
Ronsse, Renaud.....	MoBT17.3	1428
Roozing, Wesley.....	WeAT2.4	4762
.....	WeAT2.5	4769
Roppenecker, Daniel B.....	MoBT12.6	1231
Rosman, Benjamin.....	SuFW14.1	*
Rosman, Guy.....	WeCT15	CC
.....	WeCT15.5	6894
Rösmann, Christoph.....	WeBT4.3	5681
Rossiter, Jonathan.....	WeBT17.4	6227
Rosu, Radu Alexandru.....	MoCT18.2	2228
Rota Bulò, Samuel.....	WeBT1.6	5572
Rothrock, Brandon.....	TuBT9.4	3536
.....	WePmPo.18	5509
.....	WeCT9.2	6617
Rougeot, Patrick.....	TuAT16.6	3001
.....	WeBT3.6	5661
Rovida, Francesco.....	WeBT13	CC
.....	WeCT13	C
.....	WeCT13.2	6793
Roy, Nicholas.....	MoAT1.1	1
Roy, Pravakar.....	WeBT12.6	6027
Roy, Spandan.....	WeCT16.6	6943
Rozen-Levy, Shane.....	MoAT12.3	477
.....	MoAmPo.6	2268
Rozo, Leonel.....	TuBT1.2	3184
Ruales, Joaquín.....	TuAT3.3	2443
Rubenstein, Michael.....	TuCT8.6	4261
.....	WeCT7	C
.....	WeCT7.2	6533

Rubert, Carlos	MoAT7.2	266
Rubrecht, Sebastien.....	MoAT11.4	445
Rucker, Caleb.....	TuAT17.2	3014
Rudas, Imre J.....	WePmPo.14	5505
Ruddy, Bryan P.	TuPmPo.40	3172
.....	WeCT2.5	6349
Ruffatto III, Donald	MoBT11.3	1173
Rufli, Martin	WeAmPo.18	5468
Ruiz, Ubaldo.....	TuCT13.4	4466
Ruml, Wheeler.....	TuAT13	C
.....	TuAT13.4	2865
Rumschoettel, Dominik	MoBT12.6	1231
Rus, Daniela.....	MoBT1.1	750
.....	TuBT6.5	3415
.....	TuBT10.6	3589
.....	WeCT15.5	6894
Russo, Sheila	MoBT5.1	921
Ryoo, Michael S.	MoCT1	CC
.....	MoCT1.1	1498
Ryu, Jee-Hwan.....	MoBT4	C
.....	MoBT4.6	915
.....	MoCT17	CC
.....	MoCT17.1	2178
.....	TuBT6	C
.....	TuBT6.3	3401
Ryu, Seungwan.....	TuBT2.4	3240
S		
Sa, Inkyu	MoAT1.2	9
.....	MoBT16.3	1383
.....	WeBT1	CC
.....	WeBT1.3	5549
Sá Marques, Tiago.....	WeCT13.6	6825
Saab, Wael.....	WeAmPo.37	5487
.....	WeCT2.4	6343
Sabattini, Lorenzo	MoBT9.2	1084
.....	TuBT11.4	3617
Saberifar, Fatemeh Zahra	TuCT3.6	4048
Sabo, Chelsea.....	MoAT9.4	364
Sacharny, David.....	MoAmPo.22	2284
Sachdeva, Enna	MoPmPo.28	*
.....	WeBT2.2	5587
Sachyani, Ela	WePmPo.23	5514
Saeidi, Hamed.....	WeCT8.2	6575
Saenko, Kate.....	WePmPo.8	5499
Saerens, Elias	MoCT15.6	2129
Sagawa, Juliana Keiko.....	WeAT4.3	4842
Saito, Asuki	MoPmPo.37	2343
Sakai, Nobuaki	WeCT7.4	6547
Sakaino, Sho	MoCT14.4	2069
Sakamoto, Yoshihiro	WeBT2.4	5602
Sakuma, Shinya	MoBT10.6	1153
Sakurai, Takeshi.....	MoCT15.4	2114
Salazar Lucas, Jose Victorio.....	TuBT18.5	3909
Saldana, David Julian.....	TuAT10.4	2737

Saleem, Rashid	WeAmPo.13	5463
Salehi, Achkan	MoCT3.2	1587
Salehi, Iman	WeAmPo.35	5485
Salles de Freitas, Renan	TuBT13.4	3701
Salman, Hadi	WeAT13.2	5204
Salviatti, Gionata	MoBT11.6	1194
.....	TuAT6.2	2557
Sampaio, Augusto	MoPmPo.47	2351
Sandini, Giulio	TuAmPo.12	3099
Sandoval, Juan Sebastián	TuCT16.2	4582
Sandstrom, Read	TuCT3.4	4032
Sandy, Timothy	WeCT1.3	6299
Sanfeliu, Alberto	MoBT3.6	873
.....	WeAmPo.30	5480
.....	WeCT18	C
.....	WeCT18.5	7011
Sanfourche, Martial	TuCT12.2	4408
Sangdo, Woo	MoAmPo.4	2266
Sano, Akihito	MoAmPo.43	2304
Santaera, Gaspare	TuAT3.5	2457
Santos, André	TuBT17.4	3861
Santos, Jessivaldo	WePmPo.35	*
Santos, Veronica J.	WeCT9.2	6617
SANTOS ROCHA, FILIPE	WePmPo.29	5520
AUGUSTO		
Santoso, Junius	MoCT15.2	2099
Saran, Akanksha	WeAT18.5	5437
SARIYILDIZ, Emre	MoCT17.5	2207
Sarkar, Abhishek	WeBT2.2	5587
Särkkä, Simo	TuCT12.1	4400
Sarli, Nima	WeCT5.2	6448
Sasaki, Kai	MoPmPo.41	2346
Sasaki, Takeshi	MoPmPo.43	2348
Satheeshbabu, Sreeshankar	MoBT12.1	1202
Sato, Daiki	WePmPo.40	5530
Sattar, Junaed	TuCT7	C
.....	TuCT7.3	4195
.....	WeAmPo.42	5492
Sattler, Torsten	MoCT7.1	1747
Saund, Brad	TuBT4.4	3325
Saurel, Guilhem	MoAT17.6	706
Savarè, Stefano	MoBT9.5	1106
Savarese, Silvio	TuCT1.3	3938
Savarimuthu, Thiusius Rajeeth	WeBT9.4	5886
Savazzi, Jose Otavio	MoCT4.2	1631
Saveriano, Matteo	WeAT1.2	4709
Savin, Sergei	MoPmPo.45	*
SAWADA, HIROTAKA	WeAT7.1	4950
Sawasaki, Naoyuki	TuAmPo.36	3123
Scalzo, Alessandro	MoAT17.2	675
.....	MoAT17.3	682
Scaramuzza, Davide	MoCT16.1	2136
.....	ThFW1.1	*
Scassellati, Brian	ThFW7.1	*

Schaal, Stefan	MoAT7.2	266
.....	WeAT1.4	4723
Schaefer, Alexander	WeCT10.4	6678
Schaff, Charles	WeCT9.1	6609
Schaler, Ethan W.	MoBT11.3	1173
Scheggi, Stefano	WeCT3.6	6400
Scheirer, Walter	WeCT10.1	6654
Schenk, Fabian	MoBT14.3	1298
Scherer, Jürgen	MoAT6.3	230
Scherer, Sebastian	MoAT15.2	591
.....	MoBT15.1	1325
.....	TuBT8.4	3493
.....	WeCT10.6	6691
.....	ThFW15.1	*
Scherzinger, Stefan	TuCT16.1	4574
Scheutz, Matthias	WeCT8.4	6589
Schiele, Andre	SuFW9.1	*
Schilling, Fabian	TuAT9.1	2679
Schilling, Malte	ThFW8	C
.....	ThFW8.1	*
Schindlbeck, Christopher	TuCT18	CC
.....	TuCT18.4	4686
Schiotka, Alexander	MoAT16.3	643
Schirmer, Robert	TuAT13.3	2858
Schlaak, Helmut F.	MoBT4.3	893
Schlaefer, Alexander	WeBT9.4	5886
Schlattmann, Josef	MoCT12.1	1960
Schlenoff, Craig	SuFW15	C
.....	SuFW15.1	*
Schmid, Ryan	TuAT8.6	2673
Schmittle, Matt	MoAmPo.33	2295
Schmitz, Alexander	MoBT13.6	1275
.....	WeBT2.4	5602
Schmitz, Andreas	MoBT5.5	948
Schneider, Abraham	WeBT6.6	5784
Schneider, Jonas	MoAT1.4	23
Schnieders, Benjamin	WeCT12.4	6764
Schoellig, Angela P.	MoAT6	C
.....	MoAT6.2	223
.....	TuAmPo.15	3102
.....	WeAT1	C
.....	WeAT1.1	4702
Schöler, Frederic Jean-Francois	WeBT3.3	5638
Schreiber, Daniel	MoCT12.1	1960
Schroeder, Adam	TuPmPo.19	3152
Schroeder, Tyler	WePmPo.23	5514
Schubert, Stefan	TuAT4.4	2493
Schubert, Tobias	MoCT5.1	1665
.....	WeCT10.4	6678
Schulz, Bobby	WeAT11.5	5142
Schulz, Stefan	MoCT12.1	1960
Schuster, Martin Johannes	WeBT16.5	6191
Schwager, Mac	WeAT17.1	5361
Schwarz, Tilo	TuCT4.5	4083

Schwertfeger, Sören.....	SuFW2.1	*
.....	MoBT18.3	1471
Scianca, Nicola.....	WeAT14.2	5245
Scibelli, Anthony.....	MoAT12.3	477
Scona, Raluca.....	MoBT17.2	1420
Seabra Lopes, Luís.....	WeBT13.1	6033
Sebesta, Kenneth Dale.....	WeCT14.3	6843
Secchi, Cristian.....	MoBT9	C
.....	MoBT9.2	1084
.....	TuAT6.5	2581
.....	TuAT12	C
.....	TuAT12.2	2807
.....	TuBT11	CC
.....	TuBT11.4	3617
Seegmiller, Neal A.....	MoCT13	CC
.....	MoCT13.3	2019
Sefcik, Justine.....	MoBT3.2	841
Seibel, Arthur.....	MoCT12.1	1960
Seimenis, Ioannis.....	WeCT5.1	6440
Seino, Akira.....	TuAT12.5	2830
Seiwald, Philipp.....	MoBT17.6	1450
.....	MoPmPo.19	2326
Seki, Masatoshi.....	TuAT9.5	2705
Semini, Claudio.....	WeAT5	CC
.....	WeAT5.4	4889
.....	WeAT16.6	5353
Seneci, Carlo Alberto.....	MoAT5.6	209
.....	MoBT5.5	948
.....	TuAT5.3	2525
Sensinger, Jonathon.....	MoPmPo.8	2315
.....	WeAmPo.20	5470
Senthil Kumar, A.....	WeBT17.6	6239
Seo, Hoseong.....	MoCT6.3	1720
Seo, Keehong.....	MoCT8.3	1805
Seo, TaeWon.....	MoAmPo.3	2265
.....	MoAmPo.4	2266
.....	MoPmPo.35	2341
.....	TuPmPo.37	3169
Seo, Yeongsik.....	TuAmPo.19	3106
Seok, Dong-Yeop.....	WeCT2.1	6325
Seolgi, Song.....	MoAmPo.4	2266
Seong, Hyeonseok.....	TuBT6.3	3401
Serlin, Zachary.....	MoAT12.3	477
serres, Julien.....	MoPmPo.30	2336
.....	TuBT7.3	3445
Sessa, Salvatore.....	WeAT9.4	5050
Sezgin, Tevfik Metin.....	WePmPo.31	5522
Sha, Fei.....	MoAmPo.23	2285
Shafi, Amber.....	TuBT14.1	3722
Shafiee Motahar, Mohamad.....	WeAT8.6	5025
.....	WeAT14.3	5251
.....	WeBT8.3	5840
Shah, Dipan J.....	WePmPo.4	5496
.....	WeCT5.1	6440

Shah, Julie A.....	ThFW8.1	*
Shahbazi, Mahya.....	ThFW17.1	*
Shahbazi Aghbelagh, Mohammad ..	WeAT3.2	4791
Shahidi, Seyed Amirreza.....	WeAT17.3	5376
Shahrokhi, Shiva	TuAmPo.11	3098
.....	TuCT10.1	4310
shamshirdar, Faraz	WePmPo.33	5524
Shan, Tixiao	WeAT16.1	5318
Shang, Jianzhong.....	TuAT5.3	2525
Shao, Zhanpeng.....	TuCT9.6	4304
Shao, Zhenzhou	WeCT6.6	6520
Shao, Zhijiang	TuBT13.3	3695
Sharif Mansouri, Sina	MoCT9.2	1839
Sharif Razavian, Reza.....	MoAT13.1	503
Sharma, Arunandan	MoAT16.2	635
Sharma, Avinash.....	MoBT7.4	1020
Sharma, Sarthak	MoCT7.4	1769
Sharma, Suneet	MoBT3.2	841
She, Sizhen	MoAT3.4	109
She, Yu.....	MoPmPo.23	2330
Sheckells, Matthew	WeAmPo.5	5457
Sheckman, Sam	MoBT10.1	1120
Sheikh, Huzaifa	WeAmPo.6	*
Sheikholeslami, Sara.....	SuFW18	C
.....	SuFW18.1	*
.....	MoAT9.1	342
Shell, Dylan	TuBT17.5	3867
.....	TuCT3.6	4048
Shen, Jin-Hui.....	TuAT5.5	2538
Shen, Shaojie	MoBT16.2	1375
.....	MoCT7.6	1784
.....	TuBT13.2	3687
.....	TuCT8.2	4231
.....	TuCT8.3	4239
.....	WeAT4.2	4835
.....	WeAT11	CC
.....	WeAT11.4	5135
.....	WeAT15.6	5310
.....	WeCT11	C
.....	WeCT11.3	6715
Shen, Yajing.....	MoCT10.5	1902
Shen, Yantao.....	TuAT2	C
.....	TuAT2.1	2392
.....	TuAT2.6	2422
Shen, Yayi.....	WeBT18.1	6245
Shen, Yijun	TuCT10.6	4347
Shen, Zhong.....	WeBT18.4	6264
Sheng, Jun	TuAT5.1	2512
Shepherd, Robert.....	TuAmPo.6	3093
Shi, Fan	WeBT11.5	5977
.....	WeCT14.2	6837
Shi, Qing.....	TuAT2.2	2398
Shi, Ran.....	MoCT14.3	2063
shi, zhiping	TuAT12.6	2836

Shiarlis, Kyriacos.....	MoAT1.6	37
Shield, Stacey Leigh.....	MoCT15.5	2122
.....	TuCT15.1	4529
Shigaki, Shunsuke.....	MoCT15.4	2114
.....	MoAmPo.40	2302
Shigemune, Hiroki.....	MoAT12.2	471
Shih, Benjamin.....	MoAT12.6	495
.....	WeBT17.1	6207
Shim, Youngbo.....	MoBT8.4	1059
.....	MoCT8.1	1791
.....	MoCT8.3	1805
.....	WeBT7.5	5818
Shimada, Hideaki.....	WeCT18.1	6985
Shimada, Kenji.....	WeAT13.3	5211
SHIMADA, NOBUTAKA.....	TuAT1.2	2360
Shimchik, Ilya.....	TuAT7.5	2624
Shimomura, Nobuyasu.....	MoAT17.4	690
Shimoyama, Isao.....	MoAmPo.46	2307
Shin, Jeongsik.....	MoAmPo.15	2277
Shin, Minhwan.....	WeAmPo.10	5461
Shintake, Jun.....	TuCT7	CC
.....	TuCT7.4	4203
.....	WeBT17.3	6221
Shiozaki, Tomoyuki.....	WeCT11.4	6723
Shirai, Takuma.....	WeAT14.1	5239
Shitashima, Kai.....	MoAT5.3	187
Shkurti, Florian.....	TuCT7.3	4195
.....	WeBT3.5	5653
Short, Andrew.....	MoCT13.5	2033
Shorter, Alex.....	TuAT4.6	2506
Shrestha, Rakesh.....	WePmPo.33	5524
Shu Chan, Derek Kevin.....	WeBT10.2	5916
Shukla, Dadhichi.....	WeAT3.6	4821
Shutin, Dmitriy.....	MoAT3.6	123
Si Jun, Ryu.....	MoAmPo.4	2266
Siciliano, Bruno.....	MoAT4.1	131
.....	MoBT18	CC
.....	MoBT18.2	1465
Siddall, Robert.....	WeCT14.4	6849
Siebert, Jan Paul.....	WePmPo.7	5498
.....	WeCT11.1	6699
Siegel, Hallie.....	ThFW9	C
.....	ThFW9.1	*
Siegwart, Roland.....	MoAT6.4	236
.....	MoBT7.2	1005
.....	MoBT16.1	1367
.....	MoBT16.3	1383
.....	MoCT18.1	2220
.....	TuBT8.3	3485
.....	WeBT1.3	5549
Siepel, Françoise J.....	MoBT5.2	929
.....	MoPmPo.22	2329
Sieverling, Arne.....	TuCT3.2	4017
SIGUERDIDJANE, Houria.....	MoBT6.4	980

.....	WeAmPo.41	5491
Silva, Lucas	WePmPo.35	*
Silva, Rôb Klér.....	WeBT10.2	5916
Silva, Rui	TuAT11.6	2794
.....	TuBT11.5	3623
Sim, Okkee.....	WeAT14.5	5263
Simaan, Nabil.....	TuAT5.5	2538
.....	WeCT5	CC
.....	WeCT5.2	6448
Simmons, Reid	TuBT4.4	3325
Simmons, Robert.....	MoAmPo.22	2284
Simoens, Pieter	TuAT1.3	2366
Simon, Benjamin	WeAT13.6	5233
Simon, Glen.....	WeAmPo.1	5453
Simonič, Mihael.....	MoCT17.3	2193
Simovic, Alessandro.....	WeAmPo.18	5468
Simpson, Cole Stewart.....	WePmPo.25	5516
Singh, Abhineet.....	TuBT15.5	3791
.....	TuCT9.4	4290
Singh, Akash	MoPmPo.28	*
.....	WeBT2.2	5587
Singh, Arun Kumar	MoBT9.3	1090
Singla, Puneet.....	MoCT14.1	2049
Sinha, Sudipta.....	TuPmPo.39	3171
.....	WeAmPo.10	5461
Sinha Roy, Bishwamoy	TuBT16.4	3825
Sirken, Aaron.....	WeCT7.1	6526
Sitti, Metin.....	MoCT10.6	1908
Sivakumar, Kavinayan.....	MoCT9.4	1854
Skelton, Robert E.	MoCT14.1	2049
Skinner, Katherine A.	TuAmPo.2	3089
Skorina, Erik	MoCT15.2	2099
Slade, Patrick	MoAT5.1	174
.....	MoBT2.3	805
Sláma, Jakub.....	TuPmPo.5	3138
Slotine, Jean-Jacques E.....	TuAT17.6	3042
.....	TuCT7.5	4209
Smart, William	SuFW11.1	*
.....	MoCT2	C
.....	MoCT2.4	1560
Smit-Anseeuw, Nils	TuCT5.1	4096
Smith, Claes Christian.....	MoBT13	CC
.....	MoBT13.2	1245
.....	MoPmPo.39	2344
.....	WeCT17	CC
.....	WeCT17.1	6951
Smith, Jeffrey	TuCT8.4	4247
Smith, Joshua R.....	TuAT3.4	2449
Smolyanskiy, Nikolai	TuCT8.4	4247
So, JinHo.....	WeCT2.1	6325
Sobh, Tarek.....	WePmPo.5	*
Sodhi, Danish.....	TuCT14.3	4501
Sodhi, Paloma.....	WeAT12.5	5180
Sofge, Donald.....	TuPmPo.9	3142

Solatges, Thomas	MoAT11.4	445
Solovey, Kiril.....	MoCT13.1	2004
.....	TuPmPo.21	3154
Solowjow, Eugen.....	TuCT7.2	4187
.....	WeBT18.3	6257
Somasundaram, Kiran.....	MoAT16.2	635
Somlor, Sophon.....	MoBT13.6	1275
Sommer, Hannes	MoBT7.2	1005
.....	MoCT18.1	2220
SOMMER, Nicolas	TuCT1.6	3962
Sonar, Harshal	WePmPo.12	5503
.....	WeBT17.3	6221
Song, Dezhen.....	MoBT18.1	1458
Song, Jae-Bok.....	MoAmPo.17	2279
.....	MoAmPo.18	2280
Song, Jingwei	WeBT5.4	5730
Song, Seungwon	TuPmPo.16	3149
Song, Shuang.....	TuAT5.2	2518
Song, Sichao	MoAmPo.45	2306
Song, Xiaoyu	TuAT12.6	2836
Song, Zhuoyuan	WeBT18.2	6251
Sono, Taichi	TuAT11.5	2787
Sonoura, Takafumi.....	TuAmPo.31	3118
Soor, Avinash	TuBT14.1	3722
souissi, mouna	MoAT10.3	396
Sousa, João	WeCT13.6	6825
Soviche, Amaury	MoBT4.4	900
Speciale, Pablo	WeBT15.2	6126
Spek, Andrew	MoCT1.2	1506
Spencer, Gibb	TuAT8.6	2673
Spica, Riccardo	TuAT6.5	2581
.....	WeBT16.6	6199
Spielvogel, Andrew Robert.....	WeBT9.3	5880
Spinós, Alexander	TuAT10.1	2718
Springenberg, Jost Tobias	TuAT1.4	2372
Sprodotski, Tobias	WeAT4.3	4842
Sridar, Saivimal	TuBT14.2	3728
Srinivasa, Siddhartha	SuBW8.1	*
.....	TuCT17.6	4654
.....	WeBT4.5	5694
.....	WeBT6.4	5770
SRIPADA, ADITYA SUDHAKAR.....	WeAmPo.31	5481
St-Onge, David.....	SuFW11	C
.....	SuFW11.1	*
.....	WePmPo.20	5511
Stabinger, Sebastian.....	MoAT3.2	95
Stachniss, Cyrill.....	MoBT18.6	1491
.....	MoAmPo.29	2291
.....	MoPmPo.2	2309
.....	TuAT13.3	2858
.....	WeAT12.1	5155
.....	WeCT10.5	6685
Stanciulescu, Bogdan.....	MoPmPo.26	2333
Starke, Julia.....	WeCT5.5	6470

Starke, Sebastian	WeCT17.2	6959
Stefanou, Thekla	WeCT8.6	6601
Stegagno, Paolo	MoPmPo.4	2311
.....	TuCT17.2	4624
Steger, Ryan	WeBT5.6	5744
Steil, Jochen J.	MoCT4.4	1644
.....	MoPmPo.1	2308
Stelter, Simon	MoBT3.3	849
Stephens, Trevor Keith.....	TuAmPo.25	3112
Stepson, Volanka	WeCT7.6	6561
Sternad, Dagmar	TuCT11.4	4376
Stiller, Christoph	SuFW13.1	*
Stilwell, Daniel	SuAW16.1	*
.....	MoAT3.1	87
Stolkin, Rustam	TuBT6.1	3386
.....	TuCT3.5	4040
.....	WeCT11.1	6699
Stone, Katelyn	TuAT10.3	2731
Stone, Peter	WeCT8.3	6582
Stoyanov, Danail	MoAT4	CC
.....	MoAT4.3	145
.....	WeBT5	CC
.....	WeBT5.2	5717
.....	ThFW2.1	*
Stoyanov, Todor	MoBT16.4	1390
Stramigioli, Stefano	MoBT5.2	929
.....	MoPmPo.22	2329
Strawser, Philip	MoAmPo.14	2276
.....	TuBT16.1	3803
Strazzulla, Ilaria	TuPmPo.4	3137
Stria, Jan	TuBT3.3	3274
Stückler, Jörg	MoAT15.3	599
.....	WeCT10.2	6662
Stulp, Freek	SuBW16.1	*
Su, Dan	WeAT6.1	4911
Su, Daobilige	MoCT3.1	1579
Su, Hai-Jun.....	MoPmPo.23	2330
Su, Shuang.....	TuAT10.2	2724
Su, Xing.....	MoCT4.5	1652
Suarez, Alejandro.....	MoBT6.6	993
Subbarao, Alok.....	MoBT4.4	900
Subr, Kartic.....	MoAT15.5	615
Subramani, Guru	TuCT11.6	4392
Subrin, Kévin	MoBT18.4	1479
Suehiro, Kiichi	WeAT18.2	5414
Suehiro, Takashi	WeCT18.1	6985
Sugahara, Yusuke	WeCT2	CC
.....	WeCT2.3	6337
Sugai, Fumihito	MoAT9.6	377
.....	WeAT8.1	4990
Sugano, Shigeki	MoBT13.6	1275
.....	MoPmPo.36	2342
.....	TuAT9.5	2705
.....	WeBT2.4	5602

Sugata, Yuhei.....	TuPmPo.38	3170
Suger, Benjamin.....	MoAT16.3	643
Sugihara, Tomomichi	TuCT15	C
.....	TuCT15.4	4552
.....	WeAT14.4	5257
.....	WeCT4.4	6428
Sugiura, Hirotake.....	MoBT10.6	1153
Sugiyama, Osamu.....	WeBT11.6	5985
Suh, Il Hong.....	TuAT4	CC
.....	TuAT4.1	2472
Suh, Junghun	WeBT16.1	6163
Sui, Yanan.....	TuBT18.3	3897
Sui, Zhiqiang	TuBT3.4	3281
Sukhatme, Gaurav	MoAT6.6	250
.....	TuAT13.6	2881
.....	WeCT13.1	6785
Sukhavasi, Ravi Teja.....	MoAT16.2	635
Sukkarieh, Salah	TuBT16.2	3809
Suleiman, Wael	WeAT8	CC
.....	WeAT8.2	4997
.....	WeCT17.3	6967
Summers, Tyler	TuPmPo.25	3158
Sun, Dong	MoBT10	CC
.....	MoBT10.5	1147
Sun, Fuchun	TuPmPo.10	3143
Sun, Hanqiu.....	WePmPo.22	5513
.....	WeCT4.3	6420
Sun, Hongmei.....	MoPmPo.3	2310
Sun, Li	WeCT11.1	6699
Sun, Mingzhu	TuAT16.2	2975
Sun, Qiao	WeCT16.3	6923
Sun, Xiao.....	WeAT17.6	5398
.....	WeCT7.4	6547
Sun, Yi.....	WeAT7.4	4969
Sun, Yi.....	WeBT17.2	6214
Sun, Yi.....	WeBT18.1	6245
Sun, Yu.....	WeCT5.3	6455
Sun, Yu.....	WeCT18.4	7005
Sun, Yuxiang	MoAmPo.2	2264
Sun, Zhiyong	WeAT15.4	5298
Sunar, Berk	WeAmPo.9	5460
Sunberg, Zachary.....	MoBT2.3	805
Sünderhauf, Niko.....	WeAT9.5	5057
.....	WeAT10.2	5079
.....	ThBW13.1	*
SunSpiral, Vytas.....	TuCT2.5	3996
Sur, Indranil.....	WeBT1.2	5541
Surmann, Hartmut.....	MoAT16	C
.....	MoAT16.1	627
Suthakorn, Jackrit.....	MoAmPo.1	2263
Suthar, Bhivraj.....	TuBT6.3	3401
Suwon, Lee	MoAmPo.3	2265
Suzuki, Hiroto.....	WeAT14.1	5239
Suzuki, Kenji.....	MoCT8.4	1813

.....	MoPmPo.41	2346
.....	ThAW5.1	*
Suzuki, Yosuke.....	MoBT13.1	1237
.....	MoCT11.2	1922
.....	WeCT3.2	6371
Suzumori, Koichi	MoCT15.3	2106
.....	TuAT9	C
.....	TuAT9.6	2711
.....	WeBT7.2	5796
Svinin, Mikhail	MoCT14.6	2084
Svoboda, Tomas	WeCT4.2	6414
Swei, Sean	TuAT10.3	2731
Syguilla, Felix	MoBT17.6	1450
.....	MoPmPo.19	2326
Szmuk, Michael.....	WeAT4.6	4862

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Tabak, Ahmet Fatih	MoCT10.6	1908
Tabb, Amy	WeBT12.3	6005
Taberner, Andrew J.....	TuPmPo.40	3172
.....	WeCT2.5	6349
Tachibana, Ryuki.....	MoBT2.5	820
Tadakuma, Kenjiro	MoCT12.6	1996
Tadami, Naoaki	WeAT7.1	4950
Tadesse, Yonas	TuBT12.5	3667
Tadokoro, Satoshi	MoCT12.6	1996
Tahri, Omar	MoAT10.2	390
Tai, Lei.....	MoAT1.5	31
Taix, Michel	TuBT13.5	3707
Takabayashi, Yusuke.....	WeAT8.4	5011
Takahashi, Masaki	WeCT16.4	6929
Takahashi, Takayuki	WeCT17.5	6979
Takahata, Tomoyuki.....	MoAmPo.46	2307
Takaki, Takeshi	MoBT6.5	986
.....	MoBT10.4	1141
Takamatsu, Jun.....	TuCT14.6	4523
.....	WePmPo.19	5510
Takane, Eri	MoCT12.6	1996
Takanishi, Atsuo.....	TuAT2.2	2398
.....	TuAmPo.40	3127
.....	WeAT9.4	5050
.....	WeAT17.6	5398
.....	WeCT7.4	6547
Takasugi, Noriaki.....	MoAT17.4	690
.....	WeAT8.3	5003
Takayama, Toshio.....	TuAT16.1	2969
Takeda, Yukio	WeCT2.3	6337
Takeichi, Masashi.....	MoCT15.3	2106
.....	TuAT9.6	2711
Takeuchi, Eijiro.....	TuBT7.5	3458
Takeuchi, Hikaru	WeAT9.4	5050
Takeuchi, Masaru.....	TuAT16.3	2981
Takimoto, Yusuke.....	TuAT11.5	2787
Talebpour, Zeynab	MoBT9.5	1106
Talignani Landi, Chiara	TuBT11.4	3617

TAMADAZTE, Brahim	TuAT16.6	3001
Tan, Jie.....	TuAT12.1	2800
Tan, Jindong.....	MoCT8	C
.....	MoCT8.5	1819
.....	MoAmPo.7	2269
.....	MoAmPo.41	2303
.....	MoPmPo.29	2335
.....	TuBT12	C
.....	TuBT12.6	3675
.....	WeCT6.6	6520
Tan, U-Xuan	MoBT10.2	1128
Tan, Ying	WeBT5.3	5723
Tan, Yu Herng	MoAmPo.12	2274
Tanaka, Hideyuki.....	MoAT14.5	569
Tanaka, Junya	TuAmPo.31	3118
Tanaka, Mamiko.....	TuPmPo.11	3144
Tanaka, Yoshihiro	MoAmPo.43	2304
Tang, Ellande	WeAT7.5	4976
Tang, Gao	WeAT4.5	4854
Tang, Hui.....	MoAT10.1	384
.....	WeAT18	C
Tang, Qiankun.....	MoAT1.3	17
Tang, Te	MoBT13.5	1268
.....	TuAT3.1	2428
Tang, Yandong.....	WeBT10.5	5934
Tang, Yucheng	TuAT2.3	2404
Tani, Jun.....	TuAmPo.45	3131
Tanigawa, Ayumi.....	WeCT16.4	6929
Taniguchi, Akira.....	MoBT2.4	812
Taniguchi, Ryosuke.....	WeAmPo.16	5466
Taniguchi, Tadahiro.....	MoBT2.4	812
Tanimoto, Masanori.....	MoAT13.4	522
Tanwani, Ajay Kumar	MoAT2.1	43
Taslakian, Perouz.....	MoCT9.3	1847
Tata, Matthew.....	TuAmPo.12	3099
Tatano, So.....	TuAT8.1	2638
Tatsuno, Kyoichi.....	MoAmPo.44	2305
Tavakoli, Mahdi	SuFW12	C
.....	SuFW12.1	*
.....	ThFW17.1	*
Tavakoli, Mahmoud.....	TuBT14	CC
.....	TuBT14.4	3740
Tavares Ferreira, Jhony Alan	WeAmPo.21	5471
.....	WePmPo.6	5497
Taylor, Angelique	TuCT6.4	4158
Taylor, Camillo Jose.....	TuAT8.3	2650
Taylor, Chris	TuPmPo.9	3142
Taylor, Jonathan D.....	WeAT13.1	5196
Taylor, Russell H.....	MoCT5.5	1692
Taylor, Zachary Jeremy.....	MoBT16.1	1367
.....	MoCT18.1	2220
Tebyani, Maryam.....	TuAT10.3	2731
Teichmann, Marek.....	MoAmPo.27	2289
Teitelman, Ted	MoPmPo.13	2320

Tekles, Nikolas	MoCT4.3	1637
Teles Gabrich, Bruno	TuAT10.4	2737
ten Pas, Andreas	WePmPo.8	5499
.....	WePmPo.9	5500
Teodorescu, Mircea	TuAT10.3	2731
.....	TuCT2.5	3996
Terada, Kazunori	TuPmPo.2	3135
Teramachi, Tomotaka	WeAT17.6	5398
.....	WeCT7.4	6547
Teramae, Tatsuya	TuAT18.3	3064
.....	TuCT11.5	4384
Teramura, Kaoru	TuAT16.1	2969
Terashima, Kazuhiko	WeBT2.6	5616
Terra, Marco Henrique	TuCT4.6	4089
Terrazas Mallea, Ronald	MoAT10.5	409
Terryn, Seppe	WeBT7.6	*
Thakor, Nitish	MoBT11	C
.....	MoBT11.4	1181
.....	WeAmPo.17	5467
.....	WePmPo.21	5512
Thakur, Dinesh	MoBT13.4	1261
Thames, Daria	WeCT8.4	6589
Thandiackal, Robin	TuCT18.1	4662
Theron, Nicolaas Johannes	TuBT5.6	3379
Thiem, Daniel B.	MoBT4.3	893
Thiruchelvam, Dhan	WeBT5.3	5723
Thomas, Jack	MoPmPo.10	2317
Thomas, Justin	TuCT8.1	4223
Thomas, Shawna	TuCT3.4	4032
Thomas, Ulrike	WeBT9.1	5868
Thompson, Alexander James	MoBT5.5	948
Thompson, Christopher	TuBT12.1	3635
Thompson, David	TuBT16.3	3817
Tian, Dongying	WeBT10.5	5934
Tian, Guohui	MoAmPo.7	2269
Tian, Yan	WeAT12.3	5168
Tikam, Mayur	TuBT5.6	3379
Tikhanoff, Vadim	MoAT17.2	675
.....	MoBT17.1	1412
.....	MoAmPo.31	2293
Till, John	TuAT17.2	3014
Timmis, Jon	MoCT2.5	1567
.....	MoPmPo.47	2351
.....	TuBT17.6	3875
Tiong, Lee Kong	WeBT12.5	6020
To, Vinh	TuAT8.5	2666
Tobin, Joshua	MoAT1.4	23
.....	WePmPo.16	5507
Tokekar, Pratap	SuAW16	C
.....	SuAW16.1	*
Tolley, Michael Thomas	MoAT12.6	495
.....	TuCT10.2	4318
.....	WeBT17.1	6207
.....	ThFW3.1	*

Tomizuka, Masayoshi.....	MoBT13.5	1268
.....	TuAT3.1	2428
Tomlin, Claire	MoBT2.6	827
.....	WeBT16.1	6163
Tommasi, Tatiana.....	WeBT1.5	5564
Tomo, Tito Pradhono.....	MoBT13.6	1275
Tonazzini, Alice	MoAT5.2	181
Tong, Guofeng	WeCT6.6	6520
Tonneau, Steve.....	TuBT13.5	3707
Tony, Berendsen	TuAT8.6	2673
Topcu, Ufuk	TuAT17.1	3007
Torralba, Antonio.....	WeBT6.6	5784
Torras, Carne	TuBT1.3	3191
Toth, Cynthia	TuAT6.1	2550
Tournois, Guido Alexander.....	WeAT5.4	4889
Toussaint, Marc.....	MoAT2.4	65
Towler, Jerry.....	MoCT13.3	2019
Tran, Minh	MoAT13.2	509
Traversaro, Silvio	WeBT11.1	5949
Trease, Brian.....	TuPmPo.19	3152
Trefzer, Martin.....	MoCT2.5	1567
Trianni, Vito	TuCT10.3	4325
Triantafyllou, Michael	TuCT7.5	4209
Triebel, Rudolph	WeAT10	C
.....	WeAT10.3	5086
.....	WeBT9	C
.....	WeBT9.1	5868
Trigoni, Niki	WeCT12.6	6777
Trimmer, Barry	MoAT12.3	477
.....	MoAmPo.6	2268
Trivisonne, Raffaella.....	MoAT14.1	540
Trocoli, Tiago.....	WePmPo.35	*
Tsagarakis, Nikos.....	SuFW7.1	*
.....	MoAT8.4	323
.....	MoBT17.4	1436
.....	MoCT18.6	2255
.....	TuBT6.4	3407
.....	TuCT11	CC
.....	TuCT11.3	4368
.....	WeAT2	CC
.....	WeAT2.4	4762
.....	WeAT2.5	4769
.....	WeAT3	C
.....	WeAT3.2	4791
.....	WeAmPo.22	5472
.....	WePmPo.1	5493
.....	WeBT2	CC
.....	WeBT2.3	5594
.....	WeBT10.1	5908
Tsai, Chia-Hung Dylan	TuAT16.1	2969
Tsekos, Nikolaos.....	TuBT12.3	3651
.....	WePmPo.4	5496
.....	WeCT5.1	6440
Tsiogkas, Nikolaos	WeCT13.3	6801

Tsuji, Tokuo.....	MoBT13.1	1237
.....	MoCT11.2	1922
Tsuji, Toshiaki	MoAT13	CC
.....	MoAT13.5	528
.....	MoCT14.4	2069
Tsumura, Ryosuke	MoAT5.3	187
Tsurumine, Yoshihisa.....	MoCT2.2	1546
Tuna, Eser Erdem	WeAT9.3	5043
Tung, Frederick	MoAT3.4	109
.....	WeCT15.4	6886
Turk, Greg	TuAT12.1	2800
Turlej, Wojciech.....	WeBT8.5	5853
Turton, A.J.....	WeCT8.6	6601
Tuyls, Karl	WeCT12.4	6764
Tzafestas, Costas S.	WeAT9.1	5031
.....	WeAT9.2	5037
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Uchibe, Eiji	MoCT2.2	1546
Ude, Ales.....	MoCT17.3	2193
Uebele, Nicholas	TuBT12.4	3659
Ujino, Ryuma.....	WeAT5.1	4869
Ullrich, Monika.....	WeAT10.3	5086
Um, Dugan	MoAmPo.15	2277
Um, Terry Taewoong.....	TuAT1.6	2386
Umari, Hassan.....	MoBT16.5	1397
Unicomb, James.....	WeAT15.3	5292
Upcroft, Ben	WeAT9.5	5057
Uriguen Eljuri, Pedro Miguel.....	TuCT14.6	4523
Uryu, Kazuhiro.....	WeAT17.6	5398
Usenko, Vladyslav.....	MoAT6.1	215
Usevitch, Nathan	WeAT17.1	5361
Ushiku, Yoshitaka.....	WeAT10.6	5108
Usman, Muhammad.....	TuBT6.3	3401
Uzeda Garcia, Luis Guilherme	WeAmPo.24	5474
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Váňa, Petr	TuPmPo.5	3138
Vagdargi, Prasad.....	MoBT4.5	907
Vagvolgyi, Balazs	TuBT16.5	3832
Vahrenkamp, Nikolaus	WeCT1.1	6285
Valada, Abhinav	MoAT15.1	583
Valdastri, Pietro	WeBT5.3	5723
Valencia, Rafael	TuCT14.4	4507
Valentin, Julien	WeCT15.4	6886
Valipour, Sepehr.....	MoPmPo.33	2339
.....	TuAT11.3	2773
Van Assche, Guy.....	WeBT7.6	*
van der Smagt, Patrick.....	TuCT9.1	4266
Van Evert, Frits K.	ThAW13.1	*
Van Heerden, Kirill	WeAT18.2	5414
Vander Poorten, Emmanuel B.....	MoAT4.3	145
.....	WeBT5.2	5717
Vanderborght, Bram.....	SuFW7.1	*
.....	MoCT4.1	1625
.....	MoCT15.6	2129

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Vankeirsbilck, Bert.....	TuAT1.3	2366
Varadharajan, Vivek shankar	WePmPo.20	5511
Varava, Anastasiia	TuPmPo.6	3139
Vardy, Andrew.....	TuCT7.6	4215
.....	TuCT12	CC
.....	TuCT12.3	4416
Vargas, Aldo.....	WeAmPo.3	5455
Varley, Jacob.....	TuAT3.3	2443
Vasconcelos, Rui.....	WeAT5.6	4903
Vasile, Cristian Ioan	TuBT17	CC
.....	TuBT17.1	3840
.....	TuBT17.2	3846
VASQUEZ, Alex	TuAT18.6	3082
Vassiliades, Vassilis	MoAT2.2	51
Vasudevan, Ram.....	TuCT14.5	4515
Vaughan, Richard.....	MoPmPo.10	2317
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.....	WePmPo.33	5524
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Vazhapilli Sureshbabu, Anand	MoAT17.2	675
Veer, Sushant.....	SuFW5.1	*
.....	WeAT8.6	5025
.....	WeAT14.3	5251
.....	WeBT8.3	5840
Veloso, Manuela.....	MoBT9.6	1114
.....	TuBT11.5	3623
.....	WeCT4.1	6408
Veltman, Jeroen	MoBT5.2	929
Vempati, Anurag Sai	TuBT8.3	3485
Verbelen, Tim	TuAT1.3	2366
Vercauteren, Tom.....	MoAT4.3	145
.....	WeBT5.2	5717
Vertens, Johan	MoAT15.1	583
Victores, Juan G.....	WeCT6.1	6484
Vidal-Calleja, Teresa A.....	MoBT16	C
.....	MoBT16.3	1383
Viereck, Ulrich	WePmPo.8	5499
Vieyres, Pierre.....	TuCT16.2	4582
Viguria, Antidio	TuBT8.5	3501
Vijayakumar, Sethu	TuAT13.1	2844
Vijayarangan, Srinivasan.....	WeAT12.5	5180
Villamizar, Michael	WeCT18.5	7011
Villani, Luigi	MoAT4.1	131
.....	MoBT18.2	1465
Vincze, Markus.....	WeCT6.2	6490
Viollet, Stephane	MoPmPo.30	2336
.....	TuBT7.3	3445
Viseras, Alberto.....	MoAT3.6	123
Vissiere, David	TuCT12.2	4408

Vivio, Nicholas.....	MoBT3.2	841
von Drigalski, Felix Wolf Hans	TuCT14.6	4523
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.....	WePmPo.19	5510
von Stryk, Oskar.....	MoAT11.1	422
.....	MoCT14.5	2077
von Stumberg, Lukas	MoAT6.1	215
Voyles, Richard	WeCT14.3	6843
Vukosavljev, Marijan	MoAT6.2	223
Vysotska, Olga	MoPmPo.2	2309
W		
Waaning, Lauren	WeAT9.4	5050
Wada, Kentaro	MoBT11.2	1165
.....	WeAT10.4	5092
Wagner, Bernardo	TuAT9.2	2686
Wagner, Syler.....	WeBT6.6	5784
Wahrmann, Daniel.....	MoBT17.6	1450
Wakabayashi, Mizuho	WeBT11.6	5985
Wakabayashi, Yuta	TuAT12.5	2830
Wakisaka, Naoki.....	WeCT4.4	6428
Walck, Guillaume	MoCT17.4	2201
Wall, Vincent	MoAT12.1	465
.....	MoBT12.3	1214
.....	WeAT7.6	4982
Wallar, Alexander.....	TuBT10.6	3589
Wallenberg, Marcus	WeBT15.5	6149
Walsh, Conor James	MoCT5.6	1700
.....	MoCT8.2	1799
.....	TuBT12.1	3635
Walter, Matthew	WeCT9.1	6609
Wan, Weiwei	MoAT3	CC
.....	MoAT3.4	109
.....	MoCT11.3	1930
wan, wenfeng	MoCT10.5	1902
Wang, Bing.....	MoBT7.1	999
Wang, Chao	TuPmPo.22	3155
.....	TuBT15.1	3761
Wang, Chaoqun	MoAT3.4	109
.....	WeBT14.2	6083
Wang, Chen	MoCT3.4	1603
Wang, Chen	TuAT2.5	2416
Wang, Chuang	TuAT7.3	2610
Wang, Chunxiang.....	MoBT7.1	999
Wang, Dawei.....	TuPmPo.12	3145
Wang, Guoping	WePmPo.22	5513
.....	WeCT4.3	6420
Wang, Hesheng.....	TuAT2.6	2422
Wang, Hongbo	WeBT5.5	5738
Wang, Hongyi.....	TuCT11.6	4392
Wang, Jeonghyeon	MoAT16.6	662
Wang, Jiangliu.....	MoAmPo.28	2290
Wang, Jun	WeBT5.4	5730
Wang, Ke.....	WeAT7.3	4963
Wang, Lihui	TuAT12.3	2814

Wang, Long	TuAT5.5	2538
Wang, Michael Yu	MoAmPo.30	2292
	WeBT17	CC
	WeBT17.6	6239
Wang, Ning	TuAT17.4	3028
wang, Rongzhi	MoCT16.5	2165
Wang, Sen	WeCT12.6	6777
Wang, Shuai	TuAT17.4	3028
Wang, Shuai	WeBT10.5	5934
Wang, Tao	TuAmPo.39	3126
Wang, Tianmiao	MoCT7.3	1762
Wang, Ting-Kuo	MoPmPo.5	2312
Wang, Wei	TuAT2.5	2416
Wang, Wei	WeBT2.4	5602
Wang, Wufan	WeBT11.4	5971
Wang, Xuefeng	MoCT5.4	1686
Wang, Xuefeng	TuAT16.2	2975
Wang, Yang	MoAmPo.5	2267
Wang, Yanzhou	WeCT2.6	6355
Wang, Yiqiang	WeBT17.6	6239
Wang, Yong	MoBT10.5	1147
Wang, Yue	TuCT4.1	4055
Wang, Yue	WeCT8	CC
	WeCT8.2	6575
Wang, Yueqi	WeBT17.1	6207
Wang, Yufei	TuAT14.5	2917
Wang, Yuquan	TuAT12.3	2814
Wang, Yushi	WeBT2.4	5602
Wang, Zerui	MoCT5.5	1692
Wang, Zhanchi	TuAT14.4	2910
	TuAT14.5	2917
Wang, Zheng	MoBT8.6	1071
	WeBT18.4	6264
wang, zhigang	TuAmPo.24	3111
Wang, Zhongkui	TuAT14.1	2888
Wang, Ziheng	MoPmPo.15	2322
Wang, Zizhao	TuAmPo.37	3124
Ward-Cherrier, Benjamin	WeAT3.5	4813
WARRIER, ABHISHEK	WeAmPo.31	5481
Warrier, Rahul Balakrishna	TuPmPo.26	3159
Wartenberg, Marek	MoCT5.3	1678
Washizaki, Kai	WeBT11.6	5985
Waslander, Steven Lake	MoBT18	C
	MoBT18.5	1485
	WeAT15	CC
Watanabe, Atsushi	TuAT8.1	2638
	TuAT18.2	3057
Watanabe, Kohei	WeAT10.6	5108
Watanabe, Tetsuyou	MoBT13	C
	MoBT13.1	1237
	MoCT11.2	1922
Waters, Zachary	MoAT3.1	87
Watts-Willis, Tristan	TuAmPo.9	3096
	TuBT8.6	3509

Weber, Brian	WePmPo.30	5521
Webster III, Robert James.....	WeCT5.4	6463
Wehbe, Bilal	TuCT7.1	4179
Wei, Hongxing.....	WeCT6.6	6520
Wei, Liang	MoCT8.5	1819
Wei, Yifan	MoAmPo.41	2303
Welde, Jake.....	TuCT8.1	4223
Welinder, Peter.....	WePmPo.16	5507
Welker, Taylor	MoAmPo.22	2284
Welschehold, Tim.....	TuBT1.4	3197
Wen, John	MoAmPo.34	2296
.....	MoPmPo.11	2318
Wensing, Patrick	TuAT17	CC
.....	TuAT17.6	3042
.....	TuCT5.3	4108
Werfel, Justin.....	TuCT10	C
.....	TuCT10.5	4339
Werner, Alexander	WeBT8.5	5853
Werthschützky, Roland	MoBT4.3	893
.....	MoCT8.6	1825
.....	MoAmPo.19	2281
Wester, Rinse.....	MoBT2.2	798
Westermann, Kevin	MoCT12.2	1966
Weston-Dawkes, William.....	TuCT10.2	4318
Wettergreen, David	TuBT16.3	3817
.....	TuBT16.4	3825
.....	WeAT12.5	5180
Whitcomb, Louis.....	TuAT6.6	2588
.....	WeBT9.3	5880
White, Edward	TuBT14.3	3734
White, Robert David	MoAT12.3	477
White, Ruffin	MoAT12.6	495
White, Victor	MoBT11.3	1173
Whitman, Julian.....	TuAT10.2	2724
Whitzer, Michael.....	TuAT10.4	2737
Wickenheiser, Adam	MoCT16	CC
.....	MoCT16.3	2152
Widy, Andreas	TuAT7.1	2596
Wiedebach, Georg	MoAT17.1	668
Wikander, Jan	MoBT12.2	1208
Wilkening, Paul.....	TuBT16.5	3832
Willems, Brecht	TuAmPo.5	3092
Williams, Mary-Anne	TuPmPo.31	3164
Williams, Ryan.....	SuAW16.1	*
Williams, Tom.....	WeCT8.4	6589
Wilson, Graeme Neff.....	WeCT16.3	6923
Wingate, David.....	WeBT1.4	5557
Winkler, Alexander, Wayne	TuCT16.4	4595
.....	WeBT4.6	5702
Winterhalter, Wera	WeAT1.6	4737
Wisanuvej, Piyamate.....	MoAT5.6	209
.....	MoBT5.5	948
.....	TuAT5.3	2525
Withey, Daniel	TuBT5.6	3379

Witt, Jonas.....	MoBT1.5	778
Wittmann, Robert	MoBT17.6	1450
Wolbrecht, Eric.....	TuPmPo.23	3156
Wolek, Artur.....	MoAT3.1	87
Wolff, Felix.....	TuCT3.2	4017
Wollherr, Dirk.....	WeBT16.2	6171
Wong, Jay M.	WeBT6.6	5784
Wong, Uland.....	TuAT8.5	2666
Wong, Wai Keat	MoBT13.6	1275
Wonseok, Choi.....	MoAmPo.3	2265
Wonsick, Murphy.....	TuCT13.3	4458
Woo, Kam Tim.....	TuAT7.1	2596
Wood, Robert	MoBT5.1	921
.....	MoCT8.2	1799
.....	TuBT12.1	3635
.....	TuCT2.1	3970
Woodbury, Tim.....	WeBT14.5	6105
Woolsey, Craig	SuAW16.1	*
.....	TuBT8.2	3479
Worst, Rainer	MoAT16.1	627
Worthmann, Karl	WeAT4.3	4842
Wray, Kyle	MoAT3.5	117
Wrede, Britta	ThFW8.1	*
Wu, Aixuan	TuAT12.6	2836
Wu, Annie.....	TuAT4.5	2500
Wu, Cong	TuCT4.5	4083
Wu, Han	TuAmPo.39	3126
Wu, Haoying.....	MoCT2.6	1573
Wu, Jimmy.....	WeBT6.6	5784
Wu, Junlin.....	MoBT14.2	1290
WU, KANZHI	MoCT3.1	1579
.....	TuCT4.1	4055
Wu, Liao	MoCT12.3	1974
Wu, Qiyang.....	MoAT12.5	489
Wu, Xihong.....	WeAmPo.19	5469
Wu, Xinyu	MoAT10.4	402
.....	MoCT10.2	1884
Wu, Xinzhou.....	MoAT16.2	635
Wu, You.....	WeBT14.1	6075
Wu, Zelong.....	MoAT10.1	384
Wuensche, Hans J	TuBT13.1	3681
.....	WeAT16.4	5340
Wulfmeier, Markus	MoCT2.3	1552
Wurdemann, Helge Arne.....	WeBT2.5	5610
Wuthier, David.....	TuCT12.5	4430
wyffels, Francis.....	TuAmPo.5	3092
Wykowska, Agnieszka.....	MoAmPo.31	2293
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Xavier Fidêncio, Aline.....	WeAmPo.21	5471
.....	WePmPo.6	5497
Xia, Zeyang	TuAmPo.42	3129
Xiao, Jing.....	MoAT11	C
.....	MoAT11.6	457
Xiao, Jizhong.....	MoPmPo.42	2347

Xiao, Xuan.....	MoAT8.6	336
Xiao, Xuesu.....	MoAmPo.24	2286
.....	WeBT14.5	6105
Xie, Biyun.....	WeAT18.3	5421
Xie, Guangming.....	TuAT2.5	2416
Xie, Lihua.....	MoCT3.4	1603
Xie, Linhai.....	WeCT12.6	6777
Xie, Xiaojia.....	MoCT7.5	1776
Xie, Xu.....	TuBT9.4	3536
.....	WePmPo.18	5509
.....	WeCT9.2	6617
Xin, Songyan.....	MoAT8.4	323
.....	MoBT17.4	1436
.....	WePmPo.1	5493
Xing, Ziran.....	WeBT9.5	5892
Xiong, Jing.....	TuAmPo.42	3129
Xiong, Rong.....	TuCT4.1	4055
Xiong, Xiaobin.....	TuCT15.5	4558
Xu, Anqi.....	TuCT7.3	4195
xu, changqing.....	MoCT16.5	2165
Xu, De.....	WeBT10.4	5928
XU, Lan.....	TuCT4.2	4063
Xu, Peng.....	WeAT9.3	5043
Xu, Tiantian.....	MoAT10.4	402
.....	MoCT10.2	1884
Xu, Tianye.....	TuBT7.4	3452
Xu, Xiangrong.....	MoPmPo.38	*
Xu, Xun.....	WeBT14.2	6083
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Yabuki, Jun.....	TuPmPo.27	3160
Yadmellat, Peyman.....	WeBT6.3	5764
Yahya, Ali.....	MoAT2.6	79
yahyanejad, saeed.....	TuCT11.2	4360
Yamada, Moyuru.....	TuAmPo.36	3123
Yamada, Seiji.....	MoAmPo.45	2306
Yamada, Soichi.....	TuAmPo.40	3127
Yamada, Yasuyuki.....	MoBT8.1	1041
.....	TuBT18.4	3903
.....	WeAT7.1	4950
Yamaguchi, Kengo.....	MoCT11.4	1938
Yamamoto, Kenjiro.....	MoAT14.6	575
Yamamoto, Motoji.....	MoCT14.6	2084
Yamamoto, Takanobu.....	TuCT15.4	4552
Yamanaka, Kai.....	MoPmPo.43	2348
Yamane, Katsu.....	WeBT8.6	5861
Yamashita, Atsushi.....	WePmPo.39	5529
Yan, Rui Jun.....	WeBT12.5	6020
Yan, Ruibo.....	MoCT15.2	2099
Yan, SHOUMENG.....	TuPmPo.12	3145
Yan, Weisheng.....	WeBT13.6	6067
Yan, Zhi.....	MoBT3.5	865
Yang, Boling.....	TuAT3.4	2449
Yang, Chen.....	MoBT4.5	907
Yang, Chuanyu.....	WeCT3.1	6363

Yang, Chun-Tang.....	TuAT11.2	2767
Yang, Eun-Sung.....	MoPmPo.18	2325
Yang, Guang-Zhong.....	MoAT5.4	193
.....	MoAT5.6	209
.....	MoBT5.5	948
.....	TuAT5.3	2525
.....	TuAT16.5	2995
.....	WeAT3.3	4797
Yang, Guodong.....	MoBT6.3	974
.....	MoAmPo.39	2301
Yang, Guoyong.....	MoPmPo.42	2347
Yang, Hua.....	TuAmPo.24	3111
Yang, Hyunseok.....	MoAT7.4	280
Yang, Jiang.....	WeAT7.4	4969
Yang, Liang.....	MoPmPo.42	2347
Yang, Liangjing.....	MoBT10.2	1128
Yang, Ming.....	MoBT7	CC
.....	MoBT7.1	999
.....	MoCT7	CC
Yang, Shichao.....	MoAT15.2	591
Yang, Shih-An.....	TuAT11.2	2767
Yang, Xin.....	MoCT6.4	1726
Yang, Xiumei.....	TuAT12.6	2836
Yang, Yezhou.....	SuFW17.1	*
Yang, Yiming.....	TuAT13.1	2844
Yang, Yu-Huan.....	TuCT6.2	4145
Yang, Yulin.....	WeCT12.2	6749
Yao, Jian.....	MoBT14.2	1290
Yao, Kunpeng.....	WeCT3.3	6379
Yap, Hong Kai.....	TuAT10.5	2745
Yasui, Shogo.....	WeAT11.2	5122
Yatsun, Andrey.....	MoPmPo.45	*
Yatsun, Sergey.....	MoPmPo.45	*
Yazdanpanah Abdolmalaki, Reza.....	TuBT12.6	3675
Ye, Jing.....	MoAT1.3	17
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Yeh, Shu-Hao.....	MoBT18.1	1458
Yeh, Tso-Hsin.....	TuCT6.2	4145
Yeo, Khoon Seng.....	WeBT18.5	6271
Yeow, Chen-Hua.....	MoBT11.4	1181
.....	MoBT12	C
.....	MoBT12.4	1220
.....	TuAT10.5	2745
.....	WeBT17.2	6214
Yesilevskiy, Yevgeniy.....	MoPmPo.27	2334
Yetkin, Harun.....	MoAT3.1	87
Yi, Chang'an.....	TuAmPo.33	3120
Yi, Daqing.....	TuCT17.6	4654
Yi, Juan.....	MoBT8.6	1071
Yim, Justin K.....	TuBT5.1	3345
Yim, Mark.....	MoBT3	CC
.....	MoBT3.2	841
.....	TuAT10	C
.....	TuAT10.1	2718

.....	TuAT10.4	2737
.....	TuPmPo.37	3169
.....	TuBT10.1	3556
Yin, Kai	WeCT13.1	6785
Yin, Munan	MoCT10.3	1890
Yin, Pengshuai	TuAmPo.33	3120
Yin, Yingjie	WeBT10.4	5928
Yin, Yuchao	WeAT1.2	4709
Yip, Michael C.	SuFW12.1	*
Yokota, Takashi.....	TuPmPo.38	3170
Yokoya, Tsuyoshi	MoBT2.5	820
Yoneda, Tomoo	MoPmPo.9	2316
Yoo, Joong-Sun.....	MoPmPo.32	2338
Yoo, Ju Han.....	WeCT15.6	6902
Yoon, Jungwon.....	MoCT10	CC
.....	MoCT10.4	1896
Yorozu, Ayanori.....	WeCT16.4	6929
Yoshida, Hiroshi	WeAT7.1	4950
Yoshida, Yuki	WeCT7.4	6547
Yoshihara, Yuki	TuBT7.5	3458
Yoshiike, Takahide	WeAT5.1	4869
Yoshikawa, Kent.....	WeAmPo.33	5483
Yoshimitsu, Tetsuo.....	WeAmPo.33	5483
Yoshioka, Masataka	WeAT8.4	5011
You, Xuanke	TuAT14.4	2910
You, Yangwei	MoBT17.4	1436
.....	WePmPo.1	5493
Youcef-Toumi, Kamal.....	MoBT10.2	1128
.....	WeBT14.1	6075
Young, Jay	WeBT1.5	5564
Yu, Bocheng	MoBT4.5	907
Yu, Haitao.....	TuBT2.3	3232
Yu, Haoyong.....	MoCT17.5	2207
Yu, Hongsheng.....	WeCT10.3	6670
Yu, Hyejun.....	MoAmPo.18	2280
Yu, Hyeonwoo	WeBT10.3	5922
Yu, Jingyi.....	WeBT9.5	5892
Yu, Junzhi.....	MoBT6.3	974
Yu, Wenhao.....	TuAT12.1	2800
Yu, Wenxian	MoCT16.5	2165
Yuan, Baofeng.....	TuBT2.3	3232
Yuan, Jianjun.....	TuAT17.4	3028
Yuan, Wenzhen.....	MoAT4.2	137
Yuanfang, Zhang.....	WePmPo.23	5514
Yucel, Zeynep	TuPmPo.33	3166
Yue, Shigang.....	TuCT2.6	4002
Yuen, Michelle Ching-Sum.....	TuBT14.3	3734
Yuille, Alan	TuPmPo.10	3143
Yukizaki, Soh.....	MoAT17.4	690
Yunis, David	WeCT9.1	6609
Z		
Zabulis, Xenophon	TuBT15.6	3797
Zaganidis, Anestis	TuCT4.3	4070
Zaid, Habib	WePmPo.4	5496

Zakharov, Sergey	MoAT14.3	553
Zamani, Ali	WeAT5.3	4883
Zanchettin, Andrea Maria	WeAT3.1	4785
.....	WeCT3.5	6393
.....	WeCT8	C
.....	WeCT8.5	6595
Zanlungo, Francesco.....	TuPmPo.33	3166
Zanotto, Damiano.....	WeBT8	CC
.....	WeBT8.2	5833
Zaremba, Wojciech	MoAT1.4	23
.....	WePmPo.16	5507
Zarrouk, Azaddien	MoAT10.2	390
Zaytsev, Petr	TuCT5.1	4096
Zecca, Massimiliano.....	WeAT9	C
.....	WeAT9.4	5050
Zeestraten, Martijn J.A.	MoAT2.5	73
Zefran, Milos.....	TuBT11.2	3603
Zell, Andreas	MoBT15.3	1338
.....	TuBT7.2	3439
Zenatti, Fabiano	WeCT16.2	6915
Zeng, Yiming	MoAT1.3	17
Zeng, Zhen	TuBT3.4	3281
Zeno, Peter.....	WePmPo.5	*
Zermas, Dimitris	WeBT15.6	6155
Zha, Hongbin.....	TuPmPo.22	3155
.....	TuBT15.1	3761
Zhakypov, Zhenishbek	WeBT2.1	5580
ZHAN, Huangying	MoBT1.3	764
Zhang, Changchun.....	TuAT5.2	2518
Zhang, Clark.....	WeAmPo.15	5465
Zhang, Dianmu.....	WeAmPo.4	5456
Zhang, Ding.....	TuAT4.6	2506
Zhang, Fan.....	TuBT11.3	3609
Zhang, Fangbo.....	TuCT10.6	4347
Zhang, Fu	MoCT18.4	2242
.....	WeAT4.2	4835
.....	WeAT11.4	5135
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Towards a Robotic Society



**2018 IEEE/RSJ International Conference
on Intelligent Robots and Systems**

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Conference Schedule

Vancouver, BC, Canada
September 24–28, 2017



THURSDAY Sep 28, 2017	
Workshops/ Tutorials 9:00 – 12:30	Workshops/ Tutorials 14:00 – 17:30
Lunch Break 12:30 – 14:00	
Workshops/ Tutorials 14:00 – 17:30	

WEDNESDAY Sep 27, 2017	
Exhibits (Ballroom A)/Robot Competitions (Exhibition Hall A)	
Conference Plenary III Ballrooms B&C 9:00 – 10:00 Maja Mataric	
Coffee Break & Poster Session 10:00 – 10:30	
Technical Sessions WeA 10:30 – 12:00	
Awards Luncheon 12:00 – 13:45	
Keynote Sessions 13:45 – 14:30 Room 118 13:45 Room 118 13:45 Room 214 13:45 Room 109 13:45 Judy Durland Tim Salcedo Cecilia Luchi	
Technical Sessions WeB 14:30 – 16:00	
Coffee Break & Poster Session 16:00 – 16:30	
Technical Sessions WeC 16:30 – 18:00	
Farewell Reception 19:00 – 21:00 Ballroom Foyer	

TUESDAY Sep 26, 2017	
Exhibits (Ballroom A)/Robot Competitions (Exhibition Hall A)	
Conference Plenary II Ballrooms B&C 9:00 – 10:00 Fei-Fei Li	
Coffee Break & Poster Session 10:00 – 10:30	
Technical Sessions TuA 10:30 – 12:00	
Lunch Break 12:00 – 13:00	
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Technical Sessions TuB 14:30 – 16:00	
Coffee Break & Poster Session 16:00 – 16:30	
Technical Sessions TuC 16:30 – 18:00	
Conference Banquet 19:00 – 22:00 Ballrooms B, C, and D	

MONDAY Sep 25, 2017	
Exhibits (Ballroom A)/Robot Competitions (Exhibition Hall A)	
Conference Plenary I Ballrooms B&C 9:00 – 10:00 Dieter Fox	
Coffee Break & Poster Session 10:00 – 10:30	
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Technical Sessions MoC 16:30 – 18:00	
OC/ICPRB Appreciation Dinner 19:00 – 21:00 (By Invitation Only)	

SUNDAY Sep 24, 2017	
Workshops/ Tutorials 9:00 – 12:30	Workshops/ Tutorials 14:00 – 17:30
Lunch Break 12:30 – 14:00	
Workshops/ Tutorials 14:00 – 17:30	
Welcome Reception 19:00 – 21:00 Ballroom Foyer	