IEEE AMC 2018

The 15TH International Workshop on Advanced Motion Control

Tokyo, Japan

March 9-11, 2018

Welcome Message from the AMC2018 General Co-Chairs

On behalf of the organizing committee, it is our pleasure to welcome all delegates, representatives and participants from all around the world to the 15th IEEE International Workshop on Advanced Motion Control in Tokyo (AMC2018) that brings together researchers in the field of advanced motion control or in the educational field to discuss current developments and future perspectives on motion control technology. We sincerely hope that this event will satisfy your highest expectation for an intellectually stimulating and culturally enjoyable experience.

The sponsor of AMC2018-Tokyo is the IEEE Industrial Electronics Society (IES). In IES, the International Workshop on Advanced Motion Control (AMC) is one of the greatest activities. AMC always has many young participates for discussion of advanced motion control technology.

The first AMC was held at Yokohama-city, Japan in 1990, whose General Chair was Prof. Kouhei Ohnishi in Keio University. After 28years from the first AMC and following to the last conference in Auckland, New Zealand in 2016, our wish is to have in Tokyo many chances to engage in enthusiastic discussions on motion-control-related issues and open research problems.

Tokyo is the world's most populous metropolitan area and is the administrative, financial, educational, and cultural center of Japan. In 2020, the summer Olympic Paralympic Games will be held in Tokyo and the city is now boosting its energy on preparation for the success of the games. The conference venue, Shibaura Institute of Technology, is located at the center of the Tokyo. It is several-minutes train ride distance from Tokyo station, the central station of Tokyo. The venue is also close to the Olympic Village.

Each paper submitted to the conference had been put through a rigorous peer review planned by the respective program, special session chairs and organizers. We also appreciate all contributions and cooperation by the committee members, sponsoring societies and organizations towards the success of the conference. We extend are sincere thanks for the session organizers and the many reviewers who volunteered their time and efforts for upholding the quality of this conference.

We do hope that the conference will highly be successful and fruitful to all participants and that you will fully enjoy the workshop in both its technical and social aspects at AMC2018-Tokyo.

Prof. Yutaka Uchimura
Shibaura Institute of Technology

Prof. Kiyoshi Ohishi
Nagaoka University of Technology

AMC2018 Tokyo Organizing Committees

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Kiyoshi Ohishi Nagaoka University of Technology, Japan

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Mami Fujita JTB Communication Design, Japan

Special Session Organizers

SS1: Sensors and Techniques for Human Movements Detection: Applications in Motion Control

Eric Fujiwara, University of Campinas
Naoki Oda, Chitose Institute of Science and Technology
Yasue Mitsukura, Keio University

SS2: Design, Modeling, and Control Applications of Fluid Power Systems

Kenta Seki, Nagoya Institute of Technology
Michael Ruderman, University of Agder

SS3: Design and Control of Compliant Robots

Emre Sariyildiz, University of Wollongong
Barkan Ugurlu, Ozyegin University
Toshiaki Tsuji, Saitama University

SS4: Smart Precision Motion Control in Mechatronic Systems

Kazuaki Ito, Gifu University
Kenta Seki, Nagoya Institute of Technology
Hiroshi Fujimoto, The University of Tokyo
Tom Oomen, Eindhoven University of Technology

SS5: Advanced Motion Control Systems for Smart, Green and Integrated Vehicles

Valentin Ivanov, TU Ilmenau
Aldo Sorniotti, University of Surrey
Barys Shyrokau, Delft University of Technology

SS6: Network-based Control Systems and Its Applications

Yutaka Uchimura, Shibaura Institute of Technology
Daisuke Yashiro, Mie University
Kenji Natori, Chiba University

SS7: Disturbance Observer-based Robust Control and Its Applications

Emre Sariyildiz, University of Wollongong
Takahiro Nozaki, Keio University
Tomoyuki Shimono, Yokohama National University

SS8: Motion Control for Physical Human-robot Interaction

Sehoon Oh, DGIST
Yasutaka Fujimoto, Yokohama National University
Seiichiro Katsura, Keio University
Kiyoshi Ohishi, Nagaoka University of Technology
Toshiyuki Murakami, Keio University

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Matti Noack
Mikael Norrlof
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Emre Sariyildiz
Ryuta Sato
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Akira Shimada
Naoki Shimada
Sota Shimizu
Shuhei Shimmyo
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Musa Yazar
Yuki Yokokura
Kazuhiro Yubai
Mattia Zanchetta
Tadanao Zanma
Jing Zhou
Vidas Zuraulis

Workshop Program

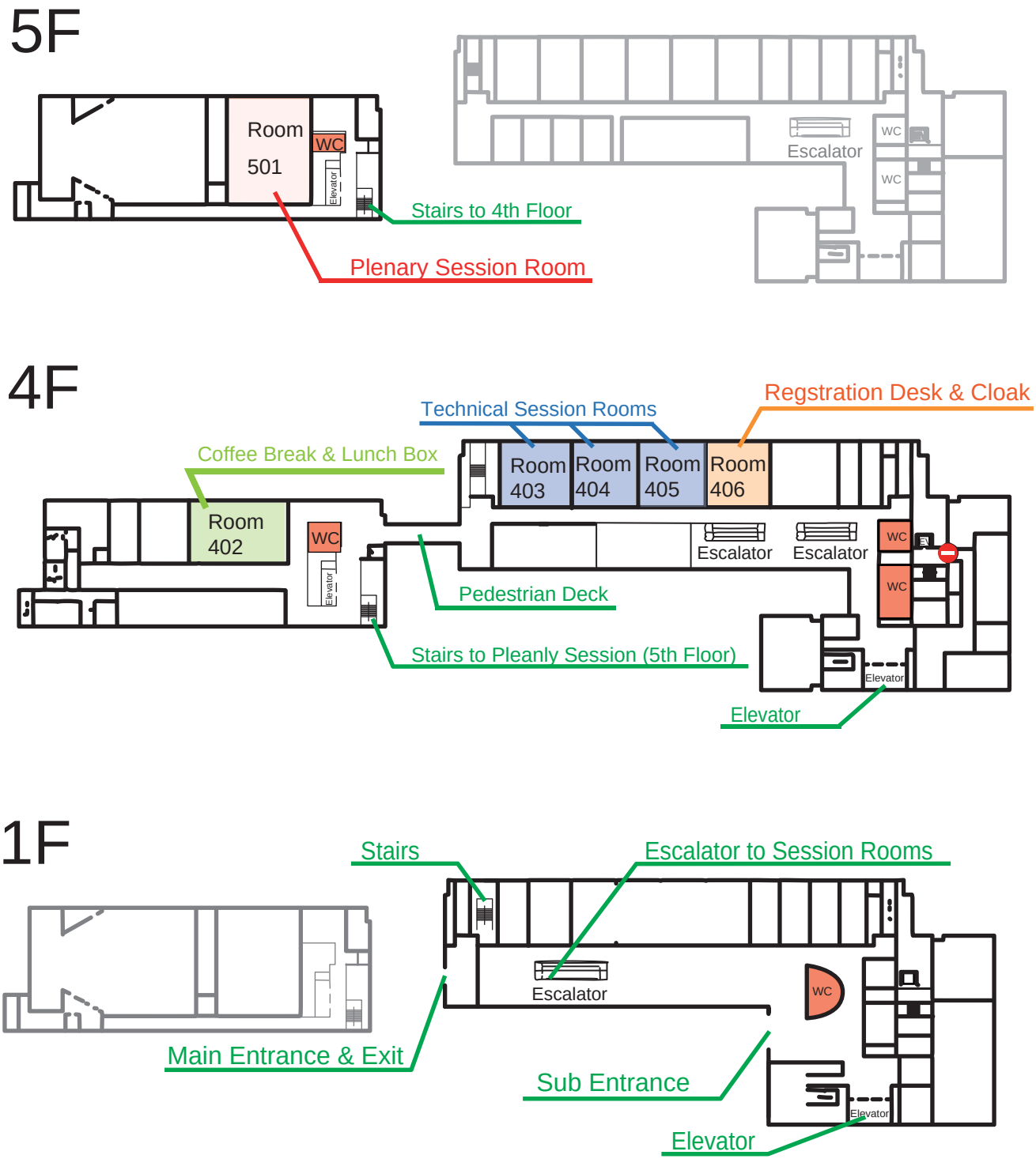
March 9			
	Room 403	Room 404	Room 405
09:40-10:00	Opening Ceremony (Room 501)		
10:00-11:00	Plenary Session 1: From The Motor Control to The Motion Control Prof. Asif Šavanović (Room 501)		
11:00-11:30	Coffee Brake (Room 402)		
11:30-12:50	SS04: Smart Precision Motion Control in Mechatronic Systems 1	SS03: Design and Control of Compliant Robots	TTVSSIP: Visual Servo Systems and Image Processing
12:50-14:00	Lunch (Room 402)		
14:00-15:20	SS04: Smart Precision Motion Control in Mechatronic Systems 2	SS05: Advanced Motion Control for Smart, Green and Integrated Vehicles 1	SS06: Network-based Control Systems and Its Applications 1
15:20-15:50	Coffee Brake (Room 402)		
15:50-17:10	SS04: Smart Precision Motion Control in Mechatronic Systems 3	SS05: Advanced Motion Control for Smart, Green and Integrated Vehicles 2	SS06: Network-based Control Systems and Its Applications 2
18:00-20:00	Welcome Reception (Telecom Center Building)		

March 10			
	Room 403	Room 404	Room 405
09:30-10:30	Plenary Session 2: Soft Robotics for Future Society Prof. Kouhei Ohnishi (Room 501)		
10:30-11:00	Coffee Brake (Room 402)		
11:00-12:20	TTMCM: Motion Control in Mechatronics 1	SS07: Disturbance Observer-based Robust Control and Its Applications 1	TTWRMR: Walking Robots and Mobile Robots
12:20-13:30	Lunch (Room 402)		
13:30-15:10	TTMCM: Motion Control in Mechatronics 2	SS01: Sensors and Techniques for Human Movements Detection 1	TTAS: Actuators and Sensors
15:10-15:40	Coffee Brake (Room 402)		
15:40-17:20	TTMCM: Motion Control in Mechatronics 3	SS01: Sensors and Techniques for Human Movements Detection 2	TTRM: Haptics and Robotics in Medicine
18:30-23:00	Banquet (Tokyo Bay Ariake Washington Hotel)		

March 11			
	Room 403	Room 404	Room 405
09:30-10:30	Plenary Session 3: How Disturbance Observer Changed my Life Prof. Roberto Oboe (Room 501)		
10:30-11:00	Coffee Brake (Room 402)		
11:00-12:00	SS08: Motion Control for Physical Human-Robot Interaction 1	SS07: Disturbance Observer-based Robust Control and Its Applications 2	SS02: Design, Modeling, and Control Applications of Fluid Power Systems 1
12:00-13:00	Lunch (Room 402)		
13:00-14:00	SS08: Motion Control for Physical Human-Robot Interaction 2	TTICS: Intelligent Control Systems 1	SS02: Design, Modeling, and Control Applications of Fluid Power Systems 2
14:00-14:30	Coffee Brake (Room 402)		
14:30-15:50	TTMCM: Motion Control in Mechatronics 4	TTICS: Intelligent Control Systems 2	TTTCS: Traction Control Systems
15:50-16:10	Closing Ceremony (Room 501)		

AMC 2018 Floor Map

Shibaura Institute of Technology Toyosu Campus



General Information

Conference Venue

Shibaura Institute of Technology, Toyosu Campus
3-7-5 Toyosu, Koto-ku, Tokyo 135-8548 JAPAN
Web: http://www.shibaura-it.ac.jp/en

Toyosu Campus

Transportation to the Venue

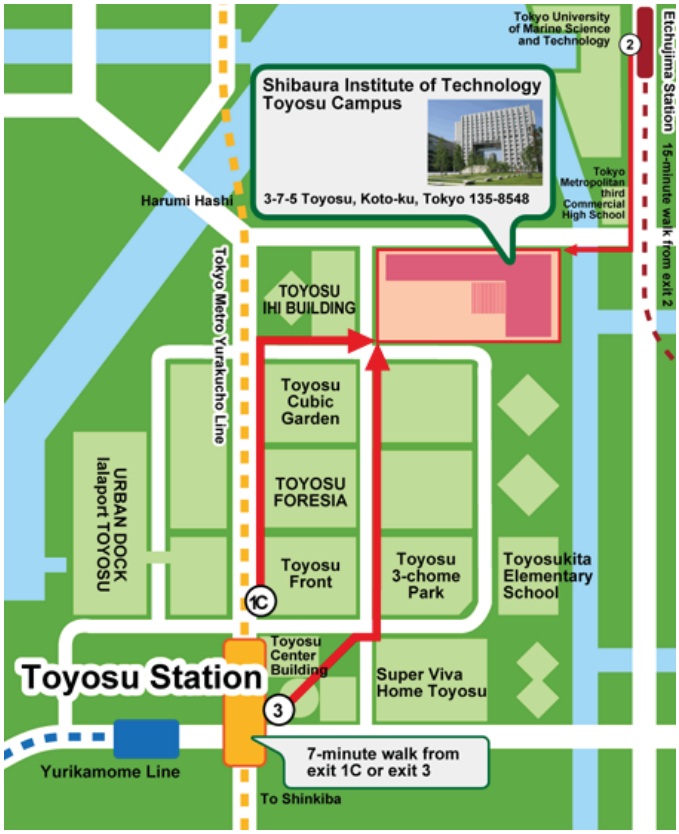
The nearest train station is Toyosu station.
There are two train lines, Yurakucyo line of Tokyo Metro (subway), and Yurikamome line (elevated railroad).

All stations in Tokyo metropolitan area have alphanumeric codes. Alphabet represents the line of the train and the number represents stations.

Toyosu Station
(Yurakucyo Line)

Toyosu Station
(Yurikamome Line)

Y22 is allocated for Toyosu station of Yurakucyo line, Tokyo Metro (subway).
From Y22, the venue is 7 minutes walk by using Exit 1c or 3.
U16 is allocated for Toyosu station of Yurikamome line (elevated railroad). From U16, the venue is 10 minutes by walk.



Access Map to the Venue

IC cards for public transportation

IC prepaid cards are the best way for smooth access to all lines in Tokyo area. PASMO and Suica cards are the two Tokyo IC cards offered by two different companies. Function of both cards is same.

PASMO

Suica

Conference Opening & Closure

The formal opening session will take place at 09:40, Friday 9th March, in Room 501.
The closing address will take place at 15:50, Sunday 11th March, in Room 501.

Registration Information

The registration desk (Room 406) will be open at the following times:
March 9th (Friday): 8:45 – 17:00
March 10th (Saturday) : 9:00 – 17:00
March 11th (Sunday) : 9:00 – 15:00

Conference Social & Networking Opportunities

Welcome Reception

Friday 9th March, 18:00-20:00,
Telecom Center Observatory,
(Located at 21th Floor in Telecom Center Building)
Address: 2-5-10, Aomi, Koutou-ku, Tokyo
Tel: 03-5500-0021 (i House Co., Ltd.)
http://i-house5.com/Telecom-Center-Observatory/

Telecom Center Building

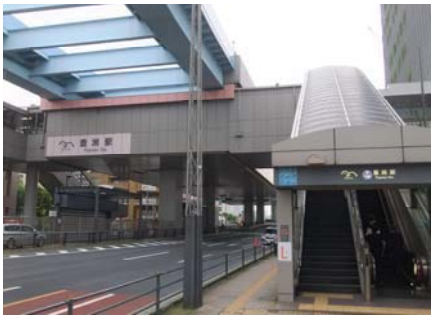
Please take Yurikamome line (elevated railroad) from Toyosu station (U16), and get off at Telecom Center station (U09). It is about 12-minite train ride. Telecom Center Building is on the left of the exit.

Telecom Center Building has a height of 99 meter. Its shape is similar to that of the triumphal arch in Paris, France. After taking an elevator up to the 20th floor, you can go up the stairs to the 21st floor.

You can enjoy the 260-degree panoramic view from the observatory. Above all, you can look around Tokyo bay area including Rainbow Bridge and Tokyo Tower, and Tokyo Skytree. It is selected a “night view inheritance of Japan.”

Scenic view from the observatory

The Welcome Reception is included for all registered delegates, a voucher is included in your conference pack.



Toyosu station (U16) of
Yurimome line (elevated railroad)

Yurikamome Line

Yurikamome Route map

Map: Telecom Center Observatory

Workshop Banquet

Saturday 10th March, 18:30-20:30,
TOKYO BAY ARIAKE WASHINGTON HOTEL
Banquet Room: IRIS
Address: 3-7-11 Ariake, Koto-ku, Tokyo
Tel: 03-5564-0111
http://tokyobay.washington-hotels.jp

TOKYO BAY ARIAKE
WASHINGTON HOTEL

Please take Yurikamome line (elevated railroad) from Toyosu station (U16), and get off at Ariake station (U12). It is about 6-minite train ride. The hotel is on the left of the exit. It takes 3 minutes by walk.

The Workshop Banquet is included for all registered delegates; a voucher is included in your conference pack.

Access map to the Hotel. Please use Ariake Station.

Lunch Breaks

A lunch box will be offered to registered delegates on Friday 9th, Saturday 10th, and Sunday 11th in Room 402. Please refer to the conference schedule for times. Vouchers for each day will be included in the conference pack.

Coffee Breaks

Coffee/Tea shall will be offered to registered delegates in Room 402, please refer to the conference schedule for further information and times.

Wi-Fi Connection Service

During works shop, Wi-Fi service is offered in the venue. Please use the following ESSID.
ESSID(SSID): SHIBAURA
Each ID has different Password. Do not pass the ID and password to another person.
Please ask at the reception desk for further information. Eduroam is also available.

Laboratory Tour

Lab tour is scheduled in Sunday March 10th at 15:30 (might be changed). Capacity of participants is around 30 people. The tour will take about an hour. Please ask at the reception desk for further information.

Plenary Sessions

Plenary Sessions

Friday, 9 March: 10:00-11:00

Room 501 Plenary Session 1

Plenary Speaker:

Professor Asif Šavanović, International University of Sarajevo, Bosnia and Herzegovina

Presenter:

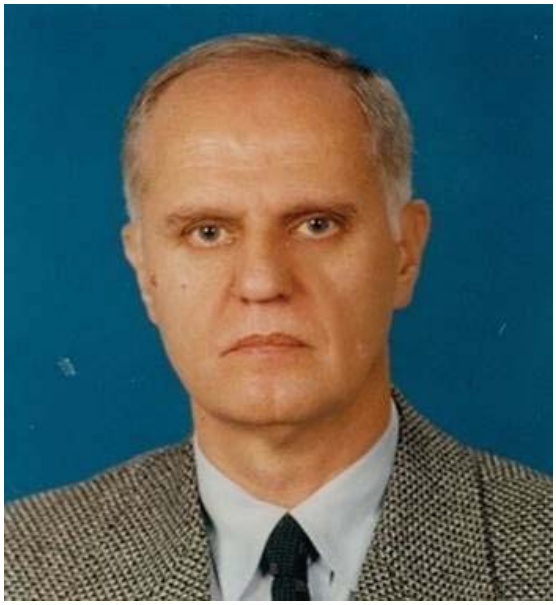
Yutaka Uchimiura, Shibaura Institute of Technology, Japan

Title:

From The Motor Control to The Motion Control

Abstract:

The motion control technology passed many twists and turns to reach current state of the art, and for sure it faces many more twist and turns in the future development. In this talk I will try to enlighten the future development of the motion control technology by reflecting on its development path shaped by the idea of the disturbance rejection and disturbance observer (DOB) proposed by Prof. K. Ohnishi a few decades ago. The idea of disturbance rejection profoundly influenced early stage of the motor control development and is still shaping applications to the new tasks, the network paradigm, and the never-ending growth of complexity of the motion control. In addition, in this talk, I will try to look at the interplay of the new ideas in control system design and implementation with the diversity of the tasks and complexities that are expected to be solved within motion control framework.



Saturday, 10 March: 09:30-10:30

Room 501 Plenary Session 2

Plenary Speaker:

Professor Kouhei Ohnishi, Keio University, Japan

Presenter:

Kiyoshi Ohishi, Nagaoka University of Technology, Japan

Title:

Soft Robotics for Future Society

Abstract:

The principle of standardization as typified by "the greatest happiness of the greatest number" had been a backbone through 20th century. Aging society to come, however, needs independent service for independent person to maximize each QOL. So-called service robot physically interacting with various objects should come into our future society. Real haptics is not only a technology to transmit the force/tactile sensation but a strong tool to transfer the motion skill including contact task to the service robot. The talk introduces what is such "soft robotics", how it works, and so on.

Sunday, 11 March: 09:30-10:30

Room 501 Plenary Session 3

Plenary Speaker:

Professor Roberto Oboe, University of Padova, Italy

Presenter:

Yasutaka Fujimoto, Yokohama National University, Japan

Title:

How Disturbance Observer Changed my Life

Abstract:

DOB made its first appearance in 1983, when prof. Ohnishi presented a paper entitled "Torque-Speed Regulation of a DC Motor Based on Load torque Estimation Method". In 1990, I become aware of this innovative concept but, at that time, I had to convince my skeptical colleagues about the powerful disturbance rejection of the DOB, compared to standard, old-fashioned PID-based controllers. Since then, the idea of estimating and compensating unknown disturbances has been extended, refined, formally analyzed and deployed in a multitude of applications. This talk will be a narration of the numerous times in which the DOB (and its extensions) surprised me for its flexibility and effectiveness in dealing with different problems, ranging from the high precision motion control to the teleoperation and rehabilitation.

Technical Sessions

Friday 9th of March

TTISPS - Plenary Session: Plenary Session 1

Room: Room 501
Hour: 10:00
Duration: 60 minutes

Plenary Speaker
Professor Asif Sabanovic, International University of Sarajevo, Bosnia and Herzegovina
Presenter
Yutaka Uchimura, Shibaura Institute of Technology, Japan

SS04 - Smart Precision Motion Control in Mechatronic Systems 1

Room: Room 403
Hour: 11:30
Duration: 80 minutes

Chair/s:
Tom Oomen, Eindhoven University of Technology, Netherlands
Makoto Iwasaki, Nagoya Institute of Technology, Japan
Papers
Hour:11:30
Title: Sparse Iterative Learning Control (SPILC): When to Sample for Resource-Efficiency?
Authors:
Prof. Tom Oomen, Eindhoven University of Technology, Netherlands
Prof. Cristian Rojas, KTH Royal Institute of Technology, Sweden
Hour:11:50
Title: Comparative Evaluations of Frequency Response Analysis Methods for Fast and Precise Point-to-point Position Control
Authors:
Prof. Yoshihiro Maeda, Nagoya Inst. of Tech., Japan
Mr. Hiroki Tachibana, Nagoya Inst. of Tech., Japan
Prof. Makoto Iwasaki, Nagoya Inst. of Tech., Japan
Hour:12:10
Title: Optimal Fail-Safe Motion Using Dynamic Brake for Lorentz-actuated AFM
Authors:
Dr. Shingo Ito, TU Wien, Austria
Prof. Georg Schitter, TU Wien, Austria
Hour:12:30
Title: Piecewise Affine (PWA) Modeling and Switched Damping Control of Two-Inertia Systems with Backlash
Authors:
Mr. Shota Yamada, The University of Tokyo, Japan
Prof. Michael Ruderman, University of Agder, Norway
Prof. Hiroshi Fujimoto, The University of Tokyo, Japan

SS03 - Design and Control of Compliant Robots

Room: Room 404
Hour: 11:30
Duration: 80 minutes

Chair/s:
Emre Sariyildiz, University of Wollongong, Australia
Tsuji Toshiaki, Saitama University, Japan
Papers
Hour:11:30
Title:A Comparison Study on Observer-based Force Control of Series Elastic Actuators

Authors:
Mr. Ahmet Talha Kansizoglu, Ozyegin University, Turkey
Dr. Emre Sariyildiz, University of Wollongong, Australia
Dr. Barkan Ugurlu, Ozyegin University, Turkey
Hour:11:50
Title: Reaction Force Observer Using Load Dependent Friction Model
Authors:
Mr. Morito Kazuya, Saitama University, Japan
Mr. Tsunoda Junya, Saitama University, Japan
Prof. Sakaino Sho, Saitama University, JST PRESTO, Japan
Prof. Tsuji Toshiaki, Saitama University, Japan
Hour:12:10
Title: An Analysis of the Effect of Gravity Compensation on Compliant Biped Walking Controllers
Authors:
Dr. Emmanouil Spyrakos-Papastavridis, Dyson School of Design Engineering, Imperial College London, United Kingdom
Prof. Peter Childs, Dyson School of Design Engineering, Imperial College London, United Kingdom
Dr. Nikos Tsagarakis, Advanced Robotics Department, Istituto Italiano di Tecnologia, Italy
Hour:12:30
Title: Storage and Haptic Rendering of Multi-Inertia Environment Using FDTD Method
Authors:
Mr. Hirotaka Muto, Nagaoka University of Technology, Japan
Prof. Yuki Yokokura, Nagaoka University of Technology, Japan
Prof. Kiyoshi Ohishi, Nagaoka University of Technology, Japan

TTVSSIP - Visual Servo Systems and Image Processing

Room: Room 405
Hour: 11:30
Duration: 80 minutes

Chair/s:
Sota Shimizu, Shibaura Institute of Technology, Japan
Kazuhiko Takahashi, Doshisha University, Japan
Papers
Hour:11:30
Title: Drift-free Motion Estimation from Video Images using Phase Correlation and Linear Optimization
Authors:
Mr. Yoshi Ri, The University of Tokyo, Japan
Prof. Hiroshi Fujimoto, The University of Tokyo, Japan
Hour:11:50
Title: Skyline Based Camera Attitude Estimation Using a Digital Surface Model
Authors:
Mr. Christopher Dahlin Rodin, Maritime Robotics, Norway
Prof. Tor Arne Johansen, Norwegian University of Science and Technology, Norway
Dr. Annette Stahl, Norwegian University of Science and Technology, Norway
Hour:12:10
Title: Simple Road Side Detection and Tracking on Embedded PC
Authors:
Dr. Abdul Muis, Universitas Indonesia, Indonesia
Mr. Johannes Mae, Binus University, Indonesia
Hour:12:30
Title: Brain-Computer Interface Using Deep Neural Network and Its Application to Mobile Robot Control
Authors:
Mr. Gauvain Huve, Doshisha University, Japan
Prof. Kazuhiko Takahashi, Doshisha University, Japan
Prof. Masafumi Hashimoto, Doshisha University, Japan

SS04 - Smart Precision Motion Control in Mechatronic Systems 2

Room: Room 403
Hour: 14:00
Duration: 80 minutes

Chair/s:
Hiroshi Fujimoto, The University of Tokyo, Japan
Kazuaki Ito, Gifu University, Japan
Papers
Hour:14:00
Title: Precise Modeling Suitable for Control System Design based on Impulse Response
Authors:
Mr. Kaoru Teranishi, National Institute of Technology,Ishikawa College, Japan
Prof. Naoki Shimada, National Institute of Technology,Ishikawa College, Japan
Hour:14:20
Title: Kernel-Based Regression of Non-Causal Systems for Inverse Model Feedforward Estimation
Authors:
Mr. Lennart Blanken, Eindhoven University of Technology, Netherlands
Mr. Ids van den Meijdenberg, Eindhoven University of Technology, Netherlands
Prof. Tom Oomen, Eindhoven University of Technology, Netherlands
Hour:14:40
Title: Feedback Controller Design with Adaptive Hysteresis Modeling in Piezo-Driven Stage Systems
Authors:
Mr. Tatsuru Senyo, Nagoya Institute of Technology, Japan
Prof. Kenta Seki, Nagoya Institute of Technology, Japan
Prof. Makoto Iwasaki, Nagoya Institute of Technology, Japan
Hour:15:00
Title: Improving Transient Learning Behavior in Model-Free Inversion-Based Iterative Control with Application to a Desktop Printer
Authors:
Mr. Robin de Rozario, Technische Universiteit Eindhoven, Netherlands
Prof. Tom Oomen, Technische Universiteit Eindhoven, Netherlands

SS05 - Advanced Motion Control Systems for Smart, Green and Integrated Vehicles 1

Room: Room 404
Hour: 14:00
Duration: 80 minutes

Chair/s:
Aldo Sorniotti, University of Surrey, United Kingdom
Valentin Ivanov, TU Ilmenau, Germany
Papers
Hour:14:00
Title: On the Feedback Control of Hitch Angle through Torque-Vectoring
Authors:
Mr. Mattia Zanchetta, University of Surrey, Great Britain (UK)
Dr. Davide Tavernini, University of Surrey, Great Britain (UK)
Prof. Aldo Sorniotti, University of Surrey, Great Britain (UK)
Dr. Patrick Gruber, University of Surrey, Great Britain (UK)
Dr. Basilio Lenzo, Sheffield Hallam, Great Britain (UK)
Prof. Antonella Ferrara, University of Pavia, Italy
Mr. Wouter De Nijs, Flanders MAKE, Belgium
Mr. Koen Sannen, Flanders MAKE, Belgium
Mr. Jasper De Smet, Flanders MAKE, Belgium
Hour:14:20
Title: Road profile estimation with modulation function based sensor fusion and series expansion for input reconstruction

Authors:
Mr. Matti Noack, TU Ilmenau, Germany
Dr. Theunis Botha, University of Pretoria, South Africa
Dr. Herman A. Hamersma, University of Pretoria, South Africa
Prof. Valentin Ivanov, TU Ilmenau, Germany
Prof. Johann Reger, TU Ilmenau, Germany
Prof. Schalk Els, University of Pretoria, South Africa
Hour:14:40
Title:A kinematic observer with adaptive dead-zone for vehicles lateral velocity estimation
Authors:
Mr. Luca De Pascali, University of Trento, Italy
Mr. Matteo Cocetti, University of Trento, Italy
Prof. Sophie Tarbouriech, Laas-Cnrs, France
Prof. Luca Zaccarian, University of Trento, Italy
Prof. Francesco Biral, University of Trento, Italy
Hour:15:00
Title: On Full MAGV Lateral Dynamics Exploitation: Autonomous Drift Control.
Authors:
Mr. Manuel Acosta, Coventry University, United Kingdom
Dr. Stratis Kanarachos, Coventry University, United Kingdom
Prof. Michael E. Fitzpatrick, Coventry University, United Kingdom

SS06 - Network-based Control Systems and Its Applications 1

Room: Room 405
Hour: 14:00
Duration: 80 minutes

Chair/s:
Daisuke Yashiro, Mie University, Japan
Yutaka Uchimura, Shibaura Institute of Technology, Japan
Papers
Hour:14:00
Title: Predictive Pinning Control with Communication Delays for Consensus of Multi-Agent Systems
Authors:
Dr. Koichi Kobayashi, Hokkaido University, Japan
Hour:14:20
Title: Implementation of Schedule Management Mechanism for S-TDMA Switch
Authors:
Mr. Shunpei Koyasu, Keio University, Japan
Prof. Takahiro Yakoh, Keio University, Japan
Hour:14:40
Title: Prediction Control for a Teleoperation System with Time Delay
Authors:
Mr. Hiromu Norizuki, Shibaura Institute of Technology, Japan
Prof. Yutaka Uchimura, Shibaura Institute of Technology, Japan
Hour:15:00
Title: Robust-control using model-error-feedback CDOB and DOB under variable-time-delay
Authors:
Dr. Masato Koyama, Mie University, Japan
Prof. Tomoyuki Shimono, Yokohama National University, Japan
Prof. Yosuke Asano, National Institute of Technology, Kisarazu College, Japan
Prof. Yasutaka Fujimoto, Yokohama National University, Japan

SS04 - Smart Precision Motion Control in Mechatronic Systems 3

Room: Room 403
Hour: 15:50
Duration: 80 minutes

Chair/s:
Kenta Seki, Nagoya Institute of Technology, Japan
Michael Ruderman, University of Agder, Norway
Papers
Hour:15:50
Title: Robust Load States Estimation against Mechanical Parameter Variations of a Two-Mass System using Acceleration-aided Dynamic Kalman Filter
Authors:
Prof. Kazuaki Ito, Gifu University, Japan
Mr. Koji Watanabe, Nagoya Institute of Technology, Japan
Prof. Makoto Iwasaki, Nagoya Institute of Technology, Japan
Hour:16:10
Title:LPTV Loop-Shaping with Application to Non-Equidistantly Sampled Precision Mechatronics
Authors:
Mr. Jurgen van Zundert, Eindhoven University of Technology, Netherlands
Prof. Tom Oomen, Eindhoven University of Technology, Netherlands
Hour:16:30
Title: Vibration Suppression Control for Two-Inertia System using Reference Governor
Authors:
Mr. Yuma Yazaki, The university of Tokyo, Japan
Prof. Hiroshi Fujimoto, The university of Tokyo, Japan
Hour:16:50
Title: Design and performance tradeoffs in MIMO disturbance feedforward control
Authors:
Mr. Michiel Beijen, Eindhoven University of Technology, Netherlands
Mr. Bo Cong, Eindhoven University of Technology, Netherlands
Mr. Marcel Heertjes, Eindhoven University of Technology, Netherlands

SS05 - Advanced Motion Control Systems for Smart, Green and Integrated Vehicles 2

Room: Room 404
Hour: 15:50
Duration: 80 minutes

Chair/s:
Barys Shyrokau, Delft University of Technology, Netherlands
Valentin Ivanov, TU Ilmenau, Germany
Papers
Hour:15:50
Title: Sideslip estimation algorithm comparison between Euler angles and quaternion approaches with black box vehicle model
Authors:
Mr. Angel Gabriel Alatorre Vazquez, Utc, France
Mr. Alessandro Victorino, Utc, France
Mr. Ali Charara, Utc, France
Hour:16:10
Title: Driver Distraction Detection and Evaluation with Artificial Neural Network and Fuzzy Logic
Authors:
Mr. Andrei Aksjonov, ŠKODA Auto a.s., Czech Republic
Dr. Pavel Nedoma, ŠKODA Auto a.s., Czech Republic
Prof. Valery Vodovozov, Tallinn University of Technology, Estonia
Dr. Eduard Petlenkov, Tallinn University of Technology, Estonia
Hour:16:30
Title: Performance Benchmark of state-of-the-art Lateral Path-following Controllers
Authors:
Mr. Zhenji Lu, Cognitive Robotics Department, Delft University of Technology, Netherlands
Prof. Barys Shyrokau, Cognitive Robotics Department, Delft University of Technology, Netherlands
Dr. Boulaid Boulkroune, Strategic Research Centre Manufacturing Industry Flanders Make, Belgium

Mr. Sebastiaan van Aalst, Strategic Research Centre Manufacturing Industry Flanders Make, Belgium
Prof. Riender Happee, Cognitive Robotics Department, Delft University of Technology, Netherlands
Hour:16:50
Title:A Novel Hybridized Automated Manual Transmission for High Performance Cars
Authors:
Mr. Fabio Vacca, University of Surrey, United Kingdom
Mr. Giulio Capilli, University of Surrey, United Kingdom
Prof. Aldo Sorniotti, University of Surrey, United Kingdom
Mr. Carlo Cavallino, Oerlikon Graziano, Italy
Mr. Marco Fracchia, Vocis Ltd, United Kingdom
Mr. Thomas Remondin, Vocis Ltd, United Kingdom
Prof. Francesco Bottiglione, Politecnico di Bari, Italy

SS06 - Network-based Control Systems and Its Applications 2

Room: Room 405
Hour: 15:50
Duration: 80 minutes

Chair/s:
Kenji Natori, Chiba University, Japan
Takahiro Yakoh, Keio University, Japan
Papers
Hour:15:50
Title: Funnel Control in Multi-Agent Systems with Communication Limitations
Authors:
Mr. Hiroki Kimura, Tokai University, Japan
Prof. Atsushi Okuyama, Tokai University, Japan
Hour:16:10
Title: Design of Adaptive Controller on Task Coordinate System for Bilateral Control System with Communication Delay
Authors:
Mr. Mingxuan Su, Department of electrical and electronic engineering, Mie University, Japan
Prof. Daisuke Yashiro, Department of electrical and electronic engineering, Mie University, Japan
Prof. Kazuhiro Yubai, Department of electrical and electronic engineering, Mie University, Japan
Prof. Satoshi Komada, Department of electrical and electronic engineering, Mie University, Japan
Hour:16:30
Title: Time Slotted Channel Hopping Scheduling Based on the Energy Consumption of Wireless Sensor Networks
Authors:
Mr. Tadanori Matsui, Keio university, Japan
Prof. Hiroaki Nishi, Keio university, Japan
Hour:16:50
Title: Model based predictive control for a system with long time delay
Authors:
Mr. Koji Kobayashi, Shibaura Institute of Technology, Japan
Prof. Yutaka Uchimura, Shibaura Institute of Technology, Japan

Saturday 10th of March

TTISPS - Plenary Session: Plenary Session 2

Room: Room 501
Hour: 09:30
Duration: 60 minutes

Plenary Speaker
Professor Kouhei Ohnishi, Keio University, Japan
Presenter
Kiyoshi Ohishi, Nagaoka University of Technology, Japan

TTMCM - TT Motion Control in Mechatronics 1

Room: Room 403
Hour: 11:00
Duration: 80 minutes

Chair/s:
Jan Swevers, KU Leuven, Belgium
Alessandro Beghi, University of Padova, Italy
Papers
Hour:11:00
Title: Linear parameter-varying system identification of an industrial ball screw setup
Authors:
Ms. Dora Turk, KU Leuven, Belgium
Mr. Taranjitsingh Singh, KU Leuven, Belgium
Prof. Jan Swevers, KU Leuven, Belgium
Hour:11:20
Title: Extending the Life of Legacy Robots: MDS-Ach, a Real-Time, Process Based, Networked, Secure Middleware based on the x-Ach Methodology
Authors:
Prof. Daniel Lofaro, U.S. Naval Research Laboratory, USA
Mr. Colin Ward, U.S. Naval Research Laboratory, USA
Dr. Magdalena Bugajska, U.S. Naval Research Laboratory, USA
Dr. Donald Sofge, U.S. Naval Research Laboratory, USA
Hour:11:40
Title:A Nonlinear MPC based Motion Cueing strategy for a high performance driving simulator with active seat
Authors:
Dr. Mattia Bruschetta, University of Padova, Italy
Mr. Yutao Chen, University of Padova, Italy
Mr. Daniel Cunico, University of Padova, Italy
Mr. Enrico Mion, University of Padova, Italy
Prof. Alessandro Beghi, University of Padova, Italy
Hour:12:00
Title:A toolbox for robust control design: an illustrative case study
Authors:
Mr. Laurens Jacobs, KU Leuven, Belgium
Mr. Maarten Verbandt, KU Leuven, Belgium
Mr. Andreas De Preter, Octinion bvba, Belgium
Mr. Jan Anthonis, Octinion bvba, Belgium
Prof. Jan Swevers, KU Leuven, Belgium
Prof. Goele Pipeleers, KU Leuven, Belgium

SS07 - Disturbance Observer-based Robust Control and Its Applications 1

Room: Room 404
Hour: 11:00

Duration: 80 minutes

Chair/s:
Emre Sariyildiz, University of Wollongong, Australia
Takahiro Nozaki, Keio University, Japan
Papers
Hour:11:00
Title:A Discussion on Discrete Implementation of Disturbance-Observer-Based Control
Authors:
Prof. Tarik Uzunovic, University of Sarajevo, Bosnia and Herzegovina
Dr. Emre Sariyildiz, University of Wollongong, Australia
Prof. Asif Sabanovic, International University of Sarajevo, Bosnia and Herzegovina
Hour:11:20
Title: Balancing Control of a Cubical Robot Balancing on Its Corner
Authors:
Mr. Zhigang Chen, Faculty of Information Technology, Beijing University of Technology, China
Prof. Xiaogang Ruan, Faculty of Information Technology, Beijing University of Technology, China
Mr. Yuan Li, Faculty of Information Technology, Beijing University of Technology, China
Hour:11:40
Title: Time Delay Compensation for Force Controller in Bilateral Teleoperation system under Time Delay
Authors:
Mr. Tetsuya Tashiro, Yokohama National University, Japan
Prof. Tomoyuki Shimono, Yokohama National University, Japan
Dr. Takahiro Mizoguchi, Kanagawa Institute of Industrial Science and Technology, Japan
Prof. Kouhei Ohnishi, Keio University, Japan
Hour:12:00
Title: Current Control System Suppressing Mechanical Resonance Using a Voltage Disturbance Observer
Authors:
Mr. Junichi Itoh, Nagaoka University of Technology, Japan
Prof. Kiyoshi Ohishi, Nagaoka University of Technology, Japan
Prof. Yuki Yokokura, Nagaoka University of Technology, Japan
Prof. Toshimasa Miyazaki, Nagaoka University of Technology, Japan

TTWRMR - Walking Robots and Mobile Robots

Room: Room 405
Hour: 11:00
Duration: 80 minutes

Chair/s:
Barkan Ugurlu, Ozyegin University, Turkey
Emmanouil Spyrakos-Papastavridis, Imperial College London, United Kingdom
Papers
Hour:11:00
Title: Expression of Intention by Rotational Head Movements for Teleoperated Mobile Robot
Authors:
Dr. Masahiko Mikawa, University of Tsukuba, Japan
Ms. Yoriko Yoshikawa, Marvelous Inc., Japan
Dr. Makoto Fujisawa, University of Tsukuba, Japan
Hour:11:20
Title: Modular Approach for Motion Control Design of Three-dimensional Two-wheeled Inverted Pendulum
Authors:
Mr. Tarcísio Oliveira, University of Campinas, Brazil
Dr. Eric Fujiwara, University of Campinas, Brazil
Dr. Ely Paiva, University of Campinas, Brazil

Hour:11:40
Title: On Trajectory Generation with Obstacle Avoidance for a Two Wheeled Rover Based on the Continuation Method
Authors:
Mr. Kiyoshi Hamada, Kyoto University, Japan
Prof. Ichiro Maruta, Kyoto University, Japan
Prof. Kenji Fujimoto, Kyoto University, Japan
Dr. Kenichi Hamamoto, Kajima Technical Research Institute, Japan
Hour:12:00
Title: Kane's method-based dynamic modeling and triple-trajectory tracking of a hyper redundant non-holonomic MDAMS
Authors:
Mrs. Yan Wei, CRIStAL, France
Mr. Ahmed Rahmani, CRIStAL, France

TTMCM - Motion Control in Mechatronics 2

Room: Room 403
Hour: 13:30
Duration: 100 minutes

Chair/s:
Mikael Norrlof, Linkoping University, Sweden
Wael Suleiman, University of Sherbrooke, Canada
Papers
Hour:13:30
Title: On Inverse Kinematics with Nonlinear Criteria: Trajectory Relaxation
Authors:
Mr. Kévin Dufour, University of Sherbrooke, Canada
Prof. Wael Suleiman, University of Sherbrooke, Canada
Hour:13:50
Title: Adaptive computed torque control based on RBF network for a lower limb exoskeleton
Authors:
Mr. Shuaishuai Han, Nanjing University of Science and Technology, China
Prof. Haoping Wang, Nanjing University of Science and Technology, China
Prof. Yang Tian, Nanjing University of Science and Technology, China
Hour:14:10
Title: Efficient Trajectory Reshaping in a Dynamic Environment
Authors:
Mr. Martin Biel, KTH, Royal Inistitute of Technology, Stockholm, Sweden
Dr. Mikael Norrlöf, Linköping University, Linköping / ABB Robotics, Västerås, Sweden
Hour:14:30
Title: On Prioritized Inverse Kinematics Tasks: Time-Space Decoupling
Authors:
Prof. Wael Suleiman, University of Sherbrooke, Canada
Dr. Ko Ayusawa, AIST, Tsukuba, Japan
Dr. Fumio Kanehiro, AIST, Tsukuba, Japan
Dr. Eiichi Yoshida, AIST, Tsukuba, Japan
Hour:14:50
Title: Online motion planning for autonomous vehicles in vast environments
Authors:
Mr. Tim Mercy, KU Leuven, Belgium
Dr. Erik Hostens, Flanders Make, Belgium
Prof. Goele Pipeleers, KU Leuven, Belgium

SS01 - Sensors and Techniques for Human Movements Detection 1

Room: Room 404
Hour: 13:30
Duration: 100 minutes

Chair/s:
Eric Fujiwara, University of Campinas, Brazil
Naoki Oda, Chitose Institute of Science and Technology, Japan
Papers
Hour:13:30
Title: An EEG-Based Robot Arm Control to Express Human Emotions
Authors:
Mr. Mikito Ogino, Dentsu ScienceJam, Japan
Prof. Yasue Mitsukura, Keio University, Japan
Hour:13:50
Title: Optical Fiber Force Myography Sensor for Applications in Prosthetic Hand Control
Authors:
Prof. Eric Fujiwara, University of Campinas, Brazil
Ms. Yu Tzu Wu, University of Campinas, Brazil
Prof. Carlos Suzuki, University of Campinas, Brazil
Ms. Dandara Andrade, University of Campinas, Brazil
Mr. Antonio Ribas Neto, University of Campinas, Brazil
Prof. Eric Rohmer, University of Campinas, Brazil
Hour:14:10
Title: Distributed Thermal Conductance Control for Sensing and Rendering Thermal Sensation on the Palm
Authors:
Ms. Yukiko Osawa, Keio University, Japan
Prof. Seiichiro Katsura, Keio University, Japan
Hour:14:30
Title: Human Detection by Active Sensing Using a Laser Range Sensor and a Pan-Tilt Camera
Authors:
Mr. Bo Sun, Shibaura Institute of Technology, Japan
Ms. Mirai Shimoyama, Shibaura Institute of Technology, Japan
Prof. Nobuto Matsuhira, Shibaura Institute of Technology, Japan
Hour:14:50
Title: Quantification of Pain Degree by Frequency Features of Single-Chanelled EEG
Authors:
Mr. Junichiro Kagita, Keio University, Japan
Prof. Yasue Mitsukura, Keio University, Japan

TTAS - Actuators and Sensors

Room: Room 405
Hour: 13:30
Duration: 100 minutes

Chair/s:
Atsuo Kawamura, Yokohama National University, Japan
Santosh Devasia, U. of Washington, United States
Papers
Hour:13:30
Title: Basic Study on 1D Array Actuator using Solenoid Actuators for of 2D Haptic Display Realization
Authors:
Mr. Sakahisa Nagai, Yokohama National University, Japan
Mr. Sota Ogura, Yokohama National University, Japan
Mr. Akihiro Shimazu, Yokohama National University, Japan
Prof. Atsuo Kawamura, Yokohama National University, Japan
Hour:13:50
Title: Iterative Machine Learning for Precision Trajectory Tracking with Series Elastic Actuators
Authors:
Dr. Nathan Banka, U. of Washington, United States
Mr. W. Tony Piaskowy, U. of Washington, United States

Prof. Joseph Garbini, U. of Washington, United States
Prof. Santosh Devasia, U. of Washington, United States
Hour:14:10
Title: Onboard 7DOF Motion Stage as an Inertial Platform for Payloads on Sounding Rockets
Authors:
Dr. Y Fukushima, Jaxa, Japan
Hour:14:30
Title: Concurrent H2/Hinf feedback control design with optimal sensor and actuator selection
Authors:
Mr. Taranjitsingh Singh, MECO Research Team, KU Leuven and DMMS Lab, Flanders Make, Belgium
Prof. Jan Swevers, MECO Research Team, KU Leuven and DMMS Lab, Flanders Make, Belgium
Prof. Goele Pipeleers, MECO Research Team, KU Leuven and DMMS Lab, Flanders Make, Belgium
Hour:14:50
Title: Dead Time Compensation for Three-level Flying Capacitor Inverter with Phase Shift PWM
Authors:
Mr. Hiroya Takahashi, Yokohama National University, Japan
Prof. Hidemine Obara, Yokohama National University, Japan
Prof. Yasutaka Fujimoto, Yokohama National University, Japan

TTMCM - TT Motion Control in Mechatronics 3

Room: Room 403
Hour: 15:40
Duration: 100 minutes

Chair/s:
Ryogo Kubo, Keio University, Japan
Toshimasa Miyazaki, Nagaoka University of Technology, Japan
Papers
Hour:15:40
Title: Experimental framework of traveling trolley with swinging load for hybrid motion control
Authors:
Mr. Wais Karimi, University of Agder, Norway
Prof. Michael Ruderman, University of Agder, Norway
Prof. Kenta Seki, Nagoya Institute of Technology, Japan
Prof. Makoto Iwasaki, Nagoya Institute of Technology, Japan
Hour:16:00
Title: Three-Stage Computed-Torque Controller for Trajectory Tracking in Non-Holonomic Wheeled Mobile Robot
Authors:
Mr. Vaibhav Gupta, Dept. of Mechanical Engineering, I.I.T. Delhi, India
Mr. Nalin Bandapudi, Dept. of Mechanical Engineering, I.I.T. Delhi, India
Prof. I. N. Kar, Dept. of Electrical Engineering, I.I.T. Delhi, India
Prof. S. K. Saha, Dept. of Mechanical Engineering, I.I.T. Delhi, India
Hour:16:20
Title: Experimental Verification of Torque Sensorless Control for Electric Power-Assisted Bicycles on Sloped Environment
Authors:
Mr. Norihito Fukushima, Yokohama National University, Japan
Prof. Yasutaka Fujimoto, Yokohama National University, Japan
Hour:16:40
Title: Ship Motion Control by Using the Center of Thrust Vector for 4-axis Driven Electric Ship
Authors:
Mr. Kazuhiro Miyabara, Nagaoka University of Technology, Japan
Mr. Hiroshi Kudo, Nagaoka University of Technology, Japan
Prof. Toshimasa Miyazaki, Nagaoka University of Technology, Japan
Mr. Yoshihisa Hojo, Toyo Denki Seizo K.K., Japan
Hour:17:00
Title: Linear model predictive movement control with obstacle avoidance for an inverted pendulum

robot
Authors:
Mr. Takashi Ohhira, Shibaura Institute of Technology, Japan
Prof. Akira Shimada, Shibaura Institute of Technology, Japan

SS01 - Sensors and Techniques for Human Movements Detection 2

Room: Room 404
Hour: 15:40
Duration: 100 minutes

Chair/s:
Eric Fujiwara, University of Campinas, Brazil
Yasue Mitsukura, Keio University, Japan
Papers
Hour:15:40
Title: System Development of Biped Robot Control Coordinated by Human Vision and Head Motion
Authors:
Prof. Naoki Oda, Chitose Institute of Science and Technology, Japan
Mr. Shota Tanaka, Chitose Institute of Science and Technology, Japan
Hour:16:00
Title: Optical Myography Sensor for Gesture Recognition
Authors:
Ms. Yu Tzu Wu, University of Campinas, Brazil
Prof. Eric Fujiwara, University of Campinas, Brazil
Prof. Carlos Kenichi Suzuki, University of Campinas, Brazil
Hour:16:20
Title:A Practical BCG Measuring System with Bed Sensors and Algorithm for Heartbeat Detection
Authors:
Mr. Masaki Nagura, Keio University, Japan
Prof. Yasue Mitsukura, Keio University, Japan
Prof. Taishiro Kishimoto, Keio University, Japan
Prof. Masaru Mimura, Keio University, Japan
Hour:16:40
Title: Non-verbal Communication-based Emotion Incitation Robot
Authors:
Prof. Sota Shimizu, Shibaura Institute of Technology, Japan
Mr. Kai Shimada, Shibaura Institute of Technology, Japan
Mr. Rei Murakami, Shibaura Institute of Technology, Japan
Hour:17:00
Title: Position and Velocity Measurement Method from a Single Image using Modulated Illumination
Authors:
Mr. Kentaro Matsuo, Keio University, Japan
Prof. Takahiro Yakoh, Keio University, Japan

TTRM - Haptics and Robotics in Medicine

Room: Room 405
Hour: 15:40
Duration: 80 minutes

Chair/s:
Naoki Motoi, Kobe University, Japan
Ugur Tumerdem, Marmara University, Turkey
Papers
Hour:15:40
Title: Tapping Motion Detection Incorporate with Impedance Control of Robotics Tapotement Massage on Human Tissue
Authors:

Prof. Ren Luo, National Taiwan University, Taiwan
Mr. Kai Chun Hsieh, National Taiwan University, Taiwan
Hour:16:00
Title: Position Tracking Control by Combination of Phase Different Control and Workspace Observer for 2-Link Manipulator with Bi-articular Muscle
Authors:
Mr. Hisashi Tamashima, Kobe University, Japan
Prof. Naoki Motoi, Kobe University, Japan
Hour:16:20
Title: Dexterous and Back-Drivable Parallel Robotic Forceps Wrist for Robotic Surgery
Authors:
Ms. Merve Bazman, Marmara University, Turkey
Ms. Nural Yilmaz, Marmara University, Turkey
Prof. Ugur Tumerdem, Marmara University, Turkey
Hour:16:40
Title: Dynamic Advantages of Singular Configurations in Moving Heavy Objects with a 3-DOF Robot Manipulator
Authors:
Mr. Ryohei Kawanishi, Kobe University, Japan
Dr. Takateru Urakubo, Kobe University, Japan
Dr. Xianglong Wan, Nagoya University, Japan

Sunday 11th of March

TTISPS - Plenary Session: Plenary Session 3

Room: Room 501
Hour: 09:30
Duration: 60 minutes

Plenary Speaker
Professor Roberto Oboe, University of Padova, Italy
Presenter
Yasutaka Fujimoto, Yokohama National University, Japan

SS08 - Motion Control for Physical Human-Robot Interaction 1

Room: Room 403
Hour: 11:00
Duration: 60 minutes

Chair/s:
Sehoon Oh, Deagu Gyongbuk Institute of Science and Technology, Korea (South)
Seiichiro Katsura, Keio University, Japan
Papers
Hour:11:00
Title: Integrated Transmission Force Estimation Method for Series Elastic Actuators
Authors:
Mr. Chan Lee, DGIST (Daegu Gyeongbuk Institute of Science and Technology), Korea (South)
Prof. Sehoon Oh, DGIST (Daegu Gyeongbuk Institute of Science and Technology), Korea (South)
Hour:11:20
Title: Forward-back and Back-forward Drivable Controls for Human-robot Interaction
Authors:
Mr. Yusuke Kawai, Nagaoka University of Technology, Japan
Prof. Yuki Yokokura, Nagaoka University of Technology, Japan
Prof. Kiyoshi Ohishi, Nagaoka University of Technology, Japan
Prof. Toshimasa Miyazaki, Nagaoka University of Technology, Japan
Hour:11:40
Title: Haptic Signal Processing for Human-Robot Collaboration System using Moving Average Filter
Authors:
Prof. Chowarit Mitsantisuk, Kasetsart University, Thailand
Dr. Busara Piriyanont, Kasetsart University, Thailand
Prof. Kiyoshi Ohishi, Nagaoka University of Technology, Japan

SS07 - Disturbance Observer-based Robust Control and Its Applications 2

Room: Room 404
Hour: 11:00
Duration: 60 minutes

Chair/s:
Emre Sariyildiz, University of Wollongong, Australia
Tomoyuki Shimono, Yokohama National University, Japan
Papers
Hour:11:00
Title:A Robust Position Controller Synthesis for Compliant Mechanical Systems via Disturbance Observer in State Space
Authors:
Dr. Emre Sariyildiz, University of Wollongong, Australia
Dr. Rahim Mutlu, University of Wollongong, Australia
Hour:11:20
Title: Force Sensorless Force Control Using Notch-Type Friction Free Disturbance Observer

Authors:
Mr. Naoki Kamiya, Nagaoka University of Technology, Japan
Prof. Ohishi Kiyoshi, Nagaoka University of Technology, Japan
Prof. Yuki Yokokura, Nagaoka University of Technology, Japan
Prof. Toshimasa Miyazaki, Nagaoka University of Technology, Japan
Hour:11:40
Title: Applications of Disturbance Observer and Kalman Filter Based Force Sensation in Motion Control
Authors:
Dr. Thao Tran Phuong, Nagaoka University of Technology, Japan
Prof. Kiyoshi Ohishi, Nagaoka University of Technology, Japan
Prof. Yuki Yokokura, Nagaoka University of Technology, Japan
Prof. Yoshinori Takei, National Institute of Technology, Akita College, Japan

SS02 - Design, Modeling, and Control Applications of Fluid Power Systems 1

Room: Room 405
Hour: 11:00
Duration: 60 minutes

Chair/s:
Michael Ruderman, University of Agder, Norway
Bin Yao, Zhejiang University, China
Papers
Hour:11:00
Title: High Precision Energy Saving Control of Pump and Valves Combined Hydraulic System
Authors:
Mr. Litong Lyu, Zhejiang University, China
Dr. Zheng Chen, Zhejiang University, China
Prof. Bin Yao, Zhejiang University, China
Hour:11:20
Title: Design of Disturbance Observer Using Composite Filter in Two-Dimensional Shaking Table System
Authors:
Mr. Sota Kaida, Nagoya Institute of Technology, Japan
Prof. Kenta Seki, Nagoya Institute of Technology, Japan
Prof. Makoto Iwasaki, Nagoya Institute of Technology, Japan
Hour:11:40
Title: Modeling and Simulation of a Valve System Actuated by Polycrystalline Shape Memory Alloy Wires
Authors:
Dr. Gianluca Rizzello, Saarland University, Germany
Mr. Michele A. Mandolino, Polytechnic University of Bari, Italy
Dr. Marvin Schmidt, Saarland University, Germany
Prof. David Naso, Polytechnic University of Bari, Italy
Prof. Stefan Seelecke, Saarland University, Germany

SS08 - Motion Control for Physical Human-Robot Interaction 2

Room: Room 403
Hour: 13:00
Duration: 60 minutes

Chair/s:
Toshiyuki Murakami, Keio University, Japan
Yasutaka Fujimoto, Yokohama National University, Japan
Papers
Hour:13:00
Title: Sensor-less Torque Control Considering Contact Phase for Two-mass System
Authors:

Mr. Thang Xuan Bo, Nagaoka University of Technology, Japan
Prof. Kiyoshi Ohishi, Nagaoka University of Technology, Japan
Prof. Toshimasa Miyazaki, Nagaoka University of Technology, Japan
Prof. Yuki Yokokura, Nagaoka University of Technology, Japan
Hour:13:20
Title: An Approach to Power Assist Hand Exoskeleton for Patients with Paralysis
Authors:
Mr. Hidekatsu Uchida, Keio University, Japan
Mr. Toshiyuki Murakami, Keio University, Japan
Hour:13:40
Title: Design of Reduced Order Disturbance Observer of Series Elastic Actuator for Robust Force Control
Authors:
Mr. Hyunwook Lee, Deagu Gyongbuk Institute of Science and Technology, Korea (South)
Prof. Sehoon Oh, Deagu Gyongbuk Institute of Science and Technology, Korea (South)

TTICS - Intelligent Control Systems 1

Room: Room 404
Hour: 13:00
Duration: 60 minutes

Chair/s:
Yoshihiro Maeda, Nagoya Institute of Technology, Japan
Kanungo Barada Mohanty, National Institute of Technology Rourkela, India
Papers
Hour:13:00
Title: RoFaLT: An Optimization-based Learning Control Tool for Nonlinear Systems
Authors:
Mr. Armin Steinhauser, KU Leuven, Belgium
Mr. Tong Duy Son, Siemens Industry Software NV, Belgium
Mr. Erik Hostens, Flanders Make, Belgium
Prof. Jan Swevers, KU Leuven, Belgium
Hour:13:20
Title: The Problems of Multi-Point Route Planning and Rule-Based Trajectory Tracking for an Autonomous UAV Under Wind Loads
Authors:
Mr. Mikhail Khachumov, Institute for Systems Analysis, Federal Research Center “Computer Science and Control” of the Russian Academy of Sciences, Russian Federation
Hour:13:40
Title: Robust Modified Structured NFC Integrating with GA for Linearized Induction Motor Drive
Authors:
Prof. Kanungo Barada Mohanty, National Institute of Technology Rourkela, India
Mr. Rabi Narayan Mishra, National Institute of Technology Rourkela, India

SS02 - Design, Modeling, and Control Applications of Fluid Power Systems 2

Room: Room 405
Hour: 13:00
Duration: 60 minutes

Chair/s:
Kenta Seki, Nagoya Institute of Technology, Japan
Sho Sakaino, Saitama University, Japan
Papers
Hour:13:00
Title: Minimal-model for robust control design of large-scale hydraulic machines
Authors:
Prof. Michael Ruderman, University of Agder, Norway

Hour:13:20
Title: Controller Design of Hybrid Experimental Systems with Adaptive Algorithm in Seismic Tests
Authors:
Mr. Masaki Koike, Nagoya Institute of Technology, Japan
Prof. Kenta Seki, Nagoya Institute of Technology, Japan
Prof. Makoto Iwasaki, Nagoya Institute of Technology, Japan
Hour:13:40
Title: Force Control of Electro-Hydrostatic Actuator Using Pressure Control Considering Torque Efficiency
Authors:
Mr. Kota I, Saitama University, Japan
Mr. Kodai Umeda, Saitama University, Japan
Mr. Kenta Tsuda, Saitama University, Japan
Prof. Sho Sakaino, Saitama University, Japan
Prof. Toshiaki Tsuji, Saitama University, Japan

TTMCM - TT Motion Control in Mechatronics 4

Room: Room 403
Hour: 14:30
Duration: 80 minutes

Chair/s:
Chowarit Mitsantisuk, Kasetsart University, Thailand
Yuki Yokokura, Nagaoka University of Technology, Japan
Papers
Hour:14:30
Title: Integral-Type Servo Systems Achieving Minimum M% Settling Time Under Constraint of the Upper Bound of the Gain Crossover Frequency
Authors:
Dr. Yuzo Ohta, Kobe University, Japan
Hour:14:50
Title: Similarity Analysis of Disturbance Observer and Active Disturbance Rejection Control for Typical Motor-driven System
Authors:
Ms. Yutang Wang, Key Laboratory of Airborne Optical Imaging and Measurement, Changchun Institute of Optics, Fine Mechanics and Physics Chinese Academy of Sciences, China
Prof. Dapeng Tian, Key Laboratory of Airborne Optical Imaging and Measurement, Changchun Institute of Optics, Fine Mechanics and Physics Chinese Academy of Sciences, China
Prof. Ming Dai, Key Laboratory of Airborne Optical Imaging and Measurement, Changchun Institute of Optics, Fine Mechanics and Physics Chinese Academy of Sciences, China
Prof. Honghai Shen, Key Laboratory of Airborne Optical Imaging and Measurement, Changchun Institute of Optics, Fine Mechanics and Physics Chinese Academy of Sciences, China
Prof. Ping Jia, Key Laboratory of Airborne Optical Imaging and Measurement, Changchun Institute of Optics, Fine Mechanics and Physics Chinese Academy of Sciences, China
Hour:15:10
Title: Star-shaped input-value sets of second-order PWM-type systems
Authors:
Dr. Masayasu Suzuki, Utsunomiya University, Japan
Prof. Mitsuo Hirata, Utsunomiya University, Japan
Hour:15:30
Title: Design of 5-level Reduced Switches Count H-bridge Multilevel Inverter
Authors:
Mr. Almachius Kahwa, Yokohama National University, Japan
Dr. Hidemine Obara, Yokohama National University, Japan
Prof. Yasutaka Fujimoto, Yokohama National University, Japan

TTICS - Intelligent Control Systems 2

Room: Room 404
Hour: 14:30
Duration: 80 minutes

Chair/s:
Hiroshi Igarashi, Tokyo Denki University, Japan
Tsuji Toshiaki, Saitama University, Japan
Papers
Hour:14:30
Title: Optimal Routing Control of a Construction Machine by Deep Reinforcement Learning
Authors:
Mr. Zeyuan Sun, Shibaura Institute of Technology, Japan
Mr. Masayuki Nakatani, Shibaura Institute of Technology, Japan
Prof. Yutaka Uchimura, Shibaura Institute of Technology, Japan
Hour:14:50
Title: Design and Analysis of non-linear Circuit with Tunnel Diode for Hybrid Control Systems
Authors:
Mr. Philipp Pasolli, University of Agder, Norway
Dr. Michael Ruderman, University of Agder, Norway
Hour:15:10
Title: Trajectory planning by variable length chunk of sequence-to-sequence using hierarchical decoder
Authors:
Mr. Tetsugaku Okamoto, Saitama University, Japan
Mr. Kyo Kutsuzawa, Saitama University, Japan
Prof. Sho Sakaino, Saitama University, JST PRESTO, Japan
Prof. Toshiaki Tsuji, Saitama University, Japan
Hour:15:30
Title: Complemental Learning Assist for Musical Instruments by Haptic Presentation
Authors:
Mr. Kazushige Ashimori, Tokyo Denki University, Japan
Prof. Hiroshi Igarashi, Tokyo Denki University, Japan

TTTCS - Traction Control Systems

Room: Room 405
Hour: 14:30
Duration: 80 minutes

Chair/s:
Kiyoshi Ohishi, Nagaoka University of Technology, Japan
Satoshi Komada, Mie University, Japan
Papers
Hour:14:30
Title: Torque error compensation of SPMSM drives with a stator flux linkage observer including low speed operation
Authors:
Mr. Chang-Seok Park, Kyungnam University, Korea (South)
Prof. Tae-Uk Jung, Kyungnam University, Korea (South)
Prof. Seunghun Baek, Kyungnam University, Korea (South)
Prof. Jae Suk Lee, Chonbuk National University, Korea (South)
Hour:14:50
Title: Total Thrust Control Method with Propeller and Electrically Driven Wheel for Electric Aircraft
Authors:
Mr. Toshiki Niinomi, The University of Tokyo, Japan
Prof. Hiroshi Fujimoto, The University of Tokyo, Japan
Mr. Akira Nishizawa, Japan Aerospace Exploration Agency, Japan

Mr. Hiroshi Kobayashi, Japan Aerospace Exploration Agency, Japan
Prof. Yasumasa Watanabe, The University of Tokyo, Japan
Hour:15:10
Title: Variable Sampling Time Model Predictive Control of Multiphase Induction Machines
Authors:
Ms. Cristina Martin, University of Seville, Spain
Prof. Manuel R. Arahal, University of Seville, Spain
Prof. Federico Barrero, University of Seville, Spain
Prof. Mario J. Duran, University of Malaga, Spain
Dr. Ignacio Gonzalez-Prieto, University of Malaga, Spain
Hour:15:30
Title: Motion Control Method without Velocity-Sensor for Electric Tiller Considering Cultivation
Authors:
Mr. Takumi Nakazawa, Nagaoka University of Technology, Japan
Mr. Junichi Fukui, Nagaoka University of Technology, Japan
Mr. Yusuke Tateno, Nagaoka University of Technology, Japan
Prof. Toshimasa Miyazaki, Nagaoka University of Technology, Japan
Prof. Kiyoshi Ohishi, Nagaoka University of Technology, Japan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