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 Proceedings of the International Conference on

ARTIFICIAL LIFE AND ROBOTICS

(ICAROB 2014)

January 11-13, 2014
Compal Hall Oita, Japan

Editor-in-Chief: Masanori Sugisaka
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ORGANIZED

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

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IEEE Fukuoka Section (IEEE Robotics and Automation Society, Fukuoka Section, Japan)
Chinese Association for Artificial Intelligence (CAAI, P. R. China)
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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
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.

ICAROB Office

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Home Page: http://alife-robotics.co.jp/
MESSAGES

Yingmin Jia

General Chair of ICAROB

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 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 ICAROB. 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

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

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 (Monbusho), 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, ICAE (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 Conference (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)

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

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<td>Registration</td>
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<tr>
<td>10:00〜11:20</td>
<td>PS1(6) Chair D. Hazry</td>
<td>OS5(3) Chair H. Furutani (will be end at 11:00)</td>
<td>OS8(4) Chair T. Katayama</td>
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<tr>
<td>11:20〜13:00</td>
<td>Lunch</td>
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<tr>
<td>13:00〜14:40</td>
<td>PS1(6) Chair Y. Jia</td>
<td>OS1(5) Chair Y. Yoshitomi</td>
<td>OS3(5) Chair Y. Yoshitomi</td>
</tr>
<tr>
<td>14:40〜15:00</td>
<td>Coffee break</td>
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<tr>
<td>15:00〜17:00</td>
<td>PS1(6) Chair J. M. Lee</td>
<td>OS2(6) Chair J. M. Lee</td>
<td>OS4(5) Chair T. Hattori (will be end at 16:40)</td>
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<tr>
<td>18:00〜20:00</td>
<td>Banquet: HOTEL HOKKE CLUB OITA</td>
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### TIME TABLE (1/13)

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<tr>
<td>10:00-12:00</td>
<td>GS6(5) Chair F. Dai (will be end at 11:40)</td>
<td>OS7(6) Chair J. Nishii</td>
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<tr>
<td>12:00-13:00</td>
<td>Lunch</td>
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<tr>
<td>13:00-14:40</td>
<td>OS6(5) Chair T. Ito</td>
<td>OS9(4) Chair M. Sakamoto (will be end at 14:20)</td>
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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 Suheimi, Nazrul H. ADNAN, D. Hazry,

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Zuradzaman 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, Hyounseop 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 from 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 MCNN using 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 from 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 Jitviriya, 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 OSS Analysis of Randomized Algorithms**
Chair: Hiroshi Furutani (University of Miyazaki, Japan)
Co-Chair: Ichihi To (University of Miyazaki, Japan)

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

OSS-2 **Runtime Analysis of OneMax Problem in Genetic Algorithm**
Ichihi To, QuinLian Ma, Makoto Sakamoto, Hiroshi Furutani
(University of Miyazaki),
Yu-an Zhang (Qinghai University, China)

OSS-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)

Room305
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
Hiroto Nakamura, Tetsuro Katayama, Hisaaki Yamaba, Naonobu Okazaki
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  
Yoshihiro 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)  
Hiromichi 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)  
Hiromichi KAWANO (NTT AT, Japan)  

OS4-4 Automated Color Image Arrangement Method and Kansei Impression  
Yusuke Kawakami, Tetsuo Hattori, Yoshiro Imai, Haruna Matsushita, Hiromichi 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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January 13 (Monday)  

9:30- Registration  

Room 304  

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
(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. Shahriman, 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. Narematsu, 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
The International Conference on Artificial Life and Robotics (ICAROB 2014), Compal Hall, Oita, Japan, January 11-13, 2014

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)
## AUTHORS INDEX

**Notation of session name**

IS: Invited session, OS: Organized Session, GS: General Session, PS: Poster Session

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