The 2019 International Conference on ARTIFICIAL LIFE AND ROBOTICS (ICAROB2019)

January 10 (Thursday)

17:30-19:30   Welcome Party (Hotel Shiragiku)

January 11 (Friday)

10:30-11:00

Opening Ceremony (Conference Room)

Chair: Marion Oswald (Technische Universität Wien, Austria)

Welcome Addresses

1. General Chairman of ICAROB	Masanori Sugisaka (ALife Robotics Co., Ltd., Japan)
2. Co-General Chairman of ICAROB	Yingmin Jia (Beihang University, P. R. China)
3. Co-General Chairman of ICAROB	TaKao Ito (Hiroshima University, Japan)
4. Co-General Chairman of ICAROB	Ju-Jang Lee (KAIST, Korea)
5. Vice General Chair of ICAROB	Henrik Hautop Lund (Technical University of Denmark, Denmark)
6. Vice General Chair of ICAROB	Jangmyung Lee (Pusan National University, Korea)

January 12 (Saturday)

Banquet: Hotel Shiragiku

18:30-20:30

Chair: Takao Ito (Hiroshima University, Japan)

Welcome Addresses

Prof. Kensuke Harada (Osaka University, Japan)

Executive Adviser of robotics development, Mr. Masanori Sugiyama

(Toyota Motor Corporation, Japan)

Prof. Yingmin Jia (Beihang University, P.R. China)

Prof. Henrik Hautop Lund (Technical University of Denmark, Denmark)

TECHNICAL PAPER INDEX

January 11 (Friday)

8:40-Registration

Conference Room
10:30-11:00 Opening Ceremony
Chair: Marion Oswald (Technische Universität Wien, Austria)

11:10-11:40
Invited session IS1-1
Chair: Kuo-Hsien Hsia (Far East University, Taiwan)

IS1-1 *Engineering Modular Playware*
Henrik Hautop Lund, Morten Roed Frederiksen, Massimiliano Leggieri
(Technical University of Denmark, Denmark)

11:40-12:10
Invited session IS1-2
Chair: Jang-Myung Lee (Pusan National University, Korea)

IS1-2 *User-Friendly Robotics*
Luigi Pagliarini [1,2], Henrik Hautop Lund [1]
([1]Technical University of Denmark, Denmark, [2]Academy of Fine Arts of Macerata, Italy)

13:10-14:10
Plenary Speech PS-1
Chair: Akira Nakamura (National Institute of Advanced Industrial Science and Technology, Japan)

PS-1 *Motion-Data Driven Grasp/Assembly Planner*
Kensuke Harada[12], Natsuki Yamanobe[2], Weiwei Wan[12], Kazuyuki Nagata[2]
Ixchel G. Ramirez-Alpizar[1], Tokuo Tsuji[3] ([1]Osaka University, [2]National Institute of Advanced Industrial Science and Technology, [3]Kanazawa University, Japan)

Meeting Room 31
9:00-10:45 OS8 Computational intelligence and cognitive science for human biosignals and human well-being (7)

Chair: Tomoyuki Hiroyasu (Doshisha University, Japan)
Co-Chair: Hiroshi Furutani (Doshisha University, Japan)

OS8-1 *Unified Approach to (1+1) EA on Discrete Linear Functions*
       Kenji Aoki, Makoto Sakamoto (University of Miyazaki, Japan)
       Hiroshi Furutani, Satoru Hiwa, Tomoyuki Hiroyasu (Doshisha University, Japan)

OS8-2 *A fNIRS study of brain state during letter and category fluency tasks*
       Akane Onishi, Satoru Hiwa, Hiroshi Furutani, Tomoyuki Hiroyasu (Doshisha University, Japan)

OS8-3 *Construction of a meditation practice support system leads to a good meditation state: an fNIRS study*
       Seika Fujii, Satoru Hiwa, Hiroshi Furutani, Tomoyuki Hiroyasu (Doshisha University, Japan)

OS8-4 *Automated panoramic image creation system for corneal endothelial cells*
       Keitaro Kobayashi, Naoki Okumura, Noriko Koizumi, Satoru Hiwa, Hiroshi Furutani,
       Tomoyuki Hiroyasu (Doshisha University, Japan)

OS8-5 *An fMRI study of the inhibitory effects of the random stimulus-response compatibility task on brain function*
       Kei Sahara, Satoru Hiwa, Hiroshi Furutani, Tomoyuki Hiroyasu (Doshisha University, Japan)

OS8-6 *Measurement of brain activity and problem discovery during actual driving*
       Seishiro Nakamura, Satoru Hiwa, Kenya Sato, Hiroshi Furutani, Tomoyuki Hiroyasu
       (Doshisha University, Japan)

OS8-7 Control of driving simulator based on state detection of the driver using Electrocardiogram measurement
       Koma Yoshioka, Satoru Hiwa, Kenya Sato, Hiroshi Furutani, Tomoyuki Hiroyasu
       (Doshisha University, Japan)

15:50-17:50 OS20 Advances in Field Robotics and Sensing System (8)
Chair: Eiji Hayashi (Kyushu Institute of Technology, Japan)
Co-Chair: Kazuo Ishii (Kyushu Institute of Technology, Japan)

OS20-1 *Field Robot and Sensing system*
        Eiji Hayashi (Kyushu Institute of Technology, Japan)

OS20-2 *Saliency Map Based on Maximization of Difference between Central and Surround Visions and Its Relationship with Image Feature Points*
        Ruugo Mochizuki, Shinsuke Yasukawa, Kazuo Ishii (Kyushu Institute of Technology, Japan)

OS20-3 *Dynamic Wireless Network System using Multiple Drones for Tunnel Applications*
        Raji Alahamad, Kazuo Ishii (Kyushu Institute of Technology, Japan)

OS20-4   *Counting Crops under Cultivation using Drone*
          Yasunori Takemura[1], Yusuki Hirata[2], Eiji Mizoe[3], Masao Tashiro[4] and Yousuke Nagai[5]
          ([1]Nishinippon Institute of Technology, [2]Kyushu Institute of Technology, [3]Sky Canvas Co. Ltd.,
          [4]Joint Corp. Project Sky-eye, [5]Aruku Aguriculture Service LLC,, Japan)

OS20-5   *Soil Compaction and Rolling Resistance Evaluation of a Locomotion System with Adjustable*
          Contact Patches for Applications in the Vineyard
          Enrico di Maria[1], Kazuo Ishii[2] ([1]Tokai Universty, [2]Kyushu Institute of Technology, Japan)

OS20-6   *Robot Navigation in Forest Management Based on Graph*
          Ayumu Tominaga[1], Ryusuke Fujisawa[1], Eiji Hayashi[1], Abbe Mowshowitz[2]
          ([1]Kyushu Institute of Technology, Japan, [2]The City College of New York, USA)

OS20-7   *Development of Autonomous Moving System for Field Robot*
          Kengo Kawazoe, Eiji Hayashi, Ryusuke Fujisawa (Kyushu Institute of Technology, Japan)

OS20-8   *Development of the sense system that is combined force feedback and vision feedback*
          -Improvement reproducibility of deformation simulation by using LEM-
          Tamon Shigeyama, Eiji Hayashi , Ryusuke Fujisawa (Kyushu Institute of Technology, Japan)

Meeting Room 32

9:00-10:00 OS1-1 Intelligent Systems and Control (4)

Chair: Kuo-Hsien Hsia (Far East University, Taiwan)

Co-Chair: Chung-Wen Hung (National Yunlin University of Science & Technology, Taiwan)

OS1-1   *A Vishay Supercapacitor based Fast Charge Battery*
          Chung-Wen Hung, Yi-Chang Yang, Chun-Chu Lin, Li-Sheng Jheng
          (National Yunlin University of Science and Technology, Taiwan)

OS1-2   *Multi-Motor Synchronous Control with CANOpen*
          Chung-Wen Hung, Roger CL Lee, Bo-Kai Huang, Shit-Ting Yu
          (National Yunlin University of Science and Technology, Taiwan)

OS1-3   *Selection Strategy for VM Migration Method*
          Yan-Ren Chen, I-Hsien Liu, Keng-Hao Chang, Jung-Shian Li
          (National Cheng Kung University, Taiwan)

OS1-4   *VM Migration Placement in Cloud Service*
          Yan-Ren Chen, I-Hsien Liu, Keng-Hao Chang, Chuan-Gang Liu, Jung-Shian Li
          (National Cheng Kung University, Taiwan)

14:30-15:30 OS1-2 Intelligent Systems and Control (4)

Chair: Kuo-Hsien Hsia (Far East University, Taiwan)

Co-Chair: Chung-Wen Hung (National Yunlin University of Science & Technology, Taiwan)

OS1-5   *Control System for Maintaining Safe Following Distance while Driving*
Kuo-Hsien Hsia, Jia-Hong Cai, Shu-Li Pai (Far East University, Taiwan)
Evgeni Magid (Kazan Federal University, Russia)

OS1-6   *Markerless Indoor Augmented Reality Navigation Device Based on Optical-Flow-Scene Indoor Positioning and Wall-Floor-Boundary Image Registration*
Chian C. Ho, Bo-Kai Wang, Guan-Lung Liao
(National Yunlin University of Science and Technology, Taiwan)

OS1-7   *Development of the handheld gas detector with IoT function.*
Jr-Hung Guo, Kuo-Hsien Hsia, Kuo-Lan Su
(National Yunlin University of Science and Technology, Taiwan)

OS1-8   *Research on Employee Attribute Correlation of Information Security Awareness in Organization*
Tse-Yao Wang (Air Force Institute of Technology, Taiwan)
Fu-Hsiang Wen (National Kaohsiung University of Science and Technology, Taiwan)

15:50-17:35 OS4 Service Robotics (7)

Chair: Evgeni Magid (Kazan Federal University, Russia)

Co-Chair: Kuo-Hsien Hsia (Far East University, Taiwan),

Co-Chair: Kuo-Lan Su (National Yunlin University of Science and Technology, Taiwan)

OS4-1   *Apply 2D Barcode Scanner for Mobile Robot Navigation in Checkerboard Mapping*
Chun-Chi Lai[1], Kuo-Lan Su[1], Chia-Jen Lin[1], Evgeni Magid[2]
([1]National Yunlin University of Science and Technology, Taiwan)
([2]Kazan Federal University, Russia)

OS4-2   *Development of the MyRio Based Mobile Platform*
Bo-Jun Yang[1], Sheng-Jie Liou[1], Jr-Hung Guo[1], Kuo-Lan Su[1], Evgeni Magid[2]
([1]National Yunlin University of Science and Technology, Taiwan)
([2]Kazan Federal University, Russia)

OS4-3   *Modelling Avrora Unior Car-like Robot in Gazebo Environment*
Ksenia Shabalina[1], Artur Sagitov[1], Kuo-Lan Su[2], Kuo-Hsien Hsia[3], Evgeni Magid[1]
([1]Kazan Federal University, Russia)
([2]National Yunlin University of Science and Technology, Taiwan)
([3]Far East University, Taiwan)

OS4-4   *Transfer of learned exploration strategies for a mobile robot from a simulated world to real Environments*
Artur Sagitov[1], Tetsuo Takano[2], Shohei Muto[2], Evgeni Magid[1]
([1]Kazan Federal University, Russia) ([2]Kanazawa University, Japan)

OS4-5   *Extending Gazebo simulator for surgical robotics: tissue and suture modeling*
Artur Sagitov[1], Hongbing Li[2], Evgeni Magid[1]
([1]Kazan Federal University, Russia) ([2]Shanghai Jiao Tong University, China)

OS4-6   *Experiences of Robotics students in Machine Vision course being taught in a foreign language: comprehension, self-efficiency, and active learning strategies improvement*
Tatyana Tsoy, Artur Sagitov, Evgeni Magid (Kazan Federal University, Russia)

OS4-7   *Pilot Virtual Experiments on ArUco and AprilTag Systems Comparison for Fiducial Marker Rotation Resistance*
Aufar Zakiev[1], Ksenia Shabalina[1], Kuo-Lan Su[2], Kuo-Hsien Hsia[3], Evgeni Magid[1]
([1]Kazan Federal University, Russia)
([2]National Yunlin University of Science and Technology, Taiwan)
([3]Far East University, Taiwan)

Meeting Room 33
9:00-10:00 OS14 Intelligent Control (4)
Chair: Yingmin Jia (Beihang University (BUAA), China)
Co-Chair: Weicun Zhang (University of Science and Technology Beijing, China)

OS14-1   *Flock Guiding of Hybrid Agents via Root Block*
Yunzhong Song, Ziyi Fu, Fuzhong Wang (Henan Polytechnic University, China)

OS14-2   *Multiple Model Adaptive Control of Flexible Arm*
Yingzhao Zhang[1], Xiao Wang[1], Handong Li[1], Weicun Zhang[2]
([1]Guizhou University, [2]University of Science and Technology Beijing, China)

OS14-3   *Time-Varying Lyapunov Function for Mechanical Systems*
Bin Zhang[1], Yingmin Jia[2]
([1]Beijing University of Posts and Telecommunications, [2]Beihang University (BUAA), China)

OS14-4   *Optimizing Control Parameters of Space Robot Manipulator for Pulsar X-ray Interference Measurement*
Qiang Chen[1], Hengbin Zhang[1], Xiaomin Bei[1], Hanwen Zhang[2]
([1]Chinese Academy of Space Technology, [2]Beijing Institute of Control Engineering, China)

14:30-15:30 OS7 Media Information Processing and Artificial Intelligence (4)
Chair: Yasunari Yoshitomi (Kyoto Prefectural University, Japan)
Co-Chair: Masayoshi Tabuse (Kyoto Prefectural University, Japan)

OS7-1   *Effectiveness of Data Augmentation in Automatic Summarization System*
Tomohito Ouchi, Masayoshi Tabuse (Kyoto Prefectural University, Japan)

OS7-2   *A System for Posting on SNS Portrait Selected Using Facial Expression Analysis While Writing Message*
Taro Asada[1], Yuiko Yano[2], Yasunari Yoshitomi[1], Masayoshi Tabuse[1]
([1] Kyoto Prefectural University, [2] Nara Guarantee Corporation, Japan)

OS7-3   *A Method Using Wavelet Transform for Judging Character to be Inserted into Image*
Yasunari Yoshitomi[1], Takashi Sato[2], Taro Asada[1], Masayoshi Tabuse[1]
([1] Kyoto Prefectural University, [2] Tokyo Institute of Technology, Japan)

OS7-4   *An Authentication Method for Digital Audio Using Wavelet Transform and Fundamental Frequencies*
Yasunari Yoshitomi[1], Shohei Tani[2], Masaki Arasuna[3], Ryota Kan[4], Taro Asada[1], Masayoshi Tabuse[1]
([1] Kyoto Prefectural University, [2] Fukuchiyama City Hall, [3] Nissay Information Technology Co., Ltd., [4] Shimazu Business Systems Co., Ltd., Japan)

15:50-17:35 OS2 Theory and Implementation of Neuromimetic Systems (7)
Chair: Timothée Levi (The University of Tokyo, Japan)
Co-Chair: Yuichi Katori (Future University Hakodate, Japan)

OS2-1   *Decoding spike patterns of auto-associative memory on spiking neuronal networks*
Naoki Toyoshima, Takashi Kohno (The University of Tokyo, Japan)

OS2-2   *Possible Mechanism of Internal Visual Perception: Context-dependent Processing by Predictive Coding and Reservoir Computing Network*
Hiroto Tamura[1], Yuichi Katori[1,2], Kazuyuki Aihara[1]
([1]The University of Tokyo, [2]Future University Hakodate, Japan)

OS2-3   *Snake robot controlled by biomimetic CPGs*
Damien Blanchard[1], Kazuyuki Aihara[2], Timothée Levi[2]
([1]University of Bordeaux, France, [2]The University of Tokyo, Japan)

OS2-4   *Real-time implementation of ReSuMe learning in Spiking Neural Network*
Xia Yang, Seiji Uenohara, Kazuyuki Aihara, Takashi Kohno, Timothée Levi
(The University of Tokyo, Japan)

OS2-5   *Biomimetic spike-timing based ionic micro-stimulation for neuron culture*
          Stephany Mai Nishikawa[1], Farad Khoyratee[1,2], Soo Hyeon Kim[1], Yoshiho Ikeuchi[1],
          Kazuyuki Aihara[1], Teruo Fujii[1], Timothée Levi[1]
          ([1]The University of Tokyo, Japan, [2]University of Bordeaux, France)

OS2-6   *Implementation and Optimization of Bio-realistic Multi-compartmental Hodgkin-Huxley Model
          on FPGA for Neurological diseases Study*
          Farad Khoyratee[1,2], Kevin Dai[2,3], Sylvain Saighi[1], Timothée Levi[1,2]
          ([1]University of Bordeaux, France, [2]The University of Tokyo, Japan, [3]Harvard University, USA)

OS2-7   *Dynamical network model for visual cortex: hierarchical reservoir computing with bidirectional
          interactions*
          Shohei Takaichi[1], Yuichi Katori[2], Kazuyuki Aihara[1]
          ([1]The University of Tokyo, [2]Future University Hakodate, Japan)

Meeting Room 1
9:00-10:15 OS21 Advances in Marine Robotics and It's Applications (5)
Chair: Keisuke Watanabe (Tokai University, Japan)
Co-Chair: Kazuo Ishii (Kyushu Institute of Technology, Japan)

OS21-1   *System Development of AUV's Sampling Device Controller Employing MATLAB/Simulink
          Toolboxes*
          Takashi Sonoda[1], Shinsuke Yasukawa[2], Ahn Jonghyun[2], Yuya Nishida[2], Kazuo Ishii[2]
          ([1]Nishinippon Institute of Technology, [2]Kyushu Institute of Technology, Japan)

OS21-2   *Inspection System for Underwater Structure of Bridge Pier*
          Takumi Ueda[1], Hiyoyasu Hirai[1], Kazuki Fuchigami[1], Ryoma Yuki[1], Ahn Jonghyun[1], Shinsuke
          Yasukawa[1], Yuya Nishida[1], Takashi Sonoda[1], Kazuo Ishii[1], Katsunori Higashi[2], Katsunori Tanaka[2],
          Tomomasa Ikeda[2]
          ([1]Kyushu Institute of Technology, [2]West Nippon Expressway Engineering Kyushu, Japan)

OS21-3   *Three-dimensional measurement using laser pattern and its application to underwater scanner*
          Yuya Nishida, Tomoya Shinnoki, Shinsuke Yasukawa, Kazuo Ishii
          (Kyushu Institute of Technology, Japan)

OS21-4   *Development of Dam Inspection Underwater Robot*
          Hiroyasu Hirai, Kazuo Ishii (Kyushu Institute of Technology, Japan)

OS21-5   *Conceptual Design of Small ROV for Sky to Water System*
          Keisuke Watanabe, Koshi Utsunomiya, Kazumasa Harada, Nakajima Shuhei
          (Tokai University, Japan)

14:30-15:30 OS3 Intelligent navigation & Robotics (4)
Chair: Chan Gook Park (Seoul National University, Korea)
Co-Chair: Jang-Myung Lee (Pusan National University, Korea)

OS3-1   *Trajectory tracking control for a 7-arms robot manipulator*
          Wang Jie, Hyun-Hee Kim, Saad abbasi, Min-Cheol Lee (Pusan National University, Korea)

OS3-2   *Estimation tire-rod friction coefficient based on mobile robot*
          Ji-Hyeon Kim, Zhang Hongyu, Jang-Myung Lee (Pusan National University, Korea)

OS3-3   *Real-time reflection removal algorithm using stereo camera only*
          Do-Kyung Hwang, Jong-Woo An, Jang-Myung Lee (Pusan National University, Korea)

OS3-4   *The Effect of Inertial Measurement Unit on Synthetic Aperture Radar Image Quality*
          Soo-Jeong Lee[1], Yong-Gonjong Park[1], Woo-Jung Park[1], Chan Gook Park[1], Jong-Hwa Song[2]
          (Seoul National University, Korea[1], Hanwha Systems, Korea[2])

15:50-17:05 OS18 Data-Driven Control and Diagnosis Control Systems (5)
Chair: Takuya Kinoshita (Hiroshima University, Japan)
Co-Chair: Takao Sato (University of Hyogo, Japan)

OS18-1   *A Design Scheme of a Data-driven Predictive-PI Controller*
           Yoichiro Ashida, Shin Wakitani and Toru Yamamoto (Hiroshima University, Japan)

OS18-2   *Improvement in Intersample Response of Multirate Regulation Control*
           Takao Sato, Natsuki Kawaguchi, Nozomu Araki, Yasuo Konishi (University of Hyogo, Japan)

OS18-3   *Design of a PID Controller using a Fictitious Exogenous Signal for a Fluctuation System*
           Masatoshi Kozui, Takuya Kinoshita, Toru Yamamoto (Hiroshima University, Japan)

OS18-4   *Izhikevich Model Based Self-Repairing Control for Plants with Sensor Failures and Disturbances*
           Masanori Takahashi (Tokai University, Japan)

OS18-5   *Design of a Data-Driven Controller with Evaluating Controller Performance*
           Takuya Kinoshita and Toru Yamamoto (Hiroshima University, Japan)

Meeting Room 4
9:00-10:15 OS11 Recognition and Control (12)
Chair: Fengzhi Dai (Tianjin University of Science and Technology, China)
Co-Chair: Yizhun Peng (Tianjin University of Science and Technology, China)

OS11-1   *Design of feed part control system for rectification process*
Lingran An[1], Fengzhi Dai[1], Yujie Yan[1], Zhongyong Ye[1], Xia Jin[1], Yiqiao Qin[12], Chengcai Wang[3], Kaige Liu[1] ([1]Tianjin University of Science and Technology, [2]Tianjin Tianke Intelligent and Manufacture Technology CO.,LTD, [3]CETC Ocean Information Co., Ltd, China)

OS11-2   *Ultrasonic range finder for vehicle collision avoidance system*
Ying Chen[1], Guowei Yang[1], Fengzhi Dai[1], Yuxuan Zhu[1], Di Yin[1], Yasheng Yuan[1],Yiqiao Qin[12], Ce Bian[12], Chengcai Wang[3], Xinyu Zhang[1] ([1]Tianjin University of Science and Technology, [2]Tianjin Tianke Intelligent and Manufacture Technology CO.,LTD, [3]CETC Ocean Information Co., Ltd, China)

OS11-3   *Chaos synchronization method of Qi system and the circuit design*
Xia Jin[1], Fengzhi Dai[1], Zhongyong Ye[1], Lingran An[1], Yujie Yan[1], Chenglin Zhao[1], Yiqiao Qin[12], Hao Li[3] ([1]Tianjin University of Science and Technology, [2]Tianjin Tianke Intelligent and Manufacture Technology CO.,LTD, [3]CETC Ocean Information Co., Ltd,, China)

OS11-4   *Design of air quality monitoring platform based on Internet of Things*
Yujie Yan[1], Fengzhi Dai[1], Kailun Zhang[1], Wei Wang[2], Jialin Han[1], Yang Li[3], Tianyi Zhang[1] ([1]Tianjin University of Science and Technology, [2]China Institute of Aerospace Engineering , [3]CETC Ocean Information Co., Ltd, China)

OS11-5   *Design of metal weld seam tracking equipment based on image processing*
Yujie Yan[1], Fengzhi Dai[1], Lingran An[1], Xia Jin[1], Zhongyong Ye[1], Yufan He[2], Xinran Guo[3] ([1]Tianjin University of Science and Technology, [2]CETC Ocean Information Co., Ltd, [3]Nanjing University, China)

OS11-6   *The recognition and implementation of handwritten character based on deep learning*
Zhongyong Ye[1], Fengzhi Dai[1], Xia Jin[1], Yasheng Yuan[1], Lingran An[1], Yujie Yan[1], Yiqiao Qin[12], Hao Li[3] ([1]Tianjin University of Science and Technology, [2]Tianjin Tianke Intelligent and Manufacture Technology CO., LTD, [3]CETC Ocean Information Co., Ltd, China)

OS11-7   *Cluster analysis of wine based on three-dim fluorescent spectra characteristic*
Di Yin[1], Fengzhi Dai[1], Yuxuan Zhu[1], Yasheng Yuan[1], Tingting Zhang[1], Ying Chen, Yiqiao Qin[12], Chengcai Wang[3] ([1]Tianjin University of Science and Technology, [2] Tianjin Tianke Intelligent and Manufacture Technology CO., LTD, [3]CETC Ocean Information Co., Ltd, China)

OS11-8   *The control design of the planting device for the hydroponic vegetable*
Yasheng Yuan[1], Fengzhi Dai[1], Zhongyong Ye[1], Yuxuan Zhu[1], Di Yin[1], Tingting Zhang[1], Yiqiao Qin[12], Yang Li[3] ([1]Tianjin University of Science and Technology, [2] Tianjin Tianke Intelligent and Manufacture Technology CO.,LTD, [3]CETC Ocean Information Co., Ltd, China)

OS11-9   *An anti -theft system based on the self-checkout*
Yuxuan Zhu[1], Fengzhi Dai[1], Yasheng Yuan[1], Di Yin[1], Tingting Zhang[1], Ying Chen[1],
Ce Bian[12], Yufan He[3] ([1]Tianjin University of Science and Technology, [2]Tianjin Tianke
Intelligent and Manufacture Technology CO.,LTD, [3]CETC Ocean Information Co., Ltd,
China)

OS11-10   *Case study on communication between embedded linux environment and microcontroller*
Ziheng Gao, Yizhun Peng, Shuo Wang
(Tianjin University of Science and Technology, China)

OS11-11   *Design and implementation of a baby care robot*
Yizhun Peng, Zefan Ge, Kaixuan Geng, Zhou Yang,Rui Yang
(Tianjin University of Science and Technology, China)

OS11-12   *Research on intelligent shopping service robot design*
Shuo Wang, Yizhun Peng, Ruixiang Bai, Ziheng Gao
(Tianjin University of Science and Technology, China)

14:30-15:30 GS1 Robotics I (4)
Chair: Seong Ik Han (Dongguk University, Korea)

GS1-1   *System to decide unit's layout of cell assembly machine by GA (Big Mutation in mutation process)*
Yoshiki Ito, Hidehiko Yamamoto, Takayoshi Yamada (Gifu University, Japan)

GS1-2   *Autonomous decentralized FMS that adopts priority ranking structure based on AGV's lies*
Kento Uejo, Hidehiko Yamamoto, Takayoshi Yamada (Gifu University, Japan)

GS1-3   *CULET: Cubelet Lego Turing Machine*
Ricardo Q. Figueroa, Daniel A. Zamorano, Genaro J. Martínez (Instituto Politécnico Nacional, México), Andrew Adamatzky (University of the West of England, UK)

GS1-4   *A Four-Legged Robot Walking Control using Neural Networks*
Wisanu Jitviriya[1], Amornphun Phunopas[2], Eiji Hayashi3 ([1, 2]King Mongkut's University of Technology North Bangkok, Thailand, [3]Kyushu Institute of Technology, Japan)

15:50-17:50 OS13 System and Control (10)
Chair: Qiang Wei (Jianghan University, China)
Co-Chair: Huailin Zhao (Shanghai Institute of Technology, China)

OS13-1   *Research on a non-invasive measuring method of blood glucose concentration based on electrical impedance spectrum*
Tong Yin, Xiaoyan Chen, Meng Du, Hongyi Yin
(Tianjin University of Science and Technology, China)

OS13-2   *Synchronization of Novel 4D Chaotic Systems with Different Control Laws*
         Hong Niu (Tianjin University of Science and Technology, China)

OS13-3   *Chaotic characteristics analysis of fractional-order Liu system*
         Wengxin Shi, Hongyan Jia (Tianjin University of Science and Technology, China)

OS13-4   *Design and analysis of the multi-robot grouping aggregation algorithm*
         Huailin Zhao, Zhen Nie (Shanghai Institute of Technology, China)

OS13-5   *Research of the ARM-based multi-robot aggregation control*
         Huailin Zhao, Jingnan Zheng, Zhen Nie, Weiya Zhang, Zonglin Liu
         (Shanghai Institute of Technology, China)

OS13-6   *Research on the Trajectory Planning Problem of Robots in Spherical Cutting*
         Jun Min, Wenping Jiang, Huailin Zhao (Shanghai Institute of Technology, China)

OS13-7   *Emotional processing between artificial voices and human voices*
         Qiang Wei[1], Xiaoyu Zhang[1], Xiao Yang[1], Yixin Lin[2], Qingming Liu[3]
         ([1]Jianghan University, [2]Huazhong University of Science and Technology, [3]Wuhan Rayson School,
         China)

OS13-8   *How people are affected by emoticon icon: An ERP study*
         Qiang Wei[1], Jingxuan Huang[1], Yu Han[1], Yixin Lin[2]
         ([1]Jianghan University, [2]Huazhong University of Science and Technology, China)

OS13-9   *Single Chinese character fragments: an ERPs study on orthographic neighborhood effect*
         Qiang Wei[1], Yunfei Wang[1], Chen Song[1], Yixin Lin[2]
         ([1]Jianghan University, [2]Huazhong University of Science and Technology, China)

OS13-10 *Research on embedded electrical impedance measurement system*
         Tong Yin, Xiaoyan Chen, Hongyi Yin (Tianjin University of Science and Technology, China)

January 12 (Saturday)

8:40-Registration

Conference Room
11:10-11:40
Invited session IS-2
Chair: Ju-Jang Lee (KAIST, Korea)

IS-2 *A New Machine Learning Algorithm Applicable for Weather Visibility and Food Recognition*
Young Im Cho (Gachon University, Korea)

11:40-12:10
Invited session IS-3
Chair: Marion Oswald (Technische Universität Wien, Austria)

IS-3 *Using Emotions in Interaction with Systems*
Kaoru Sumi (Future University Hakodate, Japan)

13:10-14:10
Plenary Speech PS-2
Chair: Kazuo Ishii (Kyushu Institute of Technology, Japan)

PS-2 *Toward Life with Partner Robots: Developing robots with the field trial toward the practical use*
Masanori Sugiyama (Toyota Motor Corporation, Japan)

Meeting Room 31
10:00-16:15 GS4 Poster (5)
Chair: Evgeni Magid (Kazan Federal University, Russia)

GS4-1   *Relevance Research among Destination Image, Brand Trust, and Satisfaction: Tainan Festival in Taiwan as Example*
Shang-Hui Li, Shu-Fang Hsu, Yi-Tai Shang (Far East University, Taiwan)

GS4-2   *Third-party Logistics Service Supply: Catering Service Trade as Example*
Shu-Fang Hsu, Shang-Hui Li (Far East University, Taiwan)

GS4-3   *Pedal Scale Control Device for Weighing Food Ingredients or Chemical Materials*
Shang-Hui Li, Shu-Fang Hsu, Yi-Tai Shang, Kuan-Ying Chen (Far East University, Taiwan)

GS4-4   *Convolution Neural Network Based Fault Diagnosis of Induction Motors*
Jong-Hyun Lee, In-Soo Lee(Kyungpook National University, Korea)

GS4-5   *Analysis of Value Chain on Food and Beverage Micro-enterprises: Mobile Diner as Example*
Shu-Fang Hsu, Shang-Hui Li (Far East University, Taiwan)

Meeting Room 32
9:00-9:45 OS17 Multiagent and Complex Systems (3)
Chair: Akihiro Yamaguchi (Fukuoka Institute of Technology, Japan)
Co-Chair: Saori Iwanaga (Japan Coast Guard Academy, Japan)

OS17-1 *Different Type of Interaction or Decision Error contribute to Functional Differences*
Saori Iwanaga[1], Masao Kubo[2]
([1]Japan Coast Guard Academy, [2]National Defense Academy of Japan, Japan)

OS17-2 *Evaluation for the Synchronization of the Parade with OpenPose*
Yohei Okugawa, Masao Kubo, Hiroshi Sato, Bui Duc Viet
(National Defense Academy of Japan, Japan)

OS17-3 *Phase shift estimation of the bifurcating neuron from superimposed chaotic spike sequences*
Akihiro Yamaguchi[1], Yutaka Yamaguti[1], Masao Kubo[2]
([1]Fukuoka Institute of Technology, [2]National Defense Academy of Japan, Japan)

10:00-11:00 OS16 New development about Control Engineering Education (4)
Chair: Yoshihiro Ohnishi (Ehime University, Japan)
Co-Chair: Kazuo Kawada (Hiroshima University, Japan)

OS16-1 *Skill Model Estimation of Ability for Reading Drawings*
Kazuo Kawada, Tsukasa Hiyama (Hiroshima University, Japan)

OS16-2 *Learning simulation based on a computational model of neuromodulators*
Yuki Moriguchi, Masayasu Nagamatsu
(Hiroshima University, Japan)

OS16-3 *Estimation of Programming Learning Achievement by Line Tracing Robot*
Yoshihiro Ohnishi[1], Teruyuki Tamai[1], Shinnosuke Mori[1], Kawada Kazuo[2]
([1]Ehime University, [2]Hiroshima University, Japan)

OS16-4 *Development of Cultivate Computational Thinking using Finger Robot*
Kaito Omata, Shinichi Imai (Tokyo Gakugei University, Japan)

14:30-15:45 OS15 Advanced Control (5)
Chair: Yingmin Jia (Beihang University (BUAA), China)
Co-Chair: Weicun Zhang (University of Science and Technology Beijing, China)

OS15-1 *Pulse Pose Follow Control and Simulation for a 4-DOF Pulse Diagnosis Robot*
Qunpo Liu[1], Guanghui Liu[1], Hongqi Wang [1], Xianzhe Liu[1], Hanajima Naohiko[2]
([1]Henan Polytechnic University, China, [2]Muroran Institute of Technology, Japan)

OS15-2　*A New Adaptive Control System Design Method Based on Neuronetwork Prediction*
Weicun Zhang, Sufang Wang, Yongnan Jia, Qing Li
(University of Science and Technology Beijing, China)

OS15-3　*Mean-square quasi-composite rotating formation control of second-order multi-agent systems under stochastic communication noise*
Lipo Mo[1], Xiaolin Yuan[1], Yingmin Jia[2], Shaoyan Guo[3]
([1]Beijing Technology and Business University, [2]Beihang University (BUAA), [3]South China University of Technology, China)

OS15-4　*Distributed Energy Resource Control Based on Multi-Agent Group Consensus*
Yize Yang[1,2], Hongyong Yang[1], Fan Liu[1], Yuling Li[1], Yuanshan Liu[1]
([1]Ludong University, China, [2]The University of New South Wales, Australia)

OS15-5　*Robust Adaptive Control of Air-to-air Refueling Boom with State-dependent Output Constraints*
Liang Chang, Yingmin Jia (Beihang University (BUAA), China)

16:15-17:45 GS2 Robotics II (6)
Chair: Jiwu Wang (Beijing Jiaotong University, China)

GS2-1　*Automated Guided Vehicle System Analysis in Foam Manufacturing Plant Using Petri-net*
Amornphun Phunopas[1], Wisanu Jitviriya[1], Noppadol Pudchuen[1], Sutee Kumjaikong[1], Songklod Tunsiri[2], Eiji Hayashi[3] ([1]King Mongkut's University of Technology North Bangkok, Thailand, [2]Urban Community, Development College, Thailand, [3]Kyushu Institute of Technology, Japan)

GS2-2　*Preliminary Comparative Experiments of Support Vector Machine and Neural Network for EEG-based BCI Mobile Robot Control*
Yasushi Bandou, Takuya Hayakawa, Jun Kobayashi (Kyushu Institute of Technology, Japan)

GS2-3　*Position Tracking Error Constrained Super-Twisting Dynamic Surface Control with Disturbance Observer for Robot Manipulators*
Seong Ik Han (Dongguk University, Korea Republic)

GS2-4　*Image Processing for Picking Task of Random Ordered PET Drinking Bottles*
Chen Zhu, Takafumi Matsumaru (Waseda University, Japan)

GS2-5　*The Use of Importance Ranks to Derive Suitable Timing of Visual Sensing in Manipulation Task Containing Error Recovery*
Akira Nakamura[1], Kazuyuki Nagata[1], Kensuke Harada[2], Yukiyasu Domae[1]
([1]National Institute of Advanced Industrial Science and Technology (AIST), [2]Osaka University, Japan)

GS2-6　　*Body and Brain Tests with the Moto Tiles*
　　　　　Yanxin Liu, Henrik Hautop Lund (Technical University of Denmark, Denmark)

Meeting Room 33
9:00-9:45 GS3 Complexity (3)
Chair: Manabu. Sugii (Yamaguchi University, Japan)

GS3-1　　*Control of Cancer Immune System Using Synergetic Con 4 troller Design*
　　　　　Arsit Boonyaprapasorn, Thanacha Choopojcharearon, Suriya Natsupakpong,
　　　　　Eakkachai Pengwang, Thavida Maneewarn, Parinya Sa Ngiamsunthorn
　　　　　(King Mongkut's University of Technology Thonburi, Thailand)

GS3-2　　*Extracting Co-occurrence Feature of Words for Mail filtering*
　　　　　Seiya Temma, Manabu Sugii, Hiroshi Matsuno (Yamaguchi University, Japan)

GS3-3　　*Learning Style Classification with Weighted Distance Grey Wolf Optimization*
　　　　　Duangjai Jitkongchuen, Piyalak Pongtawevirat (Dhurakij Pundit University, Thailand)

10:00-11:00 OS23 Kansei and Information Engineering (4)
Chair: Chair: Tetsuo Hattori (Kagawa University)
Co-Chair: Yoshiro Imai (Kagawa University)

OS23-1　　*Color Image Arrangement Based on Histogram Matching Using Smoothed
　　　　　Brightness Histogram (I) --- Overall Smoothing ---*
　　　　　Yusuke Kawakami, Tetsuo Hattori, Yoshiro Imai, Koji Kagawa, Yo Horikawa (Kagawa University,
　　　　　Japan), R. P. C. Janaka Rajapakse (Tainan National University of the Arts, Taiwan)

OS23-2　　*Color Image Arrangement Based on Histogram Matching Using Smoothed
　　　　　Brightness Histogram (II) --- Piecewise Smoothing---*
　　　　　Yusuke Kawakami, Tetsuo Hattori, Yoshiro Imai, Koji Kagawa, Yo Horikawa (Kagawa University,
　　　　　Japan), R. P. C. Janaka Rajapakse (Tainan National University of the Arts, Taiwan)

OS23-3　　*Parameter Estimation Method for Compartment Model - PET Inspection -*
　　　　　Tetsuo Hattori, Yusuke Kawakami, Yoshiro Imai, Koji Kagawa, Yo Horikawa (Kagawa University,
　　　　　Japan), Hiromichi Kawano (NTT Advanced Technology Company Ltd, Japan)

OS23-4　　*Application and Trial Evaluation of Document Writing Support System to Avoid Emotional
　　　　　Misunderstanding*
　　　　　Shunsuke Doi, Yoshiro Imai, Koji Kagawa, Tetsuo Hattori, Yusuke Kawakami
　　　　　(Kagawa University, Japan)

14:30-15:45 OS12 Robot Design and Simulation (5)
Chair: QinJian Zhang (Beijing Jiaotong University, China)
Co-Chair: Wei Liu (Beijing Jiaotong University, China)

OS12-1   *Design and Research of Navigation and Dynamics Co- Simulation Platform for Planetary Rover*
Huang Tie-qiu, Zhang Bo-wen, Huang Qian-li (Beijing Jiaotong University, P.R China)

OS12-2   *Research on Virtual Reality Technology Combined with SFM for Simulation Application*
Jiwu Wang, Chenyang Li (Beijing Jiaotong University, China)
Min Li (Beijing Forestry University, China)

OS12-3   *Visual SLAM System Design based on Semantic Segmentation*
Jiwu Wang, Yafan Liu, Qinjian Zhang (Beijing Jiaotong University, China)

OS12-4   *Spherical Mobile Robot Designed with Single Omnidirectional Wheels*
Wei Liu, Lian Luo, Jiwu Wang (Beijing Jiaotong University, China)

OS12-5   *An augmented reality implementation method based on Unity3D*
Weixin Zeng, Jiwu Wang (Beijing Jiaotong University, China)

16:15-17:00 OS25 High-Performance Computing for Interactive Content Creation and Rendering (3)
Chair: R.P.C. Janaka Rajapakse (Tainan National University of the Arts, Taiwan)
Co-Chair: Chia-Chen Kuo (National Center for High-performance Computing (NCHC), Taiwan)

OS25-1   *High-Performance Computing for Visual Simulations and Rendering*
Chia-Chen Kuo, Shu-Hsin Liu, Yi-Lin Wu, Chuan-Lin Lai, Chiang-Hsiang Lien, Ming-Jen Wang, Chih-Wei Wang(National Center for High-performance Computing (NCHC), Taiwan)

OS25-2   *Virtual Reality as an Art Form*
R.P.C. Janaka Rajapakse, Yi-ping Hung (Tainan National University of the Arts, Taiwan)

OS25-3   *Using Quill as a Tool for Real-Time Rendering*
Chia-Chen Kuo, Yi-Lin Wu, Shu-Hsin Liu, Chuan-Lin Lai, Chiang-Hsiang Lien, Ming-Jen Wang, Chih-Wei Wang (National Center for High-performance Computing (NCHC), Taiwan)

Meeting room 1
9:00-9:45 OS9 Natural Computing and Beyond (3)
Chair: Marion Oswald (Technische Universität Wien, Austria)
Co-Chair: Yasuhiro Suzuki (Nagoya University, Japan)

OS9-1   *Tactile Score: Development and Applications*
Yasuhiro Suzuki (Nagoya University, Japan)

OS9-2   *Tactileology, Toward Creating Novel Haptics for Informatics*
         Yasuhiro Suzuki (Nagoya University, Japan)

OS9-3   *Natural Computing and Formal Computing*
         Yasuhiro Suzuki (Nagoya University, Japan)

14:30-16:00 OS22 Robot Competitions for Social Contribution (6)
Chair: Yasunori Takemura (Nishinippon Institute of Technology, Japan)
Co-Chair: Kazuo Ishii (Kyushu Institute of Technology, Japan)

OS22-1   *Study on Position Estimation Using Small Size ZigBee Module*
          Atsushi Sanada (Nishinippon Institute of Technology, Japan)

OS22-2   *The 4th Tomato Harvesting Robot Competition*
          Takayuki Matsuo[1], Takashi Sonoda[2], Yasunori Takemura[2], Kazuo Ishii[3]
          ([1]National Institute of Technology, Kitakyushu College, [2]NishiNippon Institute of
          Technology, [3]Kyushu Institute of Technology, Japan)

OS22-3   *End-effector for robotic harvesting of a tomato fruit with calyx*
          Binghe Li, Shinsuke Yasukawa, Takuya Fujinaga, Kazuo Ishii
          (Kyushu Institute of Technology, Japan)

OS22-4   *Evaluation for Ball Dribbling Mechanism of RoboCup Middle Size League Robot in The World
          Teams*
          Kenji Kimura, Shota Chikushi, Kazuo Ishii (Kyushu Institute of Technology)

OS22-5   *Robot-control method based on personal space*
          Kota Kawamoto, Eiji Hayashi, Ryusuke Fujisawa (Kyushu Institute of Technology)

OS22-6   *Recognition method of target objects for autonomous tomato harvesting robot*
          Keiji Kamei, Hiroyuki Moriyama (Nishinippon Institute of Technology, Japan)

Meeting room 4
9:00-9:45 OS19 Advanced Technology on Sensing Technology, Devices, Application (3)
Chair: Hiroki Tamura (University of Miyazaki, Japan)
Co-Chair: Keiko Sakurai (University of Miyazaki, Japan)

OS19-1   *The Actual Car Driving Evaluation System using Combined with Eyeball and Face Angle*
          Keiko Sakurai, Hiroki Tamura, Koichi Tanno (University of Miyazaki, Japan),
          Yukio Hattori (OFA SUPPORT INC, Japan)

OS19-2 *A Study on Speaker Identification Approach by Feature Matching Algorithm using Pitch and Mel Frequency Cepstral Coefficients*
Barlian Henryranu Prasetio, Keiko Sakurai, Hiroki Tamura, Koichi Tanno
(University of Miyazaki, Japan)

OS19-3 *A Study on Breathing and Heartbeat Monitoring System during Sleeping using Multi-Piezoelectric Elements*
Praveen Nuwantha Gunaratne, Chika Yoshida, Keiko Sakurai, Hiroki Tamura, Koichi Tanno,
(University of Miyazaki, Japan)

January 13 (Sunday)

8:40-Registration

Meeting Room 31
10:40-11:40
Plenary Speech PS-3
Chair: Takao Ito (Hiroshima University)

PS-3 *Robust Consensus Control of Multi-vehicle Systems*
Yingmin JiA (Beihang University, P.R.China)

Meeting Room 32
9:00-10:30 OS6 Software Development Support Method (6)
Chair: Tetsuro Katayama (University of Miyazaki, Japan)
Co-Chair: Tomohiko Takagi (Kagawa University, Japan)

OS6-1 *Prototype of an Animated Graphics-Based Training Support Tool for Bug Fixing of Extended Place/Transition Nets*

Tomohiko Takagi, Shogo Morimoto, Yuki Ue, Yoshiro Imai (Kagawa University, Japan)
OS6-2 *Prototype of a Modeling Tool to Convert between Extended Place/Transition Nets and VDM++ Specifications*
Tomohiko Takagi, Ryo Kurozumi (Kagawa University, Japan)

OS6-3 *Application of Pairwise Testing to Test Cases by Boundary Value Analysis in BWDM*
Futa Hirakoba*, Tetsuro Katayama*, Yoshihiro Kita†, Hisaaki Yamaba*, Kentaro Aburada*, Naonobu Okazaki*
(*University of Miyazaki, †Tokyo University of Technology, Japan)

OS6-4   *Development of Library Fescue Extracting Elements of Attributes and Operations of Class Diagram in UML*
         Keisuke Mori*, Tetsuro Katayama*, Yoshihiro Kita†, Hisaaki Yamaba*, Kentaro Aburada*,
         Naonobu Okazaki* (*University of Miyazaki, †Tokyo University of Technology, Japan)

OS6-5   *Tamias: a Syntax File Checker for Parsing Expression Grammar*
         Toshihiro Miyaji*, Tetsuro Katayama*, Yoshihiro Kita†, Hisaaki Yamaba*, Kentaro Aburada*,
         Naonobu Okazaki* (*University of Miyazaki, †Tokyo University of Technology, Japan)

OS6-6   *Implementation of an Arduino Simulator to Support Circuit Design*
         Tatsumi Nishida*, Tetsuro Katayama*, Yoshihiro Kita†, Hisaaki Yamaba*, Kentaro Aburada*
         And Naonobu Okazaki* (*University of Miyazaki, †Tokyo University of Technology, Japan)

12:40-13:55 OS10 Mathematical Informatics (5)

Chair: Makoto Sakamoto (University of Miyazaki, Japan)

Co-Chair: Amane Takei (University of Miyazaki, Japan)

OS10-1   *A Study on Tourism Support Application Using the Virtual Technology*
          Masamichi Hori[1], Makoto Sakamoto[1], Takahiro Ishizu[1], Satoshi Ikeda[1], Amane Takei[1],
          Takao Ito[2], Yu-an Zhang[3] ([1]University of Miyazaki, [2]Hiroshima University, Japan,
          [3]Qinghai University, China)

OS10-2   *Proposal for Interaction Techniques for Intuitive Virtual Objects Manipulation in Augmented Reality*
          Takahiro Ishizu[1], Makoto Sakamoto[1], Takaaki Toyota[1], Masamichi Hori[1], Satoshi Ikeda[1],
          Amane Takei[1], Takao Ito[2], Yu-an Zhang[3]
          ([1]University of Miyazaki, [2]Hiroshima University, Japan, [3]Qinghai University, China)

OS10-3   *Two-Dimensional Image Based Body Size Measurement and Body Weight Estimation for Yaks*
          Zijie Sun[1], Chen Zhang[1], XiaoFeng Qin[1], Yu-an Zhang[1], Rende Song[2], Makoto Sakamoto[3]
          ([1]Qinghai University, [2]Yushu Prefecture Animal Husbandry and Veterinary Station, China
          [3]University of Miyazaki, Japan)

OS10-4   *An efficient structure of organization with complete group guidance*
          Satoshi Ikeda[1], Mamoru Yoshimura[1], Makoto Sakamoto[1], Takao Ito[2]
          ([1]University of Miyazaki, [2]Hiroshima University, Japan)

OS10-5   *Parallel finite element analysis for hyperbolic problems*
          Amane Takei,, Makoto Sakamoto (University of Miyazaki, Japan)

Meeting Room 33

9:00-10:00 OS5 Business Models and Management (4)

Chair: Takao Ito (Hiroshima University, Japan)
Co-Chair: Minoru Kumano (University of Miyazaki, Japan)

OS5-1   *Determining the Key Factors of Michinoeki in Yamaguchi Area*
Minoru Kumano[1], Tsutomu Ito[2], Takao Ito[3], Toru Hiraoka[4], Hirofumi Nonaka[5]
([1]University of Miyazaki, [2]Hino Motors, Ltd., [3]Hiroshima University,
[4]University of Nagasaki, [5]Nagaoka University of Technology, Japan)

OS5-2   *Discovering the Characteristics of Michinoeki in Japan*
Minoru Kumano[1], Tsutomu Ito[2], Takao Ito[3], Toru Hiraoka[4], Hirofumi Nonaka[5]
([1]University of Miyazaki, [2]Hino Motors, Ltd., [3]Hiroshima University,
[4]University of Nagasaki, [5]Nagaoka University of Technology, Japan)

OS5-3   *An Analysis of Robotic Relationship between Transaction Network and Cross-shareholding Network in Yokokai*
Takao Ito[1], Tsutomu Ito[2], Rajiv Mehta[3], Seigo Matsuno[4], Makoto Sakamoto[5], Satoshi Ikeda[5]
([1]Hiroshima University, Japan, [2]Hino Motors, Ltd., Japan, [3]New Jersey Institute of Technology, U.S.A., [4]Ube National College of Technology, Japan, [5]University of Miyazaki, Japan)

OS5-4   *Technological Discontinuities and the R&D Strategy of Automobile Companies*
Yousin Park[1], Iori Nakaoka[2], Yun-ju Chen[3] ([1]Prefectural University of Hiroshima, [2]National Institute of Technology, Ube College, [3]Shiga University, Japan)

12:40-13:55 OS24 Automated content generation for narrative and cognitive contents (5)
Chair: Jumpei Ono (Vocational School of Digital Arts Sendai, Japan)
Co-Chair: Hiroki Fukushima (Kyushu Womens' University, Japan)
Co-Chair: Takashi Ogata (Iwate Prefectural University, Japan)

OS24-1   *A Method of Haiku Generation Using Deep Learning for Advertising Generation*
Jumpei Ono (Vocational School of Digital Arts Sendai, Japan)
Takashi Ogata (Iwate Prefectural University, Japan)

OS24-2   *The Usage Features of Onomatopoeias in the Recipes in Japanese*
Hiroki Fukushima (Kyushu Womens' University, Japan)

OS24-3   *Storytelling in the Conversation of Aged People*
Yuki Hayashi (Chiba University / Center for Advanced Intelligence Project, Riken, Japan)
Akinori Abe (Chiba University /Dwango Artificial Intelligence Laboratory, Japan)

OS24-4   *Expression of the taste of Japanese sake and metaphor*
Akinori Abe (Chiba University / Dwango Artificial Intelligence Laboratory, Japan)

OS24-5   *An Analysis on Advertising Techniques of Beverages Using Positive Factors of Evaluation Database System*
Yoji Kawamura (Kindai University, Japan)

GS5 Others (8)

GS5-1   *Suppression of Roll Oscillation in Turning of Quadruped Robot by Asymmetric Amplification of Central Pattern Generator Output Waveform*
Makoto Kitani, Ryo Asami, Noritake Sato (Nagoya Institute of Technology, Japan),
Tomofumi Fujiwara, Takahiro Endo, Fumitoshi Matsuno (Kyoto University, Japan),
Yoshifumi Morita (Nagoya Institute of Technology, Japan)

GS5-2   *Tumble avoidance system for rescue robot by estimating the contact points using a 3D depth sensor*
Noritaka Sato, Kotaro Ohshima, Yoshifumi Morita (Nagoya Institute of Technology, Japan)

GS5-3   *Rule based Intrusion Detection System by Using Statistical Flow Analysis Technique for Software Defined Network*
Mahnoor Ejaz, Osama Sohail, Talha Naqash, Zain ul Abideen, Sajjad Hussain Shah
(Bahria University, Pakistan)

GS5-4   *Development of Testbed for SDN to Know Its Feasibility of Deployment on Access Layer*
Rafay Shah, M Osama Shaikh, Talha Shaikh, Tanveer Hussain
 (Mehran University of Engineering & technology)

GS5-5   *Spectrum Sensing using Unsupervised Learning for Cognitive Radio*
Asmara Shaukat, Danish Khan, Talal Arshad, Haseeb Ahmad (PAF-KIET, Pakistan)

GS5-6   *Tracking Secondary User In Cognitive Radio For 5g Communication*
Muhammad Adnan, Muhammad Umair, Sameed bin Junaid
 （PAF-KIET, Pakistan）

GS5-7   *Wireless Power Transfer And Data Communication For Biomedical Applications*
Hammad Saleem, Muhammad Awais, Siraj Din, Attequa
(PAF-KIET, Pakistan)

GS5-8   *Feasibility Study Of UAV Implementation In Route Surveying*
D.Hazry, M A Azizan, Safwan Suhaimi, Zulaiha Ramli, Mohamad Syafiq A.K, Zainuddin Hat
(Universiti Malaysia Perlis, Malaysia)

Farewell Party