

TECHNICAL PAPER INDEX

February 5 (Thursday)

Room A

10:55~11:45 Plenary Talk

Chair Y. G. Zhang (Academia Sinica, P. R. China)

PT1 *The pareto operating curve for risk minimization in life and robotics*
H. Abbass (University of New South Wales, Australia)

Room B

12:40~14:10 Invited Talks Session

Chair A. Grzech (Wroclaw University of Technology, Poland)

IT1 *Modular robotic system as multisensory room in children's hospital*
H. H. Lund (Technical University of Denmark, Denmark)

IT2 *Modular robotic wearable*
L. Pagliarini (Technical University of Denmark, Denmark)

February 6 (Friday)

Room A

15:50~16:40 Plenary Talk

Chair J. J. Lee (KAIST, Korea)

PT2 *Mathematical modelling of complex systems and its possible applications*
K. Aihara (The University of Tokyo, Japan)

Room B

9:40~10:25 Invited Talk

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

IT3 *Optimal monitoring for distributed intrusion detection system*
A. Grzech (Wroclaw University of Technology, Poland)

13:05~13:50 Invited Talk

Chair L. Pagliarini (Technical University of Denmark, Denmark)

IT4 *Making decision in two-stage identification system with knowledge updating*
J. Swiatek (Wroclaw University of Technology, Poland)

February 7 (Saturday)

Room A

11:50~12:40 Plenary Talk

Chair H. Tanaka (Tokyo Medical and Dental University, Japan)

PT3 *Graph based semi-supervised learning*
C-S. Zhang (Tsinghua University, P. R. China)

Room B

8:40~9:25 Invited Talk

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

IT5 *On the observability and estimability analysis of the global positioning system (GPS)
and inertial navigation system (INS)*

M- H. Lee (Pusan National University, Korea)

9:25~10:10 Invited Talk

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

IT6 *A design of brain sensory monitoring thinking activity inside the knowledge system*

J. Shim (Kangnam University, Korea)

February 5 (Thursday)

8:00~Registration

Room A

8:40~10:10 OS8 Learning and Robotics

Chair: H. H. Lee (Waseda University, Japan)

Co-Chair: H. Ogai (Waseda University, Japan)

OS8-1 *Modeling of traffic flow using cellular automata and traffic signal control by Q-learning*

K. Umemoto, J-S. Shin, T. Ohshita, Y. Osuki (Waseda University, Japan)

M. Miyazaki (Kanto-Gakuin University, Japan)

H-H. Lee (Waseda University, Japan)

OS8-2 *Humanoid robot's motion planning using genetic network programming*

Y. X. Sun, H. Ogai (Waseda University, Japan)

OS8-3 *On-line tuning PID parameters in idle-speed engine based on modified BP neural network by particle swarm optimization*

J-M. Yin, J-S. Shin, H-H. Lee (Waseda University, Japan)

OS8-4 *Traffic signal control based on predicted distribution of traffic jam*

C-Y. Cui, J-S. Shin (Waseda University, Japan)

S. Fumihiko (Fukuoka Institute of Technology, Japan)

H-H. Lee (Waseda University, Japan)

OS8-5 *Pipe inspection robot using wireless communication system*

H. Ogai, Y. Yeh, D. Wu (Waseda University, Japan)

K. Hirai, T. Abe (Hakutsu Technology Corporation, Japan)

G. Sato (Wave Professional Inc., Japan)

OS8-6 *Production adjusting method based on predicted distribution of production and inventory using dynamic bayesian network*

Y-H. Park, J-S. Shin, K-Y. Woo (Waseda University, Japan)

F. Shoji (Fukuoka Institute of Technology)

H-H. Lee (Waseda University, Japan)

12:40~14:10 GS2 Artificial Life

Chair: H. Yamamoto (Gifu University, Japan)

GS2-1 *Research on softman cooperation mechanism and algorithms*

D. Ai, H-T. Xiong, G. Zeng, Y. Yue (University of Science and Technology Beijing, P. R. China)

GS2-2 *The effects of the trophic level on the stability of food webs*

H. Ochiai, R. Suzuki, T. Arita (Nagoya University, Japan)

GS2-3 *Evolutionary acquisition of behaviors building structural objects by virtual creatures*

K. Oomiya, K. Nakamura (Future University – Hakodate, Japan)

K. Suzuki (Hokkaido University, Japan)

GS2-4 *Agent based approach for homeostatic plasticity in neuronal activities*

S. Fernando, Y. Nakamura, S. Matsuzaki, A. Marasinghe (Nagaoka University of Technology, Japan)

GS2-5 *Adaptive sensor arrays for acoustic monitoring of bird behavior and diversity:*

Preliminary results on source identification using support vector machines

E. E. Vallejo (ITESM, México)

C. E. Taylor (UCLA, USA)

14:20~16:05 GS12 Multi-agent systems

Chair: C. E. Taylor (University of California, Los Angeles, USA)

GS12-1 *The PSP practice support system using multiagent techniques and manipulation analysis data*

D. Yamaguchi, K. Otsuka, F. Katayama, M. Takahashi (Toin University of Yokohama, Japan)

GS12-2 *Use of multiobjective genetic rule selection for examining the effectiveness of inter-vehicle communication in traffic simulations*

Y. Hamada, Y. Nojima, H. Ishibuchi (Osaka Prefecture University)

GS12-3 *Web news summary system with clustering algorithm to identify same article*

A. Niimi, Y. Saito, O. Konishi (Future University-Hakodate, Japan)

GS12-4 *Evolution of cooperative behavior among heterogeneous agents with different strategy representations in an iterated prisoner's dilemma game*

H. Ohyanagi, Y. Watamatsu, Y. Nakashima, Y. Nojima,
H. Ishibuchi (Osaka Prefecture University)

GS12-5 *Moving robots' mind of autonomous decentralized FMS and mind change control*

H. Yamamoto, H. Kikuchi (Gifu University, Japan)
T. Yamada, M. A. Jamali (Universite du Quebec, Canada)

GS12-6 *High survivability of a large colony through a small world relationship*

M. Kubo, H. Sato, T. Matsubara (National Defense Academy, Japan)
C. Melhuish (Bristol Robotic Laboratory, UK)

GS12-7 *An evolutionary nano-agent control architecture for intelligent artificial creatures*

J-C. Heudin (IIM Interactive Media Lab., France)

16:05~17:35 OS17 Intelligent Control and Robotics

Chair: J. B. Park (Yonsei University, Korea)

Co-Chair: Y. H. Choi (Kyonggi University, Korea)

OS17-1 *Fault location estimation using estimator residual*

C. K. Lee, S. H. Doo, J. B. Park (Yonsei University, Korea)
T. S. Yoon (Changwon National University, Korea)

OS17-2 *Observer-based fuzzy control for nonlinear networked control system with pack drop*

G. B. Koo, J. B. Park (Yonsei University, Korea)
Y. H. Joo (Kunsan National University, Korea)

OS17-3 *Formation control of mobile robots with disturbances*

B. S. Park, S. K. Song, J. B. Park (Yonsei University, Korea)
Y. H. Choi (Kyonggi University, Korea)

OS17-4 *Grasping control of thumb-index finger model: Lyapunov stability approach*

S. K. Song, J. B. Park (Yonsei University, Korea)
Y. H. Choi (Kyonggi University, Korea)

OS17-5 *Intelligent diagnosis system for transmission line: Fuzzy-bayesian classifier approach*

H. C. Sung, J. B. Park (Yonsei University, Korea)
Y. H. Joo (Kunsan National University, Korea)

OS17-6 *Linear frequency estimation for motor application with quadratic constrained condition*

G. H. Choi (Yonsei University, Korea)
T. S. Yoon (Changwon University, Korea)
J. B. Park (Yonsei University, Korea)

Room B

8:40~10:10 OS13 Intuitive Human-System Interaction

Chair: M. Yokota (Fukuoka Institute of Technology, Japan)

Co-Chair: T. Oka (Fukuoka Institute of Technology, Japan)

OS13-1 *A method for top-down control of robotic attention based on mental-image description language,*

L_{md}
M. Yokota, K. Sasaki, R. Kaida, T. Oka, K. Sugita (Fukuoka Institute of Technology)

OS13-2 *Problem finding and solving based on mental-image description language, l_{md}*

M. Yokota, T. Tomezuka, Y. Takubo, T. Oka, K. Sugita (Fukuoka Institute of Technology)

OS13-3 *Success rates in a multi-modal command language for home robot users*

T. Abe, T. Oka, K. Sugita, M. Yokota (Fukuoka Institute of Technology, Japan)

OS13-4 *Multi-modal command interface with remote home robots*

T. Abe, T. Oka, K. Sugita, M. Yokota (Fukuoka Institute of Technology, Japan)

OS13-5 *Some consideration on user adaptive interface for universal multimedia access*

Y. Maeda, E. Tsujimura, K. Sugita, T. Oka, M. Yokota (Fukuoka Institute of Technology, Japan)

OS13-6 *Control of damping with reinforcement learning for power-assisted positioning task*

T. Morizono (Fukuoka Institute of Technology, Japan)
M. Higashi (Toyota Technological Institute, Japan)

14:20~16:05 GS14 Pattern recognition

Chair: J. Shim (Kangnam University, Korea)

GS14-1 *Unsupervised learning method for support vector machine and its application to surface-electromyogram recognition*

S. Kawano, H. Tamura, K. Tanno (University of Miyazaki, Japan)

GS14-2 *A method for extraction of arbitrary curve using one-dimensional histogram*
S. Nakashima and S. Serikawa (Kyushu Institute of Technology, Japan)

GS14-3 *Covariance-based recognition using incremental learning approach*
E. O. Hassab (Tokyo Institute of Technology, Japan)

GS14-4 *Elimination of un-uniformed image distortion using LCD*
K. Miyazaki (Kumamoto Prefectural College of Technology, Japan)
K. Kawasue (University of Miyazaki, Japan)

GS14-5 *Incorporation of user preference into multiobjective genetic fuzzy rule selection for pattern classification problems*
Y. Nojima, H. Ishibuchi (Osaka Prefecture University)

GS14-6 *Feature map sharing hypercolumn model for shift invariant face recognition*
S. Aly (Kyushu University, Japan)
N. Tsuruta (Fukuoka University, Japan)
R. Taniguchi (Kyushu University, Japan)

GS14-7 *A moving object tracking based on color information employing a particle filter algorithm*
B. Sugandi, H. Kim, J.K. Tan, S. Ishikawa (Kyushu Institute of Technology, Japan)

**16:05~16:50 GS1 Artificial Intelligence, Artificial Living & Artificial Mind Research
Chair: J-C. Heudin (Pôle Universitaire Léonard de Vinci, France)**

GS1-1 *Correlation-based similarity metrics in MBR for ordered data*
D. Nakahigashi, H. Tsuji (Osaka Prefecture University, Japan)

GS1-2 *Hybrid system based emotion recognition and novel emotion engine*
D. H. Kim (Hanbat National University, S. Korea)

GS1-3 *Group feature extraction based on matrix factorization from long-range office-logging data*
I. Kita, T. Shibata, K. Ikeda, (Nara Institute of Science and Technology, Japan)
Y. Kamiya, D. Kato, K. Kunieda, K. Yamada, (CCIL, NEC Corporation, Japan)

**16:50~17:35 GS8 Fuzzy Control & Genetic Algorithms
Chair: K-H. Hsia (Far East University, Taiwan)**

GS8-1 *Robust stability analysis for uncertain T-S fuzzy systems with a time-varying delay*
I-S. Song, J-W. Shin, J-W. Ko, P-G. Park (Pohang University of Science & Technology, Korea)

GS8-2 *Optimization of the sensor network using genetic algorithm*
T. Minamino, K. Ito (Hosei University, Japan)

GS8-3 *A novel genetic algorithm with different structure selection for circuit design optimization*
Z. Bao, T. Watanabe (Waseda University, Japan)

Room C

8:40~10:10 OS1 Intelligent Control

Chair: Chia-Nan Ko (Nan-Kai University of Technology, Taiwan)

Co-Chair: Li-Chun Lai (Chung Chou Institute of Technology, Taiwan)

OS1-1 *A PSO method with nonlinear time-varying evolution for optimal design of PID controllers in a pendubot system*

P-Y. Chen, C-J. Wu (National Yunlin University of Science and Technology, Taiwan)

Y-Y. Fu and C-N. Ko (Nan-Kai University of Technology, Taiwan)

L-C. Lai (Chungchou Institute of Technology, Taiwan)

OS1-2 *Support vector regression for initialization of radial basis function networks for a multi-input multi-output system*

P-Y. Chen, C-J. Wu (National Yunlin University of Science and Technology, Taiwan)

Y-Y. Fu, Chia-Nan Ko (Nan-Kai University of Technology, Taiwan)

J-T. Jeng (National Formosa University, Taiwan)

OS1-3 *ARRBFNs with SVR for prediction of chaotic time series with outliers*

Y-Y. Fu, C-J. Wu (National Yunlin University of Science and Technology, Taiwan)

C-N. Ko (Nan Kai University of Technology, Taiwan)

J-T. Jeng (National Formosa University, Taiwan)

L-C. Lai (Chung Chou Institute of Technology, Taiwan)

OS1-4 *A fast identification algorithm with outliers under box-cox transformation-based annealing robust radial basis function networks*

P-Y. Chen, C-J. Wu (National Yunlin University of Science and Technology, Taiwan)

C-N. Ko (Nan Kai University of Technology, Taiwan)

J-T. Jeng (National Formosa University, Taiwan)

OS1-5 *Develop a module based security system for intelligent home*

K-L. Su (National Yunlin University of Science & Technology, Taiwan)

S-H. Chia (Wu-Feng Institute of Techonlogy, NYUST, Taiwan)

S-V. Shiau, J-H. Guo (National Yunlin University of Science & Technology, Taiwan)

OS1-6 *Synchronous reluctance motor speed drive using sliding mode controller based on gaussian radial basis function neural network*

C-A. Chen, H-K. Chiang (National Yunlin University of Science and Technology, Taiwan)

W-B. Lin (Far East University, Taiwan)

12:40~14:10 OS2 Intelligent Robot

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

Co-Chair: Jyh-Hwa Tzou (Wu-Feng Institute of Technology, Taiwan)

OS2-1 *Detection system of security robot using multisensor fusion algorithms*

T-L. Chien, J-H. Tzou (Wu-Feng Institute of Technology, Taiwan)

C-C. Wang (Chienkuo Technology University, Taiwan)

K-L. Su (National Yunlin University of Science & Technology, Taiwan)

OS2-2 *High-speed laser localization for restaurant service mobile robot*

J-H. Tzou (Wu-Feng Institute of Technology, Taiwan)

K-L. Su (National Yunlin University of Science and Technology, Taiwan)

OS2-3 *PSO-based potential field method for a mobile robot motion planning in an unknown environment*

L-C. Lai (Chung Chou Institute of Technology, Taiwan)

J-T. Jeng (National Formosa University, Taiwan)

C-N. Ko, Y-Y. Fu (Nan Kai University of Technology, Taiwan)

OS2-4 *Motion planning of mobile robots using laser range finder*

J-H. Guo, K-L. Su, C-J. Wu, S-V. Shiao (National Yunlin University of Science & Technology, Taiwan)

OS2-5 *Image-guided searching for landmark*

C. C. Wang (Chienkuo Technology University, Taiwan)

S. F. Lien (National Yunlin University of Science and Technology, Taiwan)

K. H. Hsia (Far East University, Taiwan)

J. P. Su (National Yunlin University of Science and Technology, Taiwan)

OS2-6 *Design and implementation of human machine interface surveillance systems for tracked robots*

C. C. Wang (Chienkuo Technology University, Taiwan)

K-L. Su (National Yunlin University of Science and Technology, Taiwan)

14:20~15:35 GS5 Complexity

Chair: D. H. Kim (Hanbat National University, Korea)

GS5-1 *Harmonic oscillations in lotka-volterra-type dynamic systems:*

A new approach from a matrix operator equation system

K. Ohnishi (Niigata University, Japan)

GS5-2 *Chemical reaction simulations using abstract rewriting system on multisets with Lattice Boltzmann method*

M. Umeki, Y. Suzuki (Nagoya University, Japan)

GS5-3 *A design of algorithms for real-time generation of linear-recursive sequences on cellular automata*

N. Kamikawa, H. Umeo (University of Osaka Electro-Communication, Japan)

GS5-4 *Towards a brief proof of the four-colour theorem without using computer: Basic theorems and a bird-eye's view*

K. Ohnishi (Niigata University, Japan)

GS5-5 *Simulating the behaviour of cellular automata by extended spiking neural P systems*

A. Binder, R. Freund, (Vienna University of Technology, Austria)

M. Oswald (Vienna University of Technology, Hungarian Academy of Sciences, Austria)

15:35~16:50 OS14 Intelligent Systems

Chair: S. Jung (Chungnam National University, Korea)

Co-Chair: J-J. Lee (KAIST)

OS14-1 *Memory retention strategy by balancing neutral energy point*
J. Shim (Kangnam University, Korea)

OS14-2 *Target-adjusted model for kernel-based tracker*
J-G. Choe, J-H. Seok, J-J. Kim, J-J. Lee (KAIST, Korea)

OS14-3 *Human arm-like surgical robot system with force reflection measurement
for minimally invasive surgery*
K-Y. Kim, H-S. Song, J-J. Lee (KAIST, Korea)

OS14-4 *A novel compact genetic algorithm using offspring survival evolutionary strategy*
J-H. Seok, T-Y. Choi, J-J. Lee (KAIST, Korea)

OS14-5 *Neural network based smith predictor design for a time delay of a tele-operated
control system*
H. J. Choi, S. Jung (Chungnam National University, Korea)

16:50~17:50 GS4 Brain Science, Chaos & DNA computing
Chair: S. Ohnishi (Niigata University, Japan)

GS4-1 *Artificial realization of an adaptive expert knowledge database for automatic sleep stage
determination in clinical practice*
B. Wang, T. Sugi (Saga University, Japan)
F. Kawana (Toranomon Hospital, Japan)
X. Wang (East China University of Science and Technology, P. R. China)
M. Nakamura (Saga University, Japan)

GS4-2 *Reliable EOG signal based control approach with EEG signal judgement*
T. Zhang, C. Chen (Tsinghua University, P. R. China)
M. Nakamura (Saga University, Japan)

GS4-3 *AKP energy levels by a simple shooting scheme for a periodic orbit*
K. Kubo, T. Shimada (Meiji University, Japan)

GS4-4 *Synchronization and periodic windows in the globally coupled map lattice*
T. Moriya, K. Kubo, T. Shimada (Meiji University, Japan)

February 6 (Friday)

8:00~ Registration

Room A

8:40~9:40 GS10 Mobile Vehicles- I
Chair: M. H. Lee (Pusan National University, Korea)

GS10-1 *Stability analysis of the wheeled humanoid robot*
H-U. Ha, S-W. Ryu, J-M. Lee (Pusan National University, Korea)

GS10-2 *Trajectory tracking control of mobile robots without using longitudinal velocity measurement*
K. Maeda, M. Oya, Q. Wang (Kyushu Institute of Technology, Japan)
K. Okumura (Fukuoka Industrial Technology Center, Japan)

GS10-3 *Integration of stereo vision system and laser range finder for autonomous obstacle avoidance and map construction*
Y-Z. Chang, J-F. Hou (Chang Gung University, Taiwan)
Y-P. Chang (Chung-Shan Institute of Science & Technology, Taiwan)

GS10-4 *Concurrent localization of multiple robots*
J-H. Park, J-Y. Cheong, T-K. Yang, J-M. Lee (Pusan National University, Korea)

9:40~10:40 GS11 Mobile Vehicles- II

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

GS11-1 *Yawing control of a single wheel robot*
B-H. Ahn, J-M. Hwang, J-B. Son, J-M. Lee (Pusan National University, Korea)

GS11-2 *Robust oscillation control of wheeled mobile robots*
Y. Tsuchida, M. Oya, N. Takagi and Q. Wang (Kyushu Institute of Technology, Japan)

GS11-3 *Workspace mapping based on multi-sensor information fusion using heterogeneous onboard sensors*
M. Miyake, H. Takai (Hiroshima City University)
K. Tachibana (Osaka Gakuin University)

GS11-4 *Simultaneous localization and mapping of wheel based Autonomous vehicle with ultrasonic sensors*
S-Y. Jung, J-M. Kim, J-M Heo, S-S. Kim (Pusan National University, Korea)
J-I. Bae (Pukyong National University, Korea)

10:50~12:05 GS7 Evolutionary Computations

Chair: J. J. Lee (KAIST, Korea)

GS7-1 *Hybridization of evolutionary multiobjective optimization algorithms by the adaptive use of scalarizing fitness functions*
N. Tsukamoto, Y. Sakane, Y. Nojima, .H. Ishibuchi (Osaka Prefecture University, Japan)

GS7-2 *Development of programming language espace and its application to parallel and distributed evolutionary computation*
T. Iwakawa, S. Ono, S. Nakayama (Kagoshima University, Japan)

GS7-3 *Competitive coevolutionary algorithms can solve function optimization problems*
T. Sato, T. Arita (Nagoya University, Japan)

GS7-4 *Pareto-optimal fuzzy rule mining with EMO algorithms and its improvement by heuristic initialization*
I. Kuwajima, Y. Nojima, H. Ishibuchi (Osaka Prefecture University, Japan)

GS7-5 *Robust optimization using multi-objective particle swarm optimization*
S. Ono, Y. Yoshitake, S. Nakayama (Kagoshima University, Japan)

13:05~14:50 GS13 Neural Networks

Chair: H. Kinjo (University of the Ryukyus, Japan)

GS13-1 *Three-dimensional medical image recognition of cancer of the liver by the revised radial basis function (RBF) neural network algorithm*
M. Nakagawa, T. Kondo, T. Kudo, S. Takao, J. Ueno (Tokushima University, Japan)

GS13-2 *Remarks on tracking method of neural network weight change for learning type neural network feedforward feedback controller*
T. Yamada (Ibaraki University, Japan)

GS13-3 *Multiple self-organizing maps for visuo-motor system that uses multiple cameras with different field of views*
N. Okada, J. Qiu, K. Nakamura, E. Kondo (Kyushu University, Japan)

GS13-4 *Three-dimensional medical image analysis of the heart by the revised GMDH-type neural network self-selecting optimum neural network architecture*
C. Kondo (Kyushu University, Japan)
T. Kondo (Tokushima University, Japan)

GS13-5 *Modeling artificial neural networks using a visual programming paradigm*
K. J. Mackin (Tokyo University of Information Sciences, Japan)

GS13-6 *Neuro-based olfactory model for artificial organoleptic tests*
Z. Soh, T. Tsuji, N. Takiguchi (Hiroshima University, Japan)
H. Ohtake (Osaka University, Japan)

GS13-7 *Revised GMDH-type neural network algorithm self-selecting optimum neural network architecture*
C. Kondo (Kyushu University, Japan)
T. Kondo (Tokushima University, Japan)

14:50~15:50 Poster Session & Coffee Break

PS1 *Pheromone-oriented transmission for load-balanced data gathering in wireless sensor networks*
E. Orito, A. Utani, H. Yamamoto (Musashi Institute of Technology, Japan)

PS2 *A study on object observation by large-scale wireless sensor network and autonomous mobile robot*
K. Matsumoto, A. Utani, H. Yamamoto (Musashi Institute of Technology, Japan)

PS3 *Discrete particle swarm optimization selecting forwarding nodes for query dissemination in wireless sensor networks*
J. Nagashima, A. Utani, H. Yamamoto (Musashi Institute of Technology, Japan)

PS4 *Logistic regression analysis for mutation data of hemophilia B*
M. Utsunomiya, M. Sakamoto, H. Furutani (University of Miyazaki, Japan)

16:40~17:40 GS9 Human-machine cooperative systems & Innovative Computations

Chair: M. Yokota (Fukuoka Institute of Technology, Japan)

GS9-1 *Real-time estimation system of gaze angle based on electrooculogram*

X. Zhang, T. Sugi (Saga University, Japan)
X. Wang (East China University of Science and Technology, P. R. China)
M. Nakamura (Saga University, Japan)

GS9-2 *A study on a postural optimization for bicycle's exercise based on electromyography*

S. Matsumoto, T. Tokuyasu, S. Iwao, H. Taniguchi, S. Adachi, S. Shiga, K. Ohba
(Oita National College of Technology, Japan)

GS9-3 *A movie rating prediction system based on personal propensity analysis*

S. Lee, T. Jeon, G. Baek, J. Cho, S. Kim (Pusan National University, Korea)

GS9-4 *Electric wheelchair control with gaze direction and eye blinking*

D. Purwanto, R. Mardiyanto (Institut Teknologi Sepuluh Nopember, Indonesia)
K. Arai (Saga University, Japan)

Room B

8:40~9:40 GS15 Robotics- I

Chair: H. Ogai (Waseda University, Japan)

GS15-1 *Construction of the robot control system which understands voice and pointing action*

Y. Takenaka, N. Abe, Y. Tabuchi (Kyushu Institute of Technology, Japan)
H. Taki (Wakayama University, Japan)
S. He (VuCOMP, USA)

GS15-2 *Effective RFID tag positioning strategy for mobile robot with indoor mapping*

J. Shin, M. Chang, G. Lee (Pohang University of Science and Technology, Korea)

GS15-3 *A new grasp quality measure considering physical limits of robot hands*

H. Jeong, J. Park, J. Cheong (Korea university, Korea)

GS15-4 *Generation of a pick and place trajectory model for the tip of a robotic manipulator arm for an loading and unloading operation*

T. C. Manjunath (NHCE, India)
I. Mishra (NIST, India)
A. K. Satapathy (General Motors, India)

10:50~12:05 GS3 Bioinformatics & Cognitive Science

Chair: K. Naitoh (Waseda University, Japan)

GS3-1 *Mathematical modeling for morphogenesis of leaf with employing cell automata and reaction-diffusion equation*

K. Ishii, H. Hamada, M. Okamoto (Kyushu University, Japan)

GS3-2 *An abstract model for investigating the adaptivity of misperception*

J. Akaishi (Yatsushiro National College of Technology, Japan)
T. Arita (Nagoya University, Japan)

GS3-3 *Prediction of human eye movements in facial discrimination tasks*

S. Nishida, T. Shibata, K. Ikeda (Nara Institute of Science and Technology, Japan)

GS3-4 *Origin of the word-initial consonant system of the Japanese-Ryukyuan (JR) language from Oceanic consonant system: Elucidation by JR-Oceanic consonant correspondence laws*

K. Ohnishi, M. Kiriya (Niigata University, Japan)

GS3-5 *A study on effect of morphological filters on computer-aided medical image diagnosis*

N. Homma, S. Shimoyama, Y. Kawai, T. Ishibashi, M. Yoshizawa (Tohoku University, Japan)

13:50~15:35 OS3 Robotics and Control

Chair: M. Uchida (The University of Electro-Communications, Japan)

Co-Chair: H. Asano (Aoyama Gakuin University, Japan)

OS3-1 *Group behavior of agents with emotional model*

S. Hiroshige, H. Asano (Aoyama Gakuin University, Japan)

M. Uchida (The University of Electro-Communications)

H. Ide (Aoyama Gakuin University, Japan)

OS3-2 *Basic examination concerning multi agent cooperation with entrainment*

H. Asano, H. Suzuki (Aoyama Gakuin University, Japan)

M. Uchida (The University of Electro-Communications)

H. Ide (Aoyama Gakuin University, Japan)

OS3-3 *Basics study about cooperation movement of human and agent with entrainment*

M. Saito, H. Asano (Aoyama Gakuin University, Japan)

M. Uchida (The University of Electro-Communications)

H. Ide (Aoyama Gakuin University, Japan)

OS3-4 *Man-machine interface for modular robot system*

T. Goto, M. Uchida (University of Electro-Communications)

H. Asano (Aoyama Gakuin University)

A. Nozawa (Meisei University)

H. Onogaki (Kogakuin University)

T. Mizuno (AIST)

H. Ide (Aoyama Gakuin University)

S. Yokoyama (Kogakuin University)

OS3-5 *Autonomous reconfiguration of robot shape by using Q-learning*

S. Shiba, M. Uchida (The University of Electro-Communications)

A. Nozawa (Meisei University)

H. Asano (Aoyama Gakuin University)

H. Onogaki (Kogakuin University)

T. Mizuno (AIST)

H. Ide (Aoyama Gakuin University)

S. Yokoyama (Kogakuin University)

OS3-6 *Current control of PWM power amplifier by approximate 2-degree-of-freedom digital controller*

K. Fujita, K. Higuchi, K. Nakano (The University of Electro-Communications, Japan)

K. Matsushita, F. Chino (NF Corporation, Japan)

OS3-7 *Vibration suppression control of a flexible arm using non-linear observer with simultaneous perturbation stochastic approximation*

J. I. M. Martinez (The University of Electro-Communications, Japan)

U. Sawut (Nikki Co. Ltd, Japan)

K. Nakano (The University of Electro-Communications, Japan)

16:40~17:40 OS9 Dynamical Information Processing in the Brain

Chair: H. Suzuki (The University of Tokyo, Japan)

Co-Chair: T. Kohno (The University of Tokyo, Japan)

OS9-1 *Multiple cell assemblies and multi-step computation in neural networks*

M. Oku (The University of Tokyo, Japan)

K. Aihara (ERATO, JST, The University of Tokyo, Japan)

OS9-2 *Possible roles of pre-synaptic connections in neural circuits*

H. Watanabe (University of Tokyo, Japan)

K. Aihara (University of Tokyo, ERATO Aihara Complexity Modeling Project, JST, Japan)

OS9-3 *Self-organization of orientation selective and ocular dominance maps through spike-timing-dependent plasticity*

K. Iwayama, H. Suzuki, K. Aihara (The University of Tokyo, Japan)

OS9-4 *Integrative bayesian model of two opposite types of sensory adaptation*

Y. Sato (University of Tokyo, Japan)

K. Aihara (The University of Tokyo, ERATO, JST, Japan)

Room C

8:40~9:40 OS16 Embracing Complexity in Natural Intelligence

Chair: Y. Ishida (Toyohashi University of Technology, Japan)

Co-Chair: K. Harada (Toyohashi University of Technology, Japan)

OS16-1 *A hub gene in a HIV-1 gene regulatory network is a promising target for anti-HIV-1 drugs*

K. Harada, Y. Ishida (Toyohashi University of Technology, Japan)

OS16-2 *Reverse engineering of spatiotemporal patterns in spatial prisoner's dilemma*

T. Ueda, Y. Ishida (Toyohashi University of Technology, Japan)

OS16-3 *Using spatial strategies to model agents' commitments for a protocol formation*

N. D. Thien, Y. Katsumata, M. Tokumitsu, Y. Ishida (Toyohashi University of Technology, Japan)

OS16-4 *A time-dependent threshold condition to determine an onset of AIDS*

K. Harada, Y. Ishida (Toyohashi University of Technology, Japan)

9:40~10:40 GS20 Virtual Reality, Nano-biology & Nano-robotics

Chair: N. Homma (Tohoku University, Japan)

GS20-1 *Quadruped virtual robot simulation in virtual environment obeying physical law*

K. Miyoshi, N. Abe, Y. Tabuchi (Kyusyu Institute of Technology, Japan)
H. Taki (Wakayama University, Japan)
S. He (VuCOMP, USA)

GS20-2 *Modeling and deforming virtual dense elastic object with haptic device PHANToM*

H. Takada, N. Abe (Kyushu Institute of Technology, Japan)
Y. Kinoshita (Munakata Suikokai General Hospital, Japan)
H. Taki (Wakayama University, Japan)
T. Tokuyasu (Oita National College of Technology, Japan)
S. He (VuCOMP, USA)

GS20-3 *Study on communication system between haptic-device*

Y. Uchida, N. Abe (Kyushu Institute of Technology, Japan)
Y. Kinoshita (Munakata Suikokai General Hospital, Japan)
S. He (VuCOMP, USA)
H. Taki (Wakayama University, Japan)
T. Tokuyasu (Oita National College of Technology, Japan)

GS20-4 *Detection of brain aneurysm and route searching to brain aneurysm aim at the development of operation simulation system*

T. Miyagi, N. Abe (Kyushu Institute of Technology, Japan)
Y. Kinoshita (Munakata Suikokai General hospital, Japan)
T. Tokuyasu (Oita National College of Technology, Japan)
H. TAKI (Wakayama University, Japan)
S. He (VuCOMP, USA)

10:50 ~12:05 GS17 Robotics-III

Chair: S. Jung (Chungnam National University, Korea)

GS17-1 *Development of indoor navigation system for monocular-vision-based autonomous mobile robot*

T. Kinoshita, E. Hayashi (Kyushu Institute of Technology, Japan)

GS17-2 *An effective localization and navigation method based on sensor fusion for mobile robot moving in unknown indoor environment*

I-S. Kim, W-K. Hyun, J-J. Yu (Honam University, Korea)
S-S. Park (Korea Digital Co., Korea)

GS17-3 *An indoor autonomously mobile robot with laser sSensor and image processing approach*

A. Fujiwara, N. Abe, Y. Tabuchi (Kyushu Institute of Technology, Japan)
H. Taki (Wakayama University, Country)
S. He (VuCOMP, USA)

GS17-4 *Development of a desktop swarm robot system based on pheromone communication*

N. Kitamura, Y. Nakamichi (Anan National College of Technology, Japan)
K. Fukuda (Gifu National College of Technology, Japan)

GS17-5 *Subsea fiber optic cable maintenance using ROV based flux leakage expert system*

Md. R. Hedayati (Scientific-Applied Faculty of Post and Telecommunication, Iran)

**13:05~14:20 GS6 Computer Graphics, Micromachines & Robust Virtual Engineering
Chair: S. Omatu (Osaka Prefecture University, Japan)**

GS6-1 *Development of a finger pointing interpretation and speech recognition system to operate virtual world*

T. Shiofuku, N. Abe, Y. Tabuchi (Kyushu Institute of Technology, Japan)
H. Taki (Wakayama University, Japan)
S. He (VuCOMP, USA)

GS6-2 *Entire shape recovery employing virtual see-through cameras*

K. Mori, T. Sone, J. K. Tan, H. Kim, S. Ishikawa (Kyushu Institute of Technology, Japan)

GS6-3 *Autonomous control of mobile robots by image data processing and development of the simulation system*

R. Mizokami, Y. Tabuchi, N. Abe (Kyushu Institute of Technology)
H. Taki (Wakayama University)
S. He (VuCOMP)

GS6-4 *Construction of super-micro sense of force feedback and visual for micro objects
-Develop the haptic device-*

R. Uehara, E. Hayashi (Kyushu Institute of Technology, Japan)

GS6-5 *Microorganic engine*

K. Naitoh, R. Kubo (Waseda University, Japan)
R. Miyagawa, (Waseda University, Japan until March of 2008)
K. Ogata, A. Suzuki (Waseda University, Japan)

14:20~15:35 GS19 Robotics- V

Chair: H. H. Lee (Waseda University, Japan)

GS19-1 *A unified motion planning method for a multifunctional underwater robot*

K. Shiraishi, H. Kimura (Kyushu University, Japan)

GS19-2 *Image data processing for an autonomously moving robot using network*

M. Sato, Y. Tabuchi, N. Abe (Kyushu Institute of Technology, Japan)
H. Taki (Wakayama University, Japan)
S. He (VuComp, U.S.A)

GS19-3 *Cooperative manipulation of a floating object by some space robots
with joint velocity controller*

-Application of a tracking control method using transpose of generalized jacobian matrix-
S. Sagara (Kyushu Institute of Technology, Japan)
Y. Taira (National Fisheries University, Japan)

GS19-4 *Determinate the time to contact using compound eye sensor*

Y. Kaneta, Y. Katsuyama, K. Ito (Hosei University, Japan)

GS19-5 *Systematization of error recovery in skill-based manipulation*

A. Nakamura, T. Kotoku (National Institute of Advanced Industrial Science and Technology, Japan)

16:40~17:40 OS7 Soft Robotics

Chair: H. Kinjo (University of the Ryukyus, Japan)

Co-Chair: N. Oshiro (University of the Ryukyus, Japan)

OS7-1 *Generating function of color information detection using genetic programming*

T. Ogawa, N. Oshiro, H. Kinjo (University of the Ryukyus, Japan)

OS7-2 *Swing up control of a 3-DOF acrobot using evolutionary approach*

R. Fukushima, E. Uezato (University of the ryukyus, Japan)

OS7-3 *Intelligent control of a three-DOF planar underactuated manipulator*

S. C. Duong, H. Kinjo, E. Uezato (University of the Ryukyus, Japan)

T. Yamamoto (Tokushima Technology College, Japan)

OS7-4 *Optimal suppression control of load swing with disturbance for rotary crane system using neuro-controller*

K. Nakazono, K. Tamanoi, K. Ozaki (University of the Ryukyus, Japan)

K. Ohnishi (Keio University, Japan)

February 7 (Saturday)

8:00~ Registration

Room A

8:40~9:55 OS12 Session of Economics and Management

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

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

OS12-1 *Japanese companies and those introductions of the american management technique*

S. Fujii (Hiroshima University, Japan)

OS12-2 *A consideration of management of the value co-creation with customers:*

a case of the grocery retailers

Y. Fujioka (Hiroshima University, Japan)

OS12-3 *A relationship analysis between centrality and module production in the keiretsu of Mazda*

H. Kimura, T. Ito (Ube National College of Technology, Japan)

OS12-4 *H marketing strategy with introduction of customer relationship management*

-Case of Japanese financial institutions-

T. Yamaguchi (Okayama University of Science, Japan)

OS12-5 *An empirical investigation of the determinants of IS outsourcing in Japan*

S. Matsuno, T. Ito (Ube National College of Technology, Japan)

Z. Xia (Wenzhou University, P. R. China)

9:55~11:25 OS11 Bio-inspired Theory and Application

Chair: I. Yoshihara (University of Miyazaki, Japan)

Co-Chair: M. Yasunaga (University of Tsukuba, Japan)

OS11-1 *Study of genetic algorithms with mutation by Markov chains and diffusion model*
Y-A. Zhang, M. Sakamoto, H. Furutani (University of Miyazaki, Japan)

OS11-2 *A visual-inspection system using self-organizing map*
K. Ikeda, M. Yasunaga, Y. Yamaguchi (University of Tsukuba, Japan)
Y. Yamamoto (Yamamoto System Design Corporation, Japan)
I. Yoshihara (University of Miyazaki, Japan)

OS11-3 *Development of physiological activity estimation method of foods using amplitude extended neural networks*
T. Kuno, M. Kamiguchi, K. Yamamori, I. Yoshihara (University of Miyazaki, Japan)
K. Nagahama (Miyazaki Prefectural Industrial Foundation, Japan)

OS11-4 *Roll of rhythmic component in proactive controll of human hand*
Y. Hayashi (NPO natural science, Tohoku Institute of Technology, Japan)
Y. Tamura (Tohoku Gakuin University, NPO natural science, Japan)
F. Ishida (The University of Electro-Communications, Japan)
K. Sugawara (Tohoku Gakuin University, Japan)
Y. Sawada (Tohoku Institute of Technology)

OS11-5 *Modeling of patrol behavior of diacamma gamergate*
K. Yaegashi (Tohoku University, Japan)
K. Sugawara (Tohoku Gakuin University, Japan)
Y. Hayashi (natural science NPO, Japan)

OS11-6 *Analysis and modeling of diacamma workers' behavior*
M. Yuki (Tohoku Gakuin University, Japan)
Y. Hayashi (natural science NPO, Japan)
K. Sugawara (Tohoku Gakuin University, Japan)

13:25~14:40 GS18 Robotics-IV

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

GS18-1 *Modeling and robostic control of reduction car using the ultrasonic satellite system*
H-J. Park, S-M. Yoon, S-Y. Kim, J-I. Bae, M-H. Lee (Pusan National University, Korea)

GS18-2 *Development of an autonomous-drive personal robot*
(Self-position recognition by characteristic point detection)
S. Matsuura, E. Hayashi (Kyushu Institute of Technology, Japan)

GS18-3 *The recognition of multiple people using an ocellus camera*
S. Tanaka, E. Hayashi (Kyushu Institute of Technology, Japan)

GS18-4 *Robust object instance registration to robot-centered knowledge framework*
D-S. Lee, G-H. Lim, I-H. Suh (Hanyang University, Korea)

GS18-5 *Developing high-level management facilities for distributed unmanned systems*
P. Sapaty (National Academy of Science, Ukraine)
K-D. Kuhnert (University Siegen, Germany)
M. Sugisaka (Nippon Bunri University, Japan)
R. Finkelstein (Robotic Technology Inc., USA)

Room B

10:10~11:40 GS16 Robotics- II

Chair: J. Wang (Alife Robotics Co., Ltd., Japan)

GS16-1 *USAT (ultrasonic satellite system) and gyro integrated system using kalman filter*
Y-S. Yeom, J-H. Kang, S-Y. Kim, J-I. Bae, M-H. Lee (Pusan National University, Korea)

GS16-2 *Development of an autonomous flexible robot that uses no explicit sensors or controllers*
R. Anzai, K. Ito (Hosei University, Japan)

GS16-3 *Development of an autonomous-drive personal robot "object recognition system using a monocular camera"*
Y. Moritaka, E. Hayashi (Kyushu Institute of Technology, Japan)

GS16-4 *An algorithm for automatic generation of assembly process of modular fixture parts*
T. Yamada, K. Kuroda (Nagoya Institute of Technology, Japan)
Y. Funahashi (Chukyo University, Japan)
H. Yamamoto (Gifu University, Japan)

GS16-5 *Optimization of robot path using off-line simulation and method for changing tool using a wireless communication device*
I. Mishra, M. Abhro (NIST, India)
G. Ajay (Difacto Robotics, India)
A K. Satapathy (General Motors, India)
T. C. Manjunath (NHCE, India)

GS16-6 *Implementation of ant colony system for DNA sequence optimization*
Z. Ibrahim, T. B. Kurniawan, N. K. Khalid (Centre for Artificial Intelligence and Robotics, Malaysia)
M. Khalid (Universiti Teknologi Malaysia, Malaysia)

13:25~14:55 OS15 Biomimetic Machines and Robots

Chair: K. Watanabe (Saga University, Japan)

OS15-1 *Understanding user commands by evaluating fuzzy linguistic information based on visual attention*
B. Jayasekara, K. Watanabe, K. Izumi (Saga University, Japan)

OS15-2 *Biomimetic intelligent creatures and artificial muscles*
M. K. Habib (The American University in Cairo and Saga University, Egypt)
K. Watanabe, K. Izumi (Saga University, Japan)

OS15-3 *Voice-based control of a robotic forceps by using displayed image and auxiliary information*
K. Watanabe, T. Tokunaga, K. Izumi (Saga University, Japan)

OS15-4 *Unconstrained and noninvasive measurement of bioelectric signals from small fish*
M. Terawaki, A. Hirano, Z. Soh, T. Tsuji (Hiroshima University, Japan)

OS15-5 *Three-dimensional human motion modeling by back projection based on image-based camera calibration*

S. Masaoka, J. K. Tan, H. Kim, S. Ishikawa (Kyushu Institute of Technology, Japan)

OS15-6 *Research on the intelligent control algorithm for a soft joint actuated by McKibben muscles*

E. Jiang (zhengzhou university, P. R. China)

H. Zhao (Shanghai Institute of Technology, P. R. China)

M. Sugisaka (Nippon Bunri University, Japan)

F. Dai (Matsue National College of Technology, Japan)

Room C

8:40~9:40 OS4 Automata and Control

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

Co-Chair: N. Takahashi (University of Miyazaki, Japan)

OS4-1 *Cooperating systems of three-dimensional finite automata*

T. Matsukawa, M. Sakamoto (University of Miyazaki, Japan)

Y. Uchida (Ube National College of Technology, Japan)

A. Taniue, M. Fukuda, K. Kajisa, S. Okatani (University of Miyazaki, Japan)

T. Ito (Ube National College of Technology, Japan)

H. Furutani, M. Kono (University of Miyazaki, Japan)

OS4-2 *Hierarchies based on the number of cooperating systems of three-dimensional finite automata*

Y. Uchida (Ube National College of Technology, Japan)

M. Sakamoto, S. Okatani, K. Kajisa, M. Fukuda, T. Matsukawa, A. Taniue (University of Miyazaki, Japan)

T. Ito (Ube National College of Technology, Japan)

H. Furutani, M. Kono (University of Miyazaki, Japan)

OS4-3 *Robust l-infinity preview control for biped walking pattern generation*

S. Kunitatsu, T. Fukuda, M. Kumon, M. Ishitobi (Kumamoto University, Japan)

OS4-4 *Robust control method for the inverted pendulum system with structured uncertainty caused by measurement error*

N. Takahashi, T. Morikubo, O. Sato and M. Kono (University of Miyazaki, Japan)

9:40~10:40 OS5 Bioinformatics and Intelligent Classification (1)

Chair: M. Yoshioka (Osaka Prefecture University, Japan)

Co-Chair: S. Omatu (Osaka Prefecture University, Japan)

OS5-1 *Gene subset selection using an iterative approach based on genetic algorithms*

M. S. Mohamad, S. Omatu (Osaka Prefecture University, Japan)

S. Deris (Universiti Teknologi Malaysia, Malaysia)

M. Yoshioka (Osaka Prefecture University, Japan)

OS5-2 *Particle swarm optimization for gene selection in classifying cancer classes*

M. S. Mohamad, S. Omatu (Osaka Prefecture University, Japan)

S. Deris (Universiti Teknologi Malaysia, Malaysia)

M. Yoshioka (Osaka Prefecture University, Japan)

OS5-3 *An analysis of expression data using support vector machine and feature selection methods*
M. Yoshioka, N. Shimoda, S. Omatu (Osaka Prefecture University, Japan)

OS5-4 *Audio-signal separation by independent component analysis*
M. Yoshioka, S. Omatu (Osaka Prefecture University)

10:40~11:40 OS6 Bioinformatics and Intelligent Classification (2)

Chair: S. Omatu (Osaka Prefecture University, Japan)

Co-Chair: M. Yoshioka (Osaka Prefecture University, Japan)

OS6-1 *Crack detection method using rotational morphology*
M. Yoshioka, S. Omatu (Osaka Prefecture University, Japan))

OS6-2 *Estimation of the optimal image resolution using SIFT*
M. Yoshioka, Y. Maeda, S. Omatu (Osaka Prefecture university, Japan)

OS6-3 *Smell classification by neural networks*
M. Yoshioka (Osaka Prefecture University, Japan)
T. Fujinaka (Hirishima University, Japan)
S. Omatu (Osaka Prefecture University, Japan)

OS6-4 *Bill money classification by neural networks*
S. Omatu, M. Yoshioka (Osaka Prefecture University, Japan)
T. Kosaka (Glory Ltd, Japan)

13:25~14:40 OS10 Measurement and Control

Chair: Y. Yoshitomi (Kyoto Prefectural University, Japan)

Co-Chair: Y. Hitaka (Kitakyushu National College of Technology, Japan)

OS10-1 *Motion analysis of tripod parallel mechanism*
Y. Hikata, Y. Tanaka (Kitakyushu National College of Technology, Japan)
Y. Tanaka (Hosei University, Japan)
K. Ichiryu (Kikuchi Seisakusho, Kikuchi Seisakusho, Japan)

OS10-2 *Development of a new positioning system for underwater robot based on sensor network*
B. Fu, F. Zhang, M. Ito (Tokyo University of Marine Science and Technology, Japan)
Y. Watanabe, T. Aoki (JAMSTEC, Japan)

OS10-3 *Motion estimation based on optical flow and ANN*
J. Zhang, F. Zhang, M. Ito (Tokyo University of Marine Science and Technology, Japan)

OS10-4 *Development for on-board use anti-tilting table with horizontally slider type parallel link mechanism—analysis on Inverse kinematics and work-space of the mechanism*
Y. Zhang, E. Shimizu, F. Zhang, M. Ito (Tokyo University of Marine Science and Technology, Japan)

OS10-5 *A method for expressing human posture as 3DCG using thermal image processing and 3D model fitting*
T. Asada, Y. Yoshitomi (Kyoto Prefectural University, Japan)