



ICAROB 2014

**THE PROCEEDINGS OF
INTERNATIONAL CONFERENCE
ON ARTIFICIAL LIFE AND ROBOTICS
(ICAROB 2014)**

January 11-13, 2014
Compal Hall, Oita, JAPAN
International Meeting Series

Editor-in-Chief
Masanori Sugisaka
Editors: Takao Ito, Ju-Jang Lee, Yingmin Jia
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The International Conference on Artificial Life and Robotics (ICAROB 2014), Compal Hall, Oita,
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The Proceedings of the International Conference on
ARTIFICIAL LIFE AND ROBOTICS
(ICAROB 2014)

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ORGANIZED

International Steering Committee of International Conference on Artificial Life and Robotics (ICAROB) and ALife Robotics Corporation Ltd.

CO-ORGANIZED BY

IEEE Fukuoka Section (IEEE Robotics and Automation Society, Fukuoka Section, Japan)
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University of Malaysia-Peris, Malaysia)
Takao Ito (Ube National College of Technology)

HISTORY

This symposium was founded in 1996 by the support of Science and International Affairs Bureau, Ministry of Education, Culture, Sports, Science and Technology, Japanese Government. Since then, this symposium has been held every year at B-Con Plaza, Beppu, Oita, Japan except in Oita, Japan (AROB 5th '00) and in Tokyo, Japan (AROB 6th '01). We changed this symposium name as The International Conference on Artificial Life and Robotics newly. This conference invites you all.

OBJECTIVE

The objective of this conference is the development of new technologies for artificial life and robotics which have been recently born in Japan and are expected to be applied in various fields. This conference will discuss new results in the field of artificial life and robotics.

GENERAL SESSION TOPICS

GS1 Artificial intelligence & Complexity	GS2 Reinforcement Learning System and genetic programming
GS3 Human-machine cooperative systems & Human welfare robotics	GS4 Neural Networks
GS5 Pattern recognition	GS6 Robotics I
GS7 Robotics II	

ORGANIZED SESSION TOPICS

OS1 Intelligent Control	OS2 Environment Navigation and Localization
OS3 Facial Expression Analysis, Music Recommendation and Augmented Reality	OS4 Applications in Kansei Engineering
OS5 Analysis of Randomized Algorithms Intelligence in Biological Systems	OS6 Empirical research on Network and MOT
OS7 Intelligence in Biological Systems	OS8 Software Development Support Method
OS9 Foundation of computation and its application	

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Accepted papers will be published in the proceeding of ICAROB and some of high quality papers in the proceeding will be requested to re-submit their papers for the consideration of publication in an international journal ARTIFICIAL LIFE, COMPLEXITY AND ROBOTICS under negotiation. All correspondence related to the conference should be addressed to ICAROB Office.

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MESSAGES

Yingmin Jia

General Chair of ICAROB



Yingmin Jia
General Chair
(Professor,
Beihang University,
R .P. China)



It is my great pleasure to invite you to the International Conference on Artificial Life and Robotics (ICAROB), in Oita City, Oita, Japan from Jan. 11th to 13th, 2014.

ICAROB 2014 develops from the AROB that was created in 1996 by Prof. Masanori Sugisaka and celebrated her birthday of eighteen years old in 2013. Doubtless, new mission and big challenges in the field of artificial life and robotics will promote ICAROB to start a new stage and attract wide interests among scientist, researchers, and engineers around the world.

For a successful meeting, many people have contributed their great efforts to ICAROB. Here, I would like to express my special thanks to all authors and speakers, and the meeting organizing team for their excellent works.

Looking forward to meeting you at ICAROB in Oita City and wishing you enjoy your stay in Japan.



Takao Ito
General Chair
(Professor of Ube National
College of Technology
, Japan)

A handwritten signature in black ink that reads "Takao Ito". The signature is written in a cursive style with a long horizontal stroke at the end.

Takao Ito

General Chair of ICAROB

It is my great honor to invite you all to The International Conference on Artificial Life and Robotics (ICAROB 2014). This Conference is changed as the old symposium from the first (1996) to the Eighteenth I am pleased to welcome you to the 2013 International Conference on Artificial Life and Robotics (ICAROB) in the wonderful city of Oita, Japan

The ICAROB has long history. The former organization of the ICAROB was developed under the strong leadership of the President, Professor. Masanori Sugisaka, the father of AROB. We gathered many researchers, faculty members, graduate students from all over the world, and published numerous high-quality proceedings and journals every year.

Over the years, dramatic improvements have been made in the field of artificial life and its applications. The ICAROB has becoming the unifying the exchange of scientific information on the study of man-made systems that exhibit the behavioral characteristic of natural living systems including software, hardware and/or wetware. Our conference shapes the development of artificial life, extending our empirical research beyond the territory circumscribed by life-as-we-know-it and into the domain of life-as-it-could-be. It will provide us a good place to present our new research results, good ideas, and valuable information about artificial intelligence, complex systems theories, robotics, management of technology, etc.

In order to provide an outstanding technical level for the presentations at the conference, we have invited more than 60 distinguished experts in the field of artificial life in the organizing committee and program committee. We will have 23 sessions during 3 days of conference, including 3 invited sessions.

The conference site is the Compal Hall, one of the finest congress centers in Oita. It is situated near the center of the city. You can find many fantastic scenic spots and splendid hot-springs. Enjoy your stay and take your time to visit the city of Oita.

I am looking forward to meeting you in Oita during 2013 ICAROB and to sharing a most pleasant, interesting and fruitful conference

Ju-Jang Lee



Ju-Jang Lee
General Chair
(Professor, KAIST)

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

General Chair of ICAROB

The First International Conference on Artificial Life and Robotics (ICAROB) will be held in Oita City, Oita, Japan from Jan. 11th to 13th, 2014. This year's Conference will be held amidst the high expectation of the increasingly important role of the new interdisciplinary paradigm of science and engineering represented by the field of artificial life and robotics that continuously attracts wide interests among scientist, researchers, and engineers around the globe.

Distinguished researchers and technologists from around the world are looking forward to attending and meeting at ICAROB. ICAROB is becoming the annual excellent forum that represents a unique opportunity for the academic and industrial communities to meet and assess the latest developments in this fast growing artificial life and robotics field. ICAROB enables them to address new challenges, share solutions, discuss research directions for the future, exchange views and ideas, view the results of applied research, present and discuss the latest development of new technologies and relevant applications.

In addition, ICAROB offers the opportunity of hearing the opinions of well-known leading experts in the field through the keynote sessions, provides the bases for regional and international collaborative research, and enables to foresee the future evolution of new scientific paradigms and theories contributed by the field of artificial life and robotics and associated research area. The twenty-first century will become the century of artificial life and intelligent machines in support of humankind and ICAROB is contributing through wide technical topics of interest that support this direction.

It is a great for me as a General Chair of the 1st ICAROB 2014 to welcome everyone to this important event. Also, I would like to extend my special thanks to all authors and speakers for contributing their research works, the participants, and the organizing team of the 1st ICAROB.

I'm looking forward to meeting you at the 1st ICAROB in Oita City and wishing you all the best.

Masanori Sugisaka



Masanori Sugisaka

Honorary General Chair

**(Professors,
University of Sultan Zainal
Abidin(UniSZA), Malaysia,
University of Malaysia
-Perlis and President,
ALife Robotics Co., Ltd. ,
Japan)**

Masanori Sugisaka

Honorary General Chair of ICAROB

It is my great honor to invite you all to The International Conference on Artificial Life and Robotics (ICAROB 2014).

This Conference is changed as the old symposium from the first (1996) to the Eighteenth(2013) annually which were organized by Oita University, Nippon Bunri University(NBU), and ALife Robotics Corporation Ltd. under the sponsorship of the Science and Technology Policy Bureau, the Ministry of Education, Science, Sports, and Culture (Monkasho), presently, the Ministry of Education, Culture, Sports, Science, and Technology (monkasho), Japanese Government, Japan Society for the Promotion of Science (JSPS), The Commemorative Organization for the Japan World Exposition ('70), Air Force Office of Scientific Research, Asian Office of Aerospace Research and Development (AFOSR/AOARD), USA. I would like to express my sincere thanks to not only Monkasho (annually fund support from 1996 to 2013) but also JSPS, the Commemorative Organization for the Japan World Exposition ('70) , Japanese companies for their repeated support.

The old symposium was organized by International Organizing Committee of AROB and was co-operated by the Santa Fe Institute (USA), RSJ, IEEJ, ICASE (Now ICROS) (Korea), CAAI (P. R. China), ISCIE, IEICE, IEEE (Japan Council), JARA, and SICE. The old AROB symposium was growing up by absorbing many new knowledge and technologies into it.

This history and character are inherited also from now. From now on, ALife Robotics Corporation Ltd. is in charge of management. The future of The ICAROB 2014 is brilliant from a point of view of yielding new technologies to human society in 21st century.

I hope that fruitful discussions and exchange of ideas between researchers during Coference (ICAROB 2014) will yield new merged technologies for happiness of human beings and, hence, will facilitate the establishment of an international joint research institute on Artificial Life and Robotics in future.

TIME TABLE (1/11)

1/11	Room301	Room304	Room305
9:30~	Registration		
10:00-11:20		GS3 (4) Chair M. Rizon	GS7 (4) Chair J. Wang
11:20-11:40	Coffee break		
11:40-12:00	Opening Ceremony (room300)		
12:00-13:00	Lunch		
13:00-14:00	IS (room300) Chair J. M. Lee		
14:00-14:20	Coffee break		
14:20-16:00		GS1(5) Chair M. Kubo	GS4(4) Chair A. Selamata (will be end at 15:40)
16:00-16:20	Coffee break		
16:20-18:00		GS5(5) Chair S. Ishikawa	GS 2(5) Chair K. Kobayashi

GS1 Artificial intelligence & Complexity
 GS2 Reinforcement learning system &
 Genetic programing
 GS3 Human-machine cooperative systems
 & Human welfare robotic
 GS4 Neural Networks
 GS5 Pattern recognition I
 GS6 Robotics I
 GS7 Robotics II

OS1 Intelligent Control
 OS2 Environment Navigation and
 Localization
 OS3 Facial Expression Analysis, Music
 Recommendation and Augmented
 Reality
 OS4 Applications in Kansei Engineering
 OS5 Analysis of Randomized Algorithms
 OS6 Empirical research on Network and MOT
 OS7 Intelligence in Biological Systems
 OS8 Software Development Support Method
 OS9 Foundation of computation and its
 Application

TIME TEBLE (1/12)

1/12	Room301	Room304	Room305
9:30~	Registration		
10:00-11:20	PS1(6) Chair D. Hazry	OS5(3) Chair H. Furutani (will be end at 11:00)	OS8(4) Chair T. Katayama
11:20-13:00	Lunch		
13:00-14:40	PS1(6)	OS1(5) Chair Y. Jia	OS3(5) Chair Y. Yoshitomi
14:40-15:00	Coffee break		
15:00-17:00	PS1(6)	OS2(6) Chair J. M. Lee	OS4(5) Chair: T. Hattori (will be end at 16:40)
18:00-20:00	Banquet: HOTEL HOKKE CLUB OITA		

TIME TABLE (1/13)

1/13	Room301	Room304	Room305
9:30~	Registration		
10:00-12:00		GS6(5) Chair F. Dai (will be end at 11:40)	OS7(6) Chair J. Nishii
12:00-13:00	Lunch		
13:00-14:40		OS6(5) Chair: T. Ito	OS9(4) Chair: M. Sakamoto (will be end at 14:20)

The International Conference on ARTIFICIAL LIFE AND ROBOTICS 2014 (ICAROB 2014)

January 11 (Saturday)

Room 300: 11:40-12:00

Opening Ceremony

Chair: M. Sakamoto (University of Miyazaki, Japan)

Welcome Addresses

- 1. General Chairman of ICAROB** Y. M. Jia (Beihang University, China)
- 2. General Chairman of ICAROB** T. Ito (Ube National College of Technology, Japan)
- 3. General Chairman of ICAROB** J. J. Lee (KAIST, Korea)
- 4. Honorary General Chairman
of ICAROB** M. Sugisaka(ALife Robotics Co., Ltd. Japan)

January 12 (Sunday)

HOTEL HOKKE CLUB OITA

18:00-20:00

Banquet

Chair: M. Oswald (The Vienna University of Technology, Austria)

Welcome Addresses

- Y. M. Jia (Beihang University, China)
- H.H.Lund(Denmark Technical University of Denmark,Denmark)
- L.Pagliarini(Denmark Technical University of Denmark,Denmark)

TECHNICAL PAPER INDEX

January 11 (Saturday)

Room 300

13:00-14:00 Invited Session

Chair: J. M. Lee (Pusan National University, Korea)

IS1-1 *Playware Research – Methodological Considerations*

Henrik Hautop Lund (Centre for Playware, Technical University of Denmark, Denmark)

IS1-2 *ALife for Real and Virtual Audio-Video Performances*

Luigi Pagliarini (Centre for Playware, Technical University of Denmark, Denmark

Academy of Fine Arts of Macerata, Italy)

Henrik Hautop Lund (Centre for Playware, Technical University of Denmark, Denmark)

IS1-3 *Heart-pulse Biofeedback in Playful Exercise using a Wearable device and Modular Interactive Tiles*

Tomoya Shimokakimoto (University of Tsukuba, Japan)

Henrik H. Lund (Technical University of Denmark, Denmark),

Kenji Suzuki (University of Tsukuba/ JST, Japan)

January 11 (Saturday)

9:30- Registration

Room 304

10:00-11:20 GS3 Human-machine cooperative system & Human welfare robotics

Chair: Mohamed Rizon (Universiti Sultan Zainal Abidin (UniSZA), Malaysia)

GS3-1 *Development of Measurement System for Quantitative Evaluation of Skillfulness of Lower Extremities*

Kazunori Yamazaki, Donggun Kim, Yoshifumi Morita, Hiroyuki Ukai
(Nagoya Institute of Technology, Japan),

Kenji Kozakai, Satoru Shibata, Shigenori Onishi, Akihiro Ito, Daisuke Mizuno
(Sanyo Machine Works, Ltd., Japan),

Tatsuya Hirai, Haruna Takeda, Yuka Sugiura (Tanakakai Nishio Hospital, Japan)

GS3-2 *Glove-Based Virtual Interaction for the Rehabilitation of Hemiparesis Stroke Patient*

Khairunizam WAN, Aswad A.R, Rashidah Suhaimi, Nazrul H. ADNAN, D. Hazry,

Zuradzman M. Razlan, Syed Faiz Ahmed (Universiti Malaysia Perlis, Malaysia)

GS3-3 Measuring system of therapist's guiding motion for standing up training of patient with hemiplegia after stroke and analysis results of patient's motion

JungTang Wang, Kazunori Yamazaki, Yoshifumi Morita, Noritaka Sato
(Nagoya Institute of Technology, Japan)

Hirofumi Tanabe (Self-Defense Force Central Hospital, Japan)

GS3-4 Image Segmentation of Coronary Artery Plaque Using Intuitionistic Fuzzy C-Means Algorithm

Zahra Rezaeia, Ali Selamata, Mohd Shafry Mohd Rahima,
Mohammed Rafiq Abdul Kadirb (Universiti Teknologi Malaysia, Malaysia)

14:20-16:00 GS1 Artificial intelligence & Complexity

Chair: M. Kubo (National Defense Academy of Japan)

GS1-1 Cognitive approach to Computer Go programming

N. Tenys, I. Tanev, K. Shimohara (Doshisha University, Japan)

GS1-2 Circulative Narrative Generation Based on the Mutual Transformation between Narrative Conceptual Structures and Music in the Integrated Narrative Generation System

Taisuke Akimoto, Takashi Ogata (Iwate Prefectural University, Japan)

GS1-3 Dynamic Analysis of Tensegrity Systems Subject to Arbitrary Joint Constraints

Youngsu Cho, Joono Cheong (Korea University, Korea)

GS1-4 Road map generation from Smartphone data

Masao KUBO, Chau viet DAN, Hiroshi SATO, Akira NAMATAME
(National Defense Academy of Japan)

GS1-5 Zigzag-Perceptually Important Points for Financial Time Series Indexing

Chawalsak Phetchanchai, Ali Selamat, Md Hafiz Selamat
(University Teknologi Malaysia, Malaysia)

16:20-18:00 GS5 Pattern recognition

Chair: S. Ishikawa (Kyushu Institute of Technology, Japan)

GS5-1 Recognizing a Road Environment Using Multiple-window Bag of Features

Shou Morita, Joo Kooi Tan, Hyoungseop Kim, Seiji Ishikawa
(Kyushu Institute of Technology, Japan)

GS5-2 Recognized Face Tracking for CONBE Robot

Sakmongkon Chumkamon, Eiji Hayashi (Kyushu Institute of Technology)

GS5-3 Eye detection Using Composite Cross-Correlation form Face Images in Varied Illumination

Kutiba Nanaa, Mohamed Rizon, Mohd Nordin Abd Rahman
(Universiti Sultan Zainal Abidin (UniSZA), Terengganu, Malaysia)

GS5-4 Development of an autonomous-drive personal robot "An object recognition system using BoF and SOM"

Keisuke Ito, Eiji Hayashi (Kyusyu Institute of Technology, Japan)

GS5-5 Comparison of Feature Detectors for Obstacles Detection

Shaohua Qian, Joo Kooi Tan, Hyoungseop Kim, Seiji Ishikawa
Takashi Morie, (Kyushu Institute of Technology, Japan)
Takashi Shinomiya(Japan University of Economics, Japan)

Room 305

10:00-11:20 GS7 Robotics II

Chair: Jiwu Wang (Beijing Jiaotong University, China)

GS7-1 Decision Making System of Robots introducing a Re-construction of Emotions Based on Their Own Experiences

Shogo Watada, Masanao Obayashi, Takashi Kuremoto, Shingo Mabu
(Yamaguchi University, Japan)
Kunikazu Kobayashi (Aichi Prefectural University, Japan)

GS7-2 Visual Servoing and Sound Localization in a Surveillance Robot

So-Yeon Park, Yeoun-Jae Kim, Ju-Jang Lee (KAIST, Korea)

GS7-3 Study on the improvement of flexibility for an industrial robot based on machine vision

Jiwu Wang, Xianwen Zhang, Weining Zhang (Beijing Jiaotong University, China)
Sugisaka Masanori(Nippon Bunri University, Japan)

GS7-4 Improved Map Generation by Addition of Gaussian Noise for Indoor SLAM using ROS

Khairul Salleh Mohamed Sahari, Barry Loh Tze Yuen
(Universiti Tenaga Nasional, Malaysia)

14:20-15:40 GS4 Neural Networks

Chair: Ali Selamat (University Teknologi Malaysia, Malaysia)

GS4-1 The recollection characteristics of Generalized MCNNusing different control methods

Shun Watanabe, Takashi Kuremoto, Shingo Mabu, Masanao Obayashi
(Yamaguchi University, Japan),
Kunikazu Kobayashi (Aichi Prefectural University, Japan)

GS4-2 Revealing Terrorism Contents form Web Page Using Frequency Weighting Techniques

Thabit Sabbah, Ali Selamat, Md Hafiz Selamat(Universiti Teknologi Malaysia, Malaysia)

GS4-3 Application of Self Organizing Map for analyzing of robotic arm's action with Consciousness-Based Architecture module

Wisanu Jitviriyaya, Eiji Hayashi (Kyushu Institute of Technology, Japan)

GS4-4 Study on Time Synchronization Algorithm of Wireless Sensor Networks Based on Maximum Likelihood Estimation

Ai Dongmei, Zeng Guangping, Tu Xuyan, He Di
(University of Science and Technology Beijing, China)

16:20-17:40 GS2 Reinforcement Learning System & Genetic programming

Chair: K. Kobayashi (Aichi Prefectural University, Japan)

GS2-1 Development of phrase and music search engine by humming

Kiminori Satou, Eiji Hayashi (Kyushu Institute of Technology, Japan)

GS2-2 Human Recognition based on Gait feature and Genetic Programming

Dipak Gaire Sharma, Ivan Tanev, Katsunori Shimohara (Doshisha University, Japan)

GS2-3 An Action Selection Method Using Degree of Cooperation in a Multi-agent System

Masanori Kawamura, Kunikazu Kobayashi (Aichi Prefectural University, Japan)

GS2-4 Cooperative Action Acquisition Based on Intention Estimation Method in a Multi-agent Reinforcement Learning System

Tatsuya Tsubakimoto, Kunikazu Kobayashi (Aichi Prefectural University, Japan)

GS2-5 Integrating the Event Generation Mechanism in the Propp-based Story Generation Mechanism into the Integrated Narrative Generation System

Shohei Imabuchi, and Takashi Ogata (Iwate Prefectural University, Japan)

January 12 (Sunday)

9:30- Registration

Room 301

10:00-17:00 PS1 Poster Session

Chair: D. Harzy (Universiti Malaysia Perlis (UniMAP), Malaysia)

PS1-1 Relationship input object position and optimal error diffusion coefficients for Kinoform using error diffusion method

Daisuke Kashima, Ken-ichi Tanaka (Meiji University, Japan)

PS1-2 Optimization of dither matrix by hybrid of Genetic Algorithm and Simulated Annealing

Kohei Kato, Ken-ichi Tanaka (Meiji University, Japan)

PS1-3 *Inverse Halftoning using Multi-Layer Feed-Forward Neural Network(P)*
Hiroki Hamashoji, Ken-ichi Tanaka (Meiji University, Japan)

PS1-4 *Embedding of the Confidential Image in a Dithered Color Image*
Keisuke Banba and Kenichi Tanaka (Meiji University, Japan)

PS1-5 *Three Dimensional Images Reconstruction on Computer Generated Holograms
the Multiple Regression Analysis*
Kenta Ayabe, Ken-ichi Tanaka(Meiji University, Japan)

PS1-6 *Embedding used binary number conversion into a Color image*
Hiroaki Oguma, Ken-ichi Tanaka (Meiji University, Japan)

Room 304

10:00-11:00 OS5 Analysis of Randomized Algorithms

Chair: Hiroshi Furutani (University of Miyazaki, Japan)

Co-Chair: Ichih To (University of Miyazaki, Japan)

OS5-1 *Markov Chain Analyses of Random Local Search and Evolutionary Algorithm*
Hiroshi Furutani , Hiroki Tagami, Ichih To, Makoto Sakamoto
(University of Miyazaki, Japan)

OS5-2 *Runtime Analysis of OneMax Problem in Genetic Algorithm*
Ichih To, QuinLian Ma, Makoto Sakamoto, Hiroshi Furutani
(University of Miyaaki),
Yu-an Zhang (QinghaiUniversity, China)

OS5-3 *A Model for Low-Frequency Burst in Subthalamic Nucleus Neuron*
S. Kubota (Yamgata Univ., Japan)
J. E. Rubin (Pittsburgh Univ., USA)

13:00-14:40 OS1 Intelligent Control

Chair: Yingmin Jia (Beihang University, P.R.China)

Co-Chair: Chaoli Wang (University of Shanghai for Science and Technology, China)

OS1-1 *Finite-Time Stabilization for Nonholonomic Chained Form Systems with
Communication Delay*
Hengjun Zhang, Chaoli Wang
(University of Shanghai for Science and Technology, China)

OS1-2 *Sliding Mode Variable Structure Control for Magnetic Levitation Vehicles*
Juanjuan He, Yingmin Jia(Beihang University, China)

OS1-3 *Variable-Poled Tracking Control of a Two-Wheeled Mobile Robot using Differential Flatness*

Liming Chen, Yingmin Jia (Beihang University, China)

OS1-4 *Adaptive Consensus Control of Multi-Agent Systems with Large Uncertainty and Time Delays*

Dongxu Zou, Weicun Zhang (University of Science and Technology Beijing, China)

OS1-5 *Iterative Learning Control for Overhead Crane Systems*

Xuhui Bu, Fuzhong Wang, Sanyi Li, Fashan Yu (Henan Polytechnic University, China)

15:00-17:00 OS2 Environment Navigation and Localization

Chair: J. M. Lee (Pusan National University, Korea)

OS2-1 *A Hybrid Path Planning Algorithm for UGV by Combining A* and B-spline Curve Equation*

Min-Ho Kim, Hee-Mu Lee, Min-Cheol Lee (Pusan National University, Korea)

OS2-2 *The actuator device design for the implementation of haptic joystick*

Dong-hyuk Lee, Sunkyun Kang, Bo-yeon Hwang, Ki-jung Kim and Jangmyung Lee (Pusan National University, Korea)

OS2-3 *Design of Fuzzy Controller using Variable Fuzzy Membership Function Factors for Inverse Ball Drive Mobile Robot*

Keon-woo Jeong, Shin-nyeong Heo, Seung-Ik Hwang, Han-Dong Yoo and Jangmyung Lee (Pusan National University, Korea)

OS2-4 *Error Correction of Angular Velocity for Gyroscope using Genetic Algorithm and FIR filter*

Jaeyong Kim, Hyunhak Cho, Sungshin Kim (Pusan National University, Korea)

OS2-5 *Control of Robot Arm with Sterilization System for Ballast Water*

Seung-Hwa Baek, Dong-Hyun Kim, Hee-Je Kim (Pusan National University, Korea)

OS2-6 *Performance Study for Vehicle Infotainment System*

Heung-in Park, Min-gyu Kim, Jeong Hee-In, Kang-il Park, In-uk Lee, Dong-Ju Lee and Jangmyung Lee (Pusan National University)

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10:00-11:20 OS8 Software Development Support Method

Chair: Tetsuro Katayama (University of Miyazaki, Japan)

Co-Chair: Makoto Sakamoto (University of Miyazaki, Japan)

OS8-1 *Proposal of a Visualizing Method of Data Transitions to Support Debugging for Java Programs*

Hirotto Nakamura, Tetsuro Katayama, Hisaaki Yamaba, Naonobu Okazaki

(University of Miyazaki, Japan)

Yoshihiro Kita (Kanagawa Institute of Technology, Japan)

OS8-2 Proposal of a Method to Build Markov Chain Usage Model from UML Diagrams for Communication Delay Testing in Distributed Systems

Zhijia Zhao, Tetsuro Katayama, Hisaaki Yamaba, Naonobu Okazaki

(University of Miyazaki, Japan)

Yoshihiro Kita (Kanagawa Institute of Technology, Japan)

OS8-3 Proposal of a Supporting Method for Debugging to Reproduce Java Multi-threaded Programs by Petri-Net

Shoichiro Kitano, Tetsuro Katayama, Hisaaki Yamaba, Naonobu Okazaki

(University of Miyazaki, Japan)

Yoshihiro Kita (Kanagawa Institute of Technology, Japan)

OS8-4 Proposal of a Supporting Method to Generate a Decision Table from the Formal Specification

Kenta Nishikawa, Tetsuro Katayama, Hisaaki Yamaba, Naonobu Okazaki

(University of Miyazaki, Japan)

Yoshihiro Kita (Kanagawa Institute of Technology, Japan)

13:00-14:40 OS3 Facial Expression Analysis, Music Recommendation and Augmented Reality

Chair: Yasunari Yoshitomi (Kyoto Prefectural University, Japan)

Co-Chairman: Masayoshi Tabuse (Kyoto Prefectural University, Japan)

OS3-1 Development of a Campus Guide System based on Augmented Reality

M. Tabuse, A. Tada (Kyoto Prefectural University, Japan)

OS3-2 Facial Expression Analysis While Using Video Phone

T. Asada, Y. Yoshitomi, R. Kato, M. Tabuse (Kyoto Prefectural University, Japan)

A. Tsuji, N. Kuwahara (Kyoto Institute of Technology, Japan),

J. Narumoto (Kyoto Prefectural University of Medicine)

OS3-3 Method of Facial Expression Analysis Using Video Phone and Thermal Image

Y. Yoshitomi, T. Asada, R. Kato, M. Tabuse (Kyoto Prefectural University, Japan)

OS3-4 Facial Expression Recognition Using Thermal Image Processing and Efficient Preparation of Training-data

Y. Nakanishi (ITOKI CORPORATION, Japan)

Y. Yoshitomi, T. Asada, M. Tabuse (Kyoto Prefectural University, Japan)

OS3-5 Music Recommendation System through Internet for Improving Recognition Ability Using Collaborative Filtering and Impression Words

Y. Yoshitomi, T. Asada, R. Kato, Y. Yoshimitsu, M. Tabuse

(Kyoto Prefectural University, Japan),

N. Kuwahara (Kyoto Institute of Technology, Japan)

J. Narumoto (Kyoto Prefectural University of Medicine)

15:00-16:40 OS4 Applications in Kansei Engineering

Chair: Tetsuo Hattori (Kagawa University, Japan)

Co-chair: Yoshiro Imai (Kagawa University, Japan)

OS4-1 Kansei Engineering based Evaluation for an e-Learning System with IP-based Network Design and Animation

Yoshiro Imai, Chiaki Kawanishi, Tetsuo Hattori (Kagawa University, Japan)

OS4-2 Model Introduced SPRT for Structural Change Detection of Time Series (I)

Yoshihide KOYAMA, Tetsuo HATTORI (Kagawa University, Japan)

Hikomichi KAWANO (NTT AT, Japan)

OS4-3 Model Introduced SPRT for Structural Change Detection of Time Series II)

--- Kansei Channel Corresponding to the SPRT ---

Yoshihide KOYAMA, Tetsuo HATTORI (Kagawa University, Japan)

Hikomichi KAWANO (NTT AT, Japan)

OS4-4 Automated Color Image Arrangement Method and Kansei Impression

Yusuke Kawakami, Tetsuo Hattori, Yoshiro Imai, Haruna Matsushita,

Hikomichi Kawano (NTT AT, Japan),

R.P.C. Janaka Rajapakse (Tainan National University of the Arts, Taiwan)

OS4-5 Novel Transistor by Opt-coupling of LED and PD and its Application to Audio Amplifier

Junichi Fujita, Tetsuo Hattori, Daisuke Sato, Kensho Okamoto

(Kagawa University, Japan)

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10:00-11:40 GS6 Robotics I

Chair: Fengzhi Dai (Tianjin University of Science and Technology, China)

GS6-1 Study on the pose under complex multiple targets environment for the industrial robot based on machine vision

Jiwu Wang, Xianwen Zhang, Huazhe Dou (Beijing Jiaotong University, China)

Sugisaka Masanori (Nippon Bunri University, Oita)

GS6-2 Research and Development of an Intelligent Robot of Medical Assistance Based on

Embedded RTOS

Yuan Li, Fengzhi Dai, Junhong Xi, Binyao Li, Guodong You
(Tianjin University of Science and Technology, China)

GS6-3 High Acceleration Robotic Arm for Dynamic and Dexterous Manipulation of Deformable Object

Hiroaki Seki, Hiroki Shibata, Yoshitsugu Kamiya, Masatoshi Hikizu
(Kanazawa University, Japan)
Khairul Salleh Mohamed Sahari (Universiti Tenaga Nasional, Malaysia)

GS6-4 Switching based controller algorithm design for uncertainties rejection in smooth takeoff / landing and of quad-rotor

M. Hassan Tanveer, D. Hazry, S. Faiz Ahmed, M. Kamran Joyo, Faizan. A. Warsi, A.T. Hussain
(Universiti Malaysia Perlis) (UniMAP)

GS6-5 Parameters of Gas-Liquid Flow Distribution Uniformity in Upward Multi-Pass Channels

Zuradzman M. Razlan, R. Heng, D. Hazry, A.B. Shahrman, Khairunizam WAN,
S. Faiz Ahmed, Nazrul H. ADNAN (Universiti Malaysia Perlis, Malaysia)
M. Hirota, N. Maruyama, A. Nishimura (Mie University, Japan)
H. Hisyam (Lean Applied Pte. Ltd., Malaysia)

13:00-14:40 OS6 Empirical research on Network and MOT

Chair: T. Ito (Ube National College of Technology)

Co-Chair: S. Matsuno (Ube National College of Technology)

OS6-1 An Empirical Examination of Inter-firm Capital Relationships in Mazda's Yokokai using the IDE Spatial Model

M. Sakamoto (University of Miyazaki, Japan), S. Tagawa, T. Ito, S. Matsuno,
(Ube National College of Technology, Japan)
R. Mehta (New Jersey Institute of Technology, U.S.A)
V. Berdonosov (Komsomolsk-on-Amur State University of Technology, Russia)
S. Ikeda (University of Miyazaki, Japan)

OS6-2 A Comparative Study of Transactional Network between Kyohokai and Yokokai

M. Sakamoto (University of Miyazaki, Japan), M. Hasama, T. Ito, Y. Uchida,
(Ube National College of Technology, Japan)
R. Mehta (New Jersey Institute of Technology, U.S.A)
Y. Park (Prefectural University of Hiroshima, Japan)
S. Ikeda (University of Miyazaki, Japan)

OS6-3 A path analytic model and measurement of the relationships between green supply chain management implementation and corporate performance

S. Matsuno, M. Hasama, Y. Uchida, T. Ito (Ube National College of Technology, Japan)

OS6-4 A Study of Open Source Cloud System for Small and Medium Enterprise

Y. Uchida, S. Matsuno, T. Ito, M. Hasama (Ube National College of Technology, Japan)

M. Sakamoto (University of Miyazaki, Japan)

OS6-5 *Visualization of Patent Strategies in Japanese ICT Companies Based on Text-Mining*

T. Tokumitsu, T. Okada, I. Nakaoka (Ube National College of Technology, Japan)

Y. Park (Prefectural University of Hiroshima, Japan)

Room305

10:00-12:00 OS7 Intelligence in Biological Systems

Chair: Jun Nishii (Yamaguchi University, Japan)

Co-Chair: Hiroshi Matsuno (Yamaguchi University, Japan)

OS7-1 *Dissipative Particle Dynamics of shape changes of vesicle*

Yoshiyuki Oofuji, Naohito Urakami, Takashi Yamamoto (Yamaguchi University, Japan)

Masayuki Imai (Tohoku University, Japan)

OS7-2 *Intelligent mechanisms in E. coli in processing carbon sources*

Zhongyuan Tian, Hiroshi Matsuno (Yamaguchi University, Japan)

OS7-3 *An autonomous propagation of ciliary metachronal wave on elastic surface of Paramecium cells.*

N. Narematu, Y. Iwadate (Yamaguchi University)

OS7-4 *An analysis of the synergy in a ball throwing task*

Hiroshi KIMURA, Jun NISHII (Yamaguchi University, Japan)

OS7-5 *A low dimensional feedback control model that exploits abundant degrees of freedom*

Jun Nishii, Tohru Hamamura (Yamaguchi University, JAPAN)

OS7-6 *Extension of Genetic Toggle Switch Based on the Effective Search of State Transitions*

M. Sugii, A. Fauré, H. Matsuno (Yamaguchi University, Japan)

13:00-14:20 OS9 Foundation of computation and its application

Chair: Makoto Sakamoto (University of Miyazaki, Japan)

Co-Chair: Tetsuro Katayama (University of Miyazaki, Japan)

OS9-1 *Hierarchy Based on Neighborhood Template about k-Neighborhood Template A-Type Three-Dimensional Bounded Cellular Acceptor*

Makoto Sakamoto, Makoto Nagatomo, Xiaoyang Feng, Tatsuma Kurogi, Tuo Zhang,

Satoshi Ikeda, Masahiro Yokomichi, Hiroshi Furutani (University of Miyazaki, Japan)

Takao Ito, Yasuo Uchida (Ube National College of Technology, Japan)

Tsunehiro Yoshinaga (Tokuyama College of Technology, Japan)

OS9-2 *Hierarchy Based on Configuration-Reader about k-Neighborhood Template A-Type*

Three-Dimensional Bounded Cellular Acceptor

Makoto Sakamoto, Tuo Zhang, Tatsuma Kurogi, Makoto Nagatomo, Xiaoyang Feng,
Satoshi Ikeda, Masahiro Yokomichi, Hiroshi Furutani (University of Miyazaki, Japan)
Yasuo Uchida, Takao Ito (Ube National College of Technology, Japan)
Tsunehiro Yoshinaga (Tokuyama College of Technology, Japan)

OS9-3 Handicap of Othello Game

Y. Kato, S. Ikeda, M. Sakamoto (University of Miyazaki, Japan)
T. Ito (Ube National College of Technology, Japan)

*OS9-4 On Parameter Setting in Identifying the Same Languages Involved in Different
Language Data*

Ren Wu (Yamaguchi Junior College, Japan)
Hiroshi Matsuno (Yamaguchi University, Japan)

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