2014 14th International Conference on Control, Automation and Systems

(ICCAS 2014)

Gyeonggi-do, South Korea
22-25 October 2014

Pages 1-824

IEEE Catalog Number: CFP1410D-POD
ISBN: 978-1-4799-6051-4

Table Of Contents

WA01 Nonlinear Systems and Control

206A, 09:10~10:40

WA01-1 Uniformly Ultimately Boundedness Stability Condition of Systems with State Delay and Input Backlash 1
wookyong Kwon, Sangchul won(POSTECH, Republic of Korea)

WA01-2 Region of attraction estimation for saturated reset control systems 6
Miguel Angel Davó, Alfonso Baños(University of Murcia, Spain), Jose Carlos Moreno(University of Almería, Spain)

WA01-3 Observer Based Friction Cancellation in Mechanical Systems 12
Caner Odabaş, Ömer Morgül(Bilkent University, Turkey)

WA01-4 Nonlinear Adaptive Speed Control for Permanent Magnet Synchronous Motors under the Unbalanced Resistances of PhaseWindings 17
Yoonsik Kim, Donghoon Shin, Chung Choo Chung(Hanyang University, Republic of Korea)

WA01-5 Parametric Control of Quasi-linear Systems via State Feedback 23
Guang-Ren Duan(Harbin Institute of Technology, China)

WA01-6 Direct Parametric Approach for Cascaded Systems with Application in Robot Control 29
Guang-Ren Duan(Harbin Institute of Technology, China)

WA02 Manufacturing Systems

206B, 09:10~10:40

WA02-1 Phase-shifted and interleaved angle control for doubly Salient Electro-magnetic Machine 36
Weili Dai, Hao Tian, Jun Ding(Hohai University, China)

WA02-2 Development of Redundant Bus Library for Arduino to Apply in SCADA System 42
Vittaya Tipsuwanporn, Sanya Samaimak(King Mongkut's Institute of Technology Ladkrabang, Thailand)

WA02-3 Gouging Depth Control in an Automatic Gouging Machine 47
Moo Seok Kim(Samsung Heavy Industries, Republic of Korea)

WA02-4 Trajectory Following Control of an Articulated Robot VE026A Incorporated with ORiN2 SDK 51
Fusaomi Nagata, Akimasa Otsuka(Tokyo University of Science, Yamaguchi, Japan), Keigo Watanabe(Okayama University, Japan)

WA02-5 Detection of Workpieces on a CNC Machining Table for Measurement and Automatic Tool Positioning 55
Mamadou Ngom, Fusaomi Nagata(Tokyo University of Science, Yamaguchi, Japan)

WA02-6 Towards On-Site Autonomous Robotic Floor Tiling of Mosaics 59
Mathew Schwartz(Advanced Institutes of Convergence Technology, Republic of Korea), Jaeheung Park(Seoul national university, Republic of Korea), Dehong Jung(University of Brasil, Brazil)

WA03 Perception and Recognition

207A, 09:10~10:40

WA03-1 Robust Learning from Demonstrations using Multidimensional SAX 64
Yasser F.O. Mohammad(Kyoto University, Japan), Toyoaki Nishida(Kyoto, Japan)

WA03-2 Generation of Monitoring Signal in Safety Confirmation Type Contact Sensor using Ultrasonic Wave Propagating in Viscoelastic Tube 72
Seonghee Jeong, Shota Kanno(Osaka Electro-Communication Universty, Japan), Sumito Kashihara(Osaka Electro-Communication University, Japan)

WA03-3 Verification of Usability of Teleoperation System Using Past Image Records by Sharing Information Obtained from External Cameras 78
Shunsuke Hara, Noritaka Sato, Yoshifumi Morita(Nagoya Institute of Technology, Japan)

WA03-4 Audio Bank: A High-Level Acoustic Signal Representation for Audio Event Recognition 82
Tushar Sandhan, Sukanya Sonowal, Jin Young Choi(Seoul National University, Republic of Korea)

WA03-5 Visual Saliency Based Segmentation of Multiple Objects Using Variable Regions of Interest 88
Ayaka Yamanashi, Hirokazu Madokoro, Ishioka Yutaka, Kazuhito Sato(Akita Prefectural University/Akita, Japan)

WA03-6 Estimation of Human Behaviors Based on Human Actions Using an ANN 94
MAIERDAN MAIMAITIMIN(Okayama University, Japan), Keigo Watanabe(Okayama Univ, Japan), Shoichi Maeyama(Okayama University, Japan)

WA04 SICE-ICROS Joint Session: Model-based Control and Its Application

207B, 09:10~10:40

WA04-1 Hybrid Force-Motion Control of Coordinated Robots Interacting With Unknown Environments 99
Aghil Jafari, Jee-Hwan Ryu(Korea University of Technology and Education, Republic of Korea)

WA04-2 Forwarding Control of Cart-Pendulum System by Following Homoclinic Orbit and Stabilizing Cart 105
Yuji Maruki(Oita National College of Technology, Japan), Hiroya Oka, Haruo Suemitsu, Takami Matsuo(Oita University, Japan)

WA04-3 Parallel Model Predictive Control for Constrained Linear Systems 111
Naoyuki Hara, Yoshiki Kagitani, Keiji Konishi(Osaka Prefecture University, Japan)

WA04-4 Model Construction of Heat Source in an OTEC Pilot Plant for Stabilization Control Based on Experimental Data 116
Daiki Urayoshi, Yoshitaka Matsuda, Takenao Sugi, Satoru Goto, Takafumi Morisaki, Yasuyuki Ikegami(Saga University, Japan)

WA04-5 Formation Control of Mobile Robots with Obstacle Avoidance 121
Tatsuya Miyazaki, Kiyotsugu Takaba(Ritsumeikan University, Japan)

WA04-6 Backlash Compensation by Smooth Backlash Inverse for Haptic Master Device using Cable-Conduit 127
Sung Min Yoon, Min Cheol Lee(Pusan National University, Republic of Korea), Woo Hyeok Choi(Korea Institute of Science and Technology, Republic of Korea)

WA05 Machine Vision and Applications

208A, 09:10~10:40

WA05-1 A Turn Based Algorithm In An Urban Road Transportation Network 133
ByuhngMunn Suhng, Heeduk Jeong, Wangheon Lee(HANSEI UNIVERSITY, Republic of Korea)

WA05-2 Target Size Prediction and Verification by Geometrical Analysis and SE-WORKBENCH for Ground Target Detection 137
Sungho Kim(Yeungnam University, Republic of Korea), Sohyun Kim(Agency for defense development, Republic of Korea)

WA05-3 Object Tracking using KLT –aided Mean-shift algorithm 140
Sunho Kim, Jungho Kim, Youngbae Hwang, Byoungho Choi, Juhong Yoon(Korea Electronics Technology Institute(KETI), Republic of Korea)

WA05-4 Performance Improvement in complex environment Based on Ensemble Learning Algorithm By Combining 2D DNF Weak Classifier 146
Hyeon-Gyu Min, Dong-Joong Kang(Pusan National University, Republic of Korea)

WA05-5 Real-Time Range Image Segmentation on GPU 150
XINHUA JIN, Mun-Ho Jeong(Kwangwoon University, Republic of Korea)

WA06 Basics on Glocal Control: Concept, Fundamental Theory, and Applications to Energy Management Systems
208B, 09:10~10:40

WB01 Disturbance Rejection and Attenuation
206A, 13:30~15:00

WB01-1 Degree of Disturbance Rejection Capability for Linear Anti-Stable Systems 154
Haemin Lee, Youngjin Park(KAIST, Republic of Korea)

WB01-2 Improving Control Performance of a Container Crane Using Adaptive Friction Compensation 157
Quoc Chi Nguyen(Ho Chi Minh City University of Technology, Viet Nam), Hoai Quoc Le(Saigon Hi-Tech Park, Viet Nam), Keum-Shik Hong(Pusan National University, Republic of Korea)

WB01-3 A Robust Finite-time Convergent Multiple Integral Observer against Input Disturbance and Measurement Noise 163
In Hyuk Kim, Young Ik Son(Myongji University, Republic of Korea)

WB01-4 An Adaptive Sliding Mode-Like P-type Iterative Learning Control for Robot Manipulators 169
Yi Long, Zhijiang Du, Weidong Wang(harbin institute of technology, China)

WB01-5 Iterative Learning Control Algorithm for a Class of Discrete LTI System with Batch-varying Reference Trajectories 174
Se-Kyu Oh, Jong Min Lee(Seoul National University, Republic of Korea)

WB01-6 A Less Conservative Phaselock Criterion with Linear Matrix Inequality Condition 179
Nur Syazreen Ahmad(Universiti Sains Malaysia (USM), Malaysia)

WB02 Aerospace Control
206B, 13:30~15:00

WB02-1 Optimal Phase Angle Design for the Lunar Lander 184
Dong-Hyun Cho, Hae-Dong Kim(KARI (Korea Aerospace Research Institute), Republic of Korea)

WB02-2 A guidance logic development for wake homing guidance system 190
DaeHyuk Kim, Nakwan Kim(Seoul National University, Republic of Korea)

WB02-3 Implementation and Application of Guidance law using Aerodynamic Data for Simulation Purposes 195
Wei Zhang, Jianyun JIN, Khayyam Masood, Lin LI, Zehao MA(Northwestern Polytechnical University, China)

WB02-4 Development of a GPS/INS integrated navigation system for model aircraft 201
Nguyen Vinh Hao, Duong Bach Phi(HoChiMinh City University of Technology, Viet Nam)

WB02-5 Response Surface Smoothing for Wind Tunnel Testing Based on Design of 207

Experiment with Subspace Partitioning
Dongoo Lee, Jaemyung Ahn(KAIST, Republic of Korea), Se-Yoon Oh(Agency for Defense Development, Republic of Korea)

WB02-6 Automatic Typhoon eye identification using QuikSCAT data and spiral cloud Image 212
Kulwarun Warunsin, Orachat Chitsobhuk(King Mongkuts Institute of Technology Ladkrabang, Thailand)

WB03 Mechanism and Manipulation

207A, 13:30~15:00

WB03-1 Preliminary Study of Utilizing Plastic Tubes as a Component of Continuum Robots 217
DENYS MAKARETS(Korea Institute of Science and Technology, Republic of Korea), Denys Makarets, Keri Kim, Deukhee Lee(KIST, Republic of Korea)

WB03-2 Screws on the Relative Parallel Mechanisms 221
Le Hoai Quoc(Saigon Hi-Tech Park, Viet Nam), Nguyen Minh Thanh(Saigon Hi-Tech Park Training Center, Viet Nam), Victor Glazunov, Aleksey Lastochkin(Mechanical Engineering Research Institute of RAS, Russian Federation)

WB03-3 Design and Evaluation of a Three-axis Force/Torque Sensor for Humanoid Robot Balance Control 227
Chao Yuan(Hanyang University/ CnR Lab, Republic of Korea), Rui-Jun Yan, Jing Wu, Kim Sang Ho, Kyoo-Sik Shin, Chang-Soo Han(Hanyang University, Republic of Korea)

WB03-4 Hardware based Autonomous Fire Fighting Robot N/A
Swetha Bobba(City University London, United Kingdom)

WB03-5 Development of Aerial Photographing System with Throwing Device for Disaster Information Gathering 237
Sho Katayama, Takashi Takimoto(Kitakyushu National College of Technology, Japan)

WB03-6 Mechanism Design of Exoskeletal Master Device for Dual Arm Robot 241
Chang-Hyuk Lee, Jiwon Choi(Seoul National University, Republic of Korea), Hooman Lee, Joongbae Kim(Electronics and Telecommunications Research Institute (ETRI), Republic of Korea), Young-bong Bang(Advanced Institutes of Convergence Technology, Republic of Korea)

WB04 SICE-ICROS Joint Session: Modeling and Parameter Tuning based Control

207B, 13:30~15:00

WB04-1 A study on stability analysis of biochemical reaction system with negative feedback regulation 244
Takashi Nakakuki(Kyushu Institute of Technology, Japan)

WB04-2 Interpolated Regression for On-line Local Modeling in Feedforward Learning Control 249
Kenji Sugimoto, Fuyuki Ito(Nara Institute of Science and Technology, Japan)

WB04-3 The Identification of Dynamics of Hydraulic Servo System for Remote Cutting 255
Hyun Cheol Lee, Min Cheol Lee(Pusan National University, Republic of Korea)

WB04-4 Disturbance Attenuation Fictitious Reference Iterative Tuning in Frequency Domain 258
Shiro Masuda, Yuki Gohda(Tokyo Metropolitan University, Japan), Yoshihiro Matsui(Tokyo National College of Technology, Japan)

WB04-5 Least Squares Approach to Fictitious Reference Based Tuning of Full Parameterized Linear Time-Invariant Controllers 264

Osamu Kaneko(Kanazawa University, Japan)

WB04-6 Tremor Suppression Robust Hybrid Control for Handheld Micromanipulator 267
Sungwan Boksuwan(The University of Elector-Communications, Japan), Taworn Benjanarasuth(King Mongkut's Institute of Technology Ladkrabang, Thailand), Chisato Kanamori, Hisayuki Aoyama(The University of Elector-Communications, Japan)

WB05 Recent Advances in Brain-Machine Interface

208A, 13:30~15:00

WB05-1 Coherent neural responses of human populations during watching movie 272
DaYoon Kang(Ulsan National Institute of Science and Technology, Republic of Korea), Sungphil Kim(Ulsan national Institute of Science and Technology, Republic of Korea), Jinsoo Kim(Korea University, Republic of Korea), Dong-Pyo Jang, Young-Seok Shin(Hanyang University, Republic of Korea)

WB05-2 A hybrid brain-computer interface based on common EEG and NIRS resting state for BCI 275
M. Jawad Khan, Keum-Shik Hong, Noman Naseer, Muhammad Raheel Bhutta(Pusan National University, Republic of Korea)

WB05-3 Cortical Activities during a Sit to Stand movement using fNIRS 279
SeungHyun LEE, Gwanghee Jang, SangHyeon Jin(DGIST, Republic of Korea), Jiho Park(Pusan Natioanl University, Republic of Korea), Yoojung LEE(DGIST, Republic of Korea), Jong Min Lee, Seung-Jong Kim(KIST, Romania), Jinung An(DGIST, Republic of Korea)

WB05-4 Technology of integration of diverse databases on the example of medical records. 282
Yersain Chinibayev(International IT University, Kazakhstan), Raisa Uskenbayeva(INternational IT University, Kazakhstan), Aizhan Kassymova, Tolganay Temirbolatova(International IT University, Kazakhstan), Kazybek Mukhanov(Inernational IT University, Kazakhstan)

WB05-5 Wearable Wireless Interface Based on Brain Activity and Eye Movement 286
Yongwon Kim, Sungho Jo(KAIST, Republic of Korea)

WB06 How to give a GOOD presentation?

208B, 13:30~15:00

WP1 Medical Robotics and Simulation

212&213, 16:30~18:00

WP1-1 Attitude Tracking Using an Integrated Inertial and Optical Navigation System for Hand-Held Surgical Instruments 290
Hyoun Min OH, Min Young Kim(Kyungpook national university, Republic of Korea)

WP1-2 A Verification Method of Image Registration for Image-guided Therapy (IGT) 294
Young-gi Jung, Myeongjin Kim, Thinh Tien Nguyen, Doo Yong Lee(KAIST, Republic of Korea)

WP1-3 A Tele-operated Robotic Platform for Cardiovascular Catheter Intervention with Haptic Guidance 299
Youngjin Moon, Jaesoon Choi(Asan Medical Center, Republic of Korea)

WP1-4 Development of a 4 DOF Exoskeleton Robot for Elbow and Wrist Rehab 304
Hyun Soo Woo, Jang Ho Cho, Chul Seung Kim, Hyuk Jin Lee(KIMM, Republic of Korea)

WP2 Robotics

212&213, 16:30~18:00

WP2-1 A Study on Gripping Control of Robotic Hand with Ten Joints for Cooperative Working 307
Moon Youl Park, Jun Seok Yang, Young Mok Koo(Kyungnam University, Republic of Korea), Yang Keun Jeong(Sinla Information Technology Co., Ltd., Republic of Korea), Eon Uck Kang(Ubitron Co., Ltd., , Republic of Korea), Sung Hyun Han(Kyungnam University, Republic of Korea)

WP2-2 A Study on Travelling Control of Humanoid Type Mobile Robot with Three Wheel 310
Byung Kyun Shim, Young Mok Koo, Jun Seok Yang, Moon Youl Park(Kyungnam University, Republic of Korea), In Man Park(Intem Co., Ltd., , Republic of Korea), Won Jun Hwang(Gyeongnam Technopark, Republic of Korea), Sung Hyun Han(Kyungnam University, Republic of Korea)

WP2-3 An Intelligent Motion Control of Two Wheel Driving Robot based Voice Recognition 313
Young-Mok Koo, Jun Seok Yang, Moon Youl Park(KyungNam University, Republic of Korea), Eon Uck Kang(Ubitron Co. Ltd.,, Republic of Korea), Won Jun Hwang(Gyeongnam Technopark, Republic of Korea), Woo Song Lee(Sungsanam Deco Co.,Ltd.,, Republic of Korea), Sung Hyun Han(KyungNam University, Republic of Korea)

WP2-4 A Study on Precise Control of Industrial Robot Arm for Manufacturing Process Automation 316
Jun Seok Yang, Yong Mok Koo, Moon Youl Park(KyungNam University, Republic of Korea), Hyung Suk Sim(DongSan Tech Co., Ltd, Republic of Korea), Huu Cong Nguyen(Michelin Vietnam Co., Ltd., , Republic of Korea), Sung Hyun Han(KyungNam University, Republic of Korea)

WP3 Smart Mobile Robot

212&213, 16:30~18:00

WP3-1 Development of Dual Arm Robot Platform for Automatic Assembly 319
DONG IL PARK, Chanhun Park, Hyunmin Do, Taeyong Choi, Jinho Kyung(Korea Institute of Machinery & Materials, Republic of Korea)

WP3-2 A robot manipulator on the mobile platform for an off-road environment 322
Chanhun Park(Korea Institute of Machinery & Materials, Republic of Korea)

WP3-3 A Study on Remote Control System Integrated Intuitive Vision System for Field Robot Using Head Tracker system 326
Soon-Yong Yang(University of Ulsan, Republic of Korea), Hoan Quang Le(university of ulsan, Republic of Korea), Kyoung-Taik Park(Korea Institute of Machinery and Materials, Republic of Korea), Young-Man Jeong(University of Ulsan, Republic of Korea)

WP3-4 A Study of Stability for Field Robot using Energy Stability Method 331
Kyoung Taik Park(Korea Institute of Machinery & Materials, Republic of Korea), Chi-Thanh Nguyen, Soon-Yong Yang(University of Ulsan, Republic of Korea)

WP3-5 Application of Gas Spring for Robot Arm Balancing 338
Kyoung Taik Park(Korea Institute of Machinery & Materials, Republic of Korea), Doo Hyung Kim, Kwang Jo Chung(Korea Institute of Machinery and Materials, Republic of Korea)

WP4 Biorobotics

212&213, 16:30~18:00

WP4-1 Fabrication of N-isopropylacrylamide (NIPAAM) based Micro-hydrogel 342
Sukho Park(Chonnam National University, Republic of Korea)

WP4-2 Ion Transportation Control in Nanofluidics through Geometrically Controlled Nanoparticle Assembly 345
Eunpyo Choi, Kilsung Kwon, Daejoong Kim, Jungyul Park(Sogang University, Republic of Korea)

WP4-3 Fabrication of Biodegradable Polymeric Micro Chambers Encapsulated with Pulverized Drug for Bacteria-Based Microrobots 348
Byeonghwa Song, Hyung Jung Yoo, Eun-Goo Jeong, Sung Jae Kim, Jong Mo Seo, Tae-You Kim, Dong-Il Dan Cho(Seoul National University, Republic of Korea)

WP4-4 Motion Analysis of Upper Limb for a Planar Cable-Driven Parallel Robots toward Upper Limb Rehabilitation 352
XueJun Jin, Dae Ik Jun, Xuemei Jin, Sukho Park, Jong-Oh Park, Seong Young Ko(Chonnam National University, Republic of Korea)

WP4-5 Recognition Delay and Recognition Rate of Knee Motor Intention Recognized by Electromyography and Continuous Hidden Markov Model 357
Hyeong Jin Jeon, Seung-Jong Kim, Yoha Hwang, ChangHwan Kim, Jong Min Lee(Korea Institute of Science and Technology, Republic of Korea)

WP5 Control Theory and Applications I

212&213, 16:30~18:00

WP5-1 Adaptive Control of MEMS Gyroscope Using Backstepping Approach 361
Yunmei Fang, Juntao Fei, Yuzheng Yang, Mingang Hua(Hohai University, China)

WP5-2 Tuning of PID Controller using Genetic Algorithm for Ball and Hoop System N/A
Faizullah Mahar(Balochistan UET , Khuzdar, Pakistan), Ishtiaq Ahmad khan, Muhammad Idrees(Balochistan University of Engineering and Technology, Pakistan), Muhammad Ashraf(Balochistan University of Information Technology and management sciences, Pakistan)

WP5-3 Robust Control of a Quadrotor using Takagi-Sugeno Fuzzy Model and an LMI approach 370
Hyeonbeom Lee, H. Jin Kim(Seoul National University, Republic of Korea)

WP5-4 Robustness Evaluation for Point-to-Point Positioning Control of A One Mass Rotary System 375
Rozilawati Mohd Nor, Chong Shin Horng(Universiti Teknikal Malaysia Melaka, Malaysia)

WP5-5 Discrete-Time Takagi-Sugeno Fuzzy Finite Impulse Response Filter 381
Junho Chung, Changjoo Lee, HyunDuck Choi, ChoonKi Ahn, MyoTaeg Lim(Korea University, Republic of Korea)

WP5-6 Adaptive Control over Quadcopter UAV under Disturbances 386
Igor Gaponov, Anastasia Razinkova, Hyun-Chan Cho(KoreaTech, Republic of Korea)

WP5-7 Missile Radome Error Compensation using Modified Interacting Multiple Model Kalman Filter 391
Seul-Ki Han(Yonsei University, Republic of Korea), Sejoon Ahn, Won-Sang Ra(Handong Global University, Republic of Korea), Jin Bae Park(Yonsei University, Republic of Korea)

WP5-8 Application of Time-Frequency Domain Reflectometry Based on Multi-band Signal for Detection and Localization of Fault on a Cable 396
MoonKang Jung, Jin Bae Park, Yong-June Shin(Yonsei university, Republic of Korea)

WP6 Controls in Industry and Practice I

212&213, 16:30~18:00

WP6-1 Active Disturbance Rejection Control for Structural Vibration 402
makeximu -, Li Sun, Donghai Li(Tsinghua University, China)

WP6-2 Adaptive Neural Sliding Mode Control of Active Power Filter Using Feedback Linearization 407
Yunmei Fang, Zhe Wang, Juntao Fei(Hohai University, China)

WP6-3	Micro-convertor with remotely coupled DC power *Daniel Choi(Masdar Institute of Science and Technology, United Arab Emirates)*	413
WP6-4	Performance Improvement using A-PO Algorithm of MPPT for PV System *Dong-Hwa Chung, Tae-Young Seo, Jae-Sub Ko, Chang-Uk Lee, Hyouk-Sung Kwon(Sunchon National University, Republic of Korea)*	N/A
WP6-5	Configuration of PV Module Considering the Shadow Condition of PV System *Dong-Hwa Chung, Chang-Uk Lee, Jae-Sub Ko, Tae-Young Seo, Hyouk-Sung Kwon(Sunchon National University, Republic of Korea)*	N/A
WP6-6	The Design and Performance Evaluation of Position Detection System for Super Speed Maglev *Jinho Lee, Jeongmin Jo, Youngjae Han, Changyoung Lee, Yan Sun(Korea Railroad Research Institute, China)*	424
WP6-7	The Development and Application of Guideway Monitoring Vehicle for Super Speed Maglev *Jinho Lee, Jeongmin Jo, Youngjae Han, Changyoung Lee(Korea Railroad Research Institute, Republic of Korea)*	427
WP6-8	ATP Functional Procedure of the Train Control System for an Automated Train Coupling/Decoupling Operation *sehchan oh, kangmi lee, minsoo kim, jonghyun baek(Korea Railroad Research Institute, Republic of Korea)*	430
WP6-9	Simulator Design for Communication based Train Control System *sehchan oh, Kangmi Lee, Minsoo Kim, Jonghyun Baek(Korea Railroad Research Institute, Republic of Korea)*	434
WP6-10	An Initial Study of PID and Fuzzy PID Controller Design for Non-Linear SI Engine Speed and AFR Control *Ijlal Haider, Habib Ur Rehman Khalid, Umair Shafiq Khan(The University of Lahore, Pakistan)*	437
WP6-11	Experimental study on elevator using encoderless magnetic motion *HONGYOUN KIM(KOREA UNIV., Republic of Korea)*	443

WP7 Robotics and Systems I

212&213, 16:30~18:00

WP7-1	Design of an Arm Gesture Recognition System Using Arm Feature Transformation and Pattern Extraction *Jaehwan Choi(Kyunghee University, Republic of Korea), Deokhyun Ko(Uinfraway, Republic of Korea), Hyung Kim(kYUNGHEE UNIVERSITY, Republic of Korea), Soongeul Lee(Kyunghee University, Republic of Korea)*	449
WP7-2	Studies on Performance Evaluation and Indicator on Service Robot Face Recognition by using ETRI Face Database *MINJONG KIM(Korea University of Science and Technology, Republic of Korea)*	N/A
WP7-3	Performance Analysis of Software Architectures with Real-time Kernel Patches for the Rescue Robot *Youngwoo LEE, Myeong Eon Jang, Jun Kim, Yong Woon Park(Agency for Defense Development, Republic of Korea)*	460
WP7-4	Development of Support System for Multi-Rotor Helicopter Operations using Electroencephalograph *akinori sakaguchi, Takashi Takimoto(Kitakyushu National College of Technology, Japan)*	466
WP7-5	Prototype Design of Robotic Mobility Aid to Assist Elderly's Standing-Sitting, Walking, and Wheelchair Driving in Daily Life *Seonghee Jeong, Satoshi Takahara(Osaka Electro-Communication Universty, Japan)*	470

WP7-6	Aerial Working Environment Monitoring Robot in High Radiation Area *Hocheol Shin(Korea Atomic Research Institute, Republic of Korea), Changhoi Kim, Yongchil Seo, Heungseop Eom, Youngsoo Choi, Myoungho Kim(Korea Atomic Energy Research Institute, Republic of Korea)*	474
WP7-7	Mechanical Design of the Hanyang Exoskeleton Assistive Robot(HEXAR) *Wan soo Kim, Hee don Lee, Dong hwan Lim(Hanyang University, Republic of Korea), Jung soo Han(Hansung University, Republic of Korea), Chang soo Han(Hanyang University ERICA, Republic of Korea)*	479
WP7-8	Rider Posture Analysis for Postural Correction on a Sports Simulator *Sangseung Kang(ETRI, Republic of Korea)*	485
WP7-9	The Temperature Prediction Model and Fire Control Method in RoboCup Rescue *Zhiqian Liu, Zhiwei Liang(Nanjing University of Posts and Telecommunications, China)*	488
WP7-10	High-Speed Cam Design for Quick-Action Linkage System *JING WU, Rui-Jun Yan(Hanyang University, Republic of Korea), Chao Yuan(Hanyang University/ CnR Lab, Republic of Korea)*	494
WP7-11	Development of Surface Vehicle with Single Motor by Gliding Locomotion *Yasuhiro Fuwa(National Institute of Technology, Kitakyushu College, Japan), Takashi Takimoto(Kitakyushu National College of Technology, Japan)*	499
WP7-12	A Time Synchronized Multi-robot Coverage Algorithm for Unstructured Environment *Tae-Shin Kim, Young-Ho Lee, Jong-koo Park, Tae-Yong Kuc(SungKyunKwan University, Republic of Korea), Sang-Hoon Ji, Sang-Moo Lee(KITECH, Republic of Korea), Yong-Sun Moon(SunChon National University, Republic of Korea)*	503
WP7-13	A Geometric Method for Kinematics of Delta Robot and its Path Tracking Control *Xuewen Yang(Xi'an Jiaotong University, China)*	509
WP7-14	Collision-free Coordination of Two Dual-Arm Robots with Assembly Precedence Constraint *Duck-Hyun Lee(Hanyang University, Republic of Korea)*	515

TA01 Intelligent Systems

206A, 09:10~10:40

TA01-1	Adaptive Quantization with Fuzzy C-mean Clustering for Liver Ultrasound Compression *Rattikorn Sombutkaew, Orachat Chitsobuk(King Mongkut's Institute of Technology Ladkrabang, Thailand)*	521
TA01-2	Dual Intuitionistic Fuzzy Sets and Its Application in Group Decision Making *Liang Wu, Ya-ming Zhuang(School of Economics and Management, Southeast University, China)*	525
TA01-3	Leak Detection of Pipeline Using a Hybrid of Neural-Adaptive Tabu Search Algorithm *Sunisa Sornmuang, Jittiwut Suwatthikul, Songkord Thirachai(National Electronics and Computer Technology Center, Thailand)*	531
TA01-4	Speeded-up Cuckoo Search using Opposition-Based Learning *So-Youn Park, Yeoun-Jae Kim, Jeong-Jung Kim, Ju-Jang Lee(Korea Advanced Institute of Science and Technology, Republic of Korea)*	535
TA01-5	Bed-Leaving Behavior Detection and Recognition Based on Time-Series Learning Using Elman-Type Counter Propagation Networks *Hirokazu Madokoro, Kantarou Kakuta, Ryo Fujisawa, Nobuhiro Shimoi, Kazuhito Sato, Li Xu(Akita Prefectural University, Japan)*	540

TA01-6 Fast Parallel CRC Implementation in Software 546
Dukki Chung, Jonathan R Engdahl(Rockwell Automation, United States)

TA02 Communication and Signal Processing

206B, 09:10~10:40

TA02-1 Remote Monitoring System for Rescue Operations by using Wireless Sensor Network 551
Shigeyuki Tateno(Waseda University, Japan)

TA02-2 Signal Processing of WiMAX Physical Layer Based on Low-Density Parity-Check Codes 556
Chawalit Benjangkaprasert, Torpong Inchan(King Mongkut's Institute of Technology Ladkrabang(KMITL), Thailand)

TA02-3 Improving Signal-to-Noise Ratio (SNR) for Inchoate Fault Detection based on Principal Component Analysis (PCA) 561
Moussa Hamadache(Kyungpook National University, Republic of Korea)

TA02-4 Wireless measurement of carbon monoxide concentration 567
Martin Pies, Radovan Hajovsky, Stepan Ozana(VSB-Technical university of Ostrava/FEECS, Czech Republic)

TA02-5 Research on Calibration Methods for Nonlinear Effects in Electromagnetic Force Equilibrium Sensor 572
Shenshen Gu, Hao Jiang(Shanghai University, China)

TA02-6 Variable Step-size NLMS Algorithm with Oblique Projection 578
Sang Mok Jung, Ji-Hye Seo, PooGyeon Park(Pohang University of Science and Technology (POSTECH), Republic of Korea)

TA03 Human-Robot Interaction

207A, 09:10~10:40

TA03-1 Torque Tracking Control of a Haptic Master Featuring Controllable Magnetorheological Fluid 581
Seung-Hyun Choi, Jong-Seok Oh, Sang-Rock Lee, Pyung-Wha Kim, Soo-Min Kim, Seung Bok Choi(Inha university, Republic of Korea)

TA03-2 Gesture based master-slave controller for a social humanoid robot 585
Sunatthra Jariyawattanakul, Thavida Maneewarn(King Mongkut's University of Technology Thonburi, Thailand)

TA03-3 Collision Detection for Safe Human-Robot Cooperation of a Redundant Manipulator 591
Sang-Duck Lee, Jae-Bok Song(Korea university, Republic of Korea)

TA03-4 Screening Test Robot for Functional Decline of Shoulder Joint 594
Keita Kamada, Noritaka Sato, Yoshifumi Morita, Hiroyuki Ukai(Nagoya Institute of Technology, Japan), Kenji Komori, Shinya Taguchi(Hokuto Hospital, Japan)

TA03-5 Location Classification of Detected Pedestrian 599
Joko Hariyono, Van-Dung Hoang, Kang-Hyun Jo(University of Ulsan, Republic of Korea)

TA03-6 Improvement of Knee Flexion and Extension Simulation Accuracy in KneeRobo 603
Qichang Qi, Yoshie Maeda, Kazunori Yamazaki, Noritaka Sato, Yoshifumi Morita, Hiroyuki Ukai(Nagoya Institute of Technology, Japan), Kouji Sanaka(CLINICAL STUDY SUPPORT, Inc, Japan)

TA04 SICE-ICROS Joint Session: Service Robot Technology and Its Application in Various Fields

207B, 09:10~10:40

TA04-1 Efficient face recognition based on GAP feature 607
jisu kim(Yonsei University, Republic of Korea), Jeonghyun Baek, Euntai Kim(Yonsei Univerity, Republic of Korea)

TA04-2 Navigation system development of the underwater vehicles using the GPS / INS sensor fusion 610
In Uk Lee, Hang LI, Nhat Minh Hoang, Jang Myung Lee(Pusan national university, Republic of Korea)

TA04-3 A Model-Based System Development of a Walking Support Wheelchair Robot 613
Yoshinobu Akimoto, Eri Sato Shimokawara, Yasunari Fujimoto, Toru Yamaguchi(Tokyo Metropolitan University, Japan)

TA04-4 Study on Online 3D Environment Construction for Teleoperation 619
Masamitsu Kurisu(Tokyo Denki University, Japan)

TA04-5 A study of towel folding by robot arm -Spreading and vertex detection using image processing- 627
Tomoya Oshima, Takashi Yoshimi, Makoto Mizukawa, Yoshinobu Ando(Shibaura Institute of Technology, Japan)

TA05 Autonomous Navigation and Control Technology applied to Military Unmanned Ground Vehicles/Robots

208A, 09:10~10:40

TA05-1 Learning Parameters from Manual Task Assignments for Mobile Robots 632
Seil An, Dong Jun Kwak, H. Jin Kim(Seoul National University, Republic of Korea)

TA05-2 Kinematic Control Algorithms and Robust Controller Design for Rescue Robot 637
Seongil Hong, Won Suk Lee, Youn Shik Kang, Yong Woon Park(Agency for Defense Development, Republic of Korea)

TA05-3 Optimal Spline-based RRT Path Planning Using Probabilistic Map 643
Kwangjin Yang(Korea Air Force Academy, Republic of Korea), Seng Keat Gan(The University of Sydney, Australia), Jinwook Huh, Sanghyun Joo(Agency for Defense Development, Republic of Korea)

TA05-4 Closed Loop-based extrinsic calibration of multi-modal sensors 647
Sungdae Sim, Kiho Kwak, Jun Kim, Sang Hyun Joo(Agency for Defense Development, Republic of Korea)

TA05-5 Probabilistic Traversability Map Building for Autonomous Navigation 652
Juil Sock, Kiho Kwak, Jihong Min, Yong-Woon Park(Agency for Defence Development, Republic of Korea)

TA05-6 Efficient 3D terrain mapping based on normal distribution transform grid 656
Hyun Jun Na, Yungeun Choe, Myung Jin Chung(KAIST, Republic of Korea)

TA06 Basics on Differential-Algebraic Equations (DAEs)

208B, 09:10~10:40

TB01 Control Applications

206A, 13:30~15:00

TB01-1 A Third Order Sliding Modes based Output-Feedback Control for Stabilization of Container-Slosh 661
Jyoti Prakash Mishra, Shailaja Ravindra Kurode, Sanket Kailas Gorade(College of Engineering, Pune, India)

TB01-2 A Hybrid Control Approach for Precise Positioning of a Piezo-Actuated Stage 667
Marwan Nafea, Suhail Kazi, Zaharuddin Mohamed, Mohamed Sultan Mohamed Ali(Universiti Teknologi Malaysia, Malaysia)

TB01-3 Generalized complex projective synchronization of chaotic complex systems with unknown parameters 672
Jaepil Ban(POSTECH, Republic of Korea), Jinwoo Lee(Electrical Engineering, Republic of Korea), Sangchul Won(POSTECH, Republic of Korea)

TB01-4 A Quadrocopter Automatic Control Contest as an Example of Interdisciplinary Design Education 678
Christian Nitschke, Yuki Minami, Masayuki Hiromoto, Hiroaki Ohshima, Takashi Sato(Kyoto University, Japan)

TB01-5 Spectral Preservation of Pan-sharpening for THEOS imagery 686
Thani Jintasuttisak, Suwannee Phayapchaiyakun, Sathit Intajag(Prince of Songkla University, Thailand)

TB01-6 Color Retinal Image Enhancement by Rayleigh Contrast-Limited Adaptive Histogram Equalization 692
Thani Jintasuttisak(Prince of Songkla University, Thailand)

TB02 Automotive Control

206B, 13:30~15:00

TB02-1 Robust Fault-Tolerant Cruise Control of Electric Vehicles based on Second-order Sliding Mode Observer 698
Suneel Kumar Kommuri, Jagat Jyoti Rath, Kalyana Chakravarthy Veluvolu(Kyungpook National University, Republic of Korea), Michael Defoort(Univ. Lille Nord de France, France)

TB02-2 Running Experiments of Small Single-Operator Electric Vehicle using 20W Hydrogen Fuel Cell 704
Yoshihiko Takahashi(Kanagawa Institute of Technology, Japan)

TB02-3 Development of Small Compact Electric Motor Tricycle for shopping 710
Takeharu Hayashi(Tokyo National College of Technology, Japan), Yoshihiko Takahashi(Kanagawa Institute of Technology, Japan)

TB02-4 Trajectory Generation for an Automated Excavator 716
Bongju Lee, H.Jin Kim(Seoul National University, Republic of Korea)

TB02-5 A Study about Curve Extraction and Lane Departure Determination of Linear Curved Road 720
Da-Ni Joo, Soon-Geul Lee, Sang-Chan Moon, Min-Woo Kim, Bui Quang Tan(Kyunghee University, Republic of Korea)

TB02-6 A Precision Stopping Measurement Device for Data Acquisition of Urban Trains 726
Manh-Tuan Ha, Chul-Goo Kang(Konkuk University, Republic of Korea)

TB03 Motion Planning and Control

207A, 13:30~15:00

TB03-1 Path tracking control coverage of a mining robot based on exhaustive path planning with exact cell decomposition 730
Dae Hwan Kim, Giang Hoang, Min Ji Bae, Jin Wook Kim(Pukyong National University, Republic of

Korea), Suk Min Yoon, Tae Kyeong Yeo, Hong Sup(Korea Institute of Ships and Ocean Engineering, Republic of Korea), Sang Bong Kim(Pukyong National University, Republic of Korea)

TB03-2 Development of application scenarios for smart mobile walker by in-depth focus group interviews and clinical expert meetings 736
Kiwan Han, Jeongsu Lee, Won-Kyung Song(National Rehabilitation Center, Republic of Korea)

TB03-3 Formation Control of Rigid Bodies Based on Orientation Alignment and Position Estimation 740
Kwang-Kyo Oh, Hyo-Sung Ahn(GIST, Republic of Korea)

TB03-4 Controlling an Overactuated Vehicle with Application to an Autonomous Surface Vehicle Utilizing Azimuth Thrusters 745
Carl Crane, Darsan Patel, Daniel Frank(University of Florida, United States)

TB03-5 Consensus-Based Obstacle Avoidance for Robotic Swarm System with Behavior-Based Control Scheme 751
Ji-Wook Kwon, Jin Hyo Kim, Jiwon Seo(Yonsei University, Republic of Korea)

TB03-6 Natural Corners-based Two-Dimensional (2D) SLAM with Partial Compatibility Algorithm in Indoor Environment 756
Rui-Jun Yan, Jing Wu(Hanyang University, Republic of Korea), Chao Yuan(Hanyang University/ CnR Lab, Republic of Korea), Ji Yeong Lee, Chang-Soo Han(Hanyang University, Republic of Korea)

TB04 SICE-ICROS Joint Session: Service Robot Technology and Its Application in Medical Field

207B, 13:30~15:00

TB04-1 Modeling and Taylormade Training Method Using Neural Network for Specific Muscle of the Upper Limb 762
Kazuhiko Terashima(Toyohashi University of Technology, Japan)

TB04-2 Implementation of Skin Manipulation in a Haptic Interface of Needle Intervention Simulation 768
Seung Gyu Kang, Doo Yong Lee(KAIST, Republic of Korea)

TB04-3 Development of an Apparatus for Measurement and Supporting Human Standup Motions 773
Nobuto Matsuhira, Taigi Suzuki, Yuta Hongo(Shibaura Institute of Technology, Japan)

TB04-4 Organ Rupture Detection Algorithm of Surgical Robot 778
JU SEOK KANG, Nahian Rahman, Sung Min Yoon, Gm Gang Cha, Min Cheol Lee(Pusan National University, Republic of Korea)

TB04-5 Fall detection using smart phone and ubiquitous pulse wave sensor 782
Wan Azizul Wan Kamaruzaman, Tadahiro Hasegawa, Shinnosuke Imai(Shibaura Instite of Technology, Japan)

TB04-6 MODELING AND SLIDING MODE CONTROL OF FLEXIBLE STRUCTURE 787
SANKET KAILAS GORADE, SHAILAJA RAVINDRA KURODE(COLLEGE OF ENGINEERING PUNE (COEP), MAHARASHTRA, India), PRASANNA S. GANDHI(INDIAN INSTITUTE OF TECHNOLOGY BOMBAY (IITB), MAHARASHTRA, India)

TB05 Sensing and Behavior Control of Robot-Assisted Systems

208A, 13:30~15:00

TB05-1 Sensorless Assistive Torque Design for a Lower Extremity Exoskeleton 793
Kai-Tai Song, Yun-Chih Liao, You-Lin Jian Jian(National Chiao Tung University, Taiwan)

TB05-2 Indirect Adaptive Nonlinear Self-Balancing and Station Keeping for 798

Omnidirectional Riding Chair
Ching-Chih Tsai(National Chung Hsing University, Taiwan)

TB05-3 Robust Facial Emotion Recognition Using a Temporal-Reinforced Approach 804
Kai-Tai Song, Chao-Yu Lin(National Chiao Tung University, Taiwan)

TB05-4 Behavior-Based Manipulator Programming Based on Extensible Agent Behavior Specification Language 808
Hsien-I Lin, C. H. Cheng(National Taipei University of Technology, Taiwan)

TB05-5 Fastening Torque Control for Robotic Screw Driver under Uncertain Environment 814
Chwan Hsen Chen(Yuan Ze University, Taiwan)

TB05-6 Human-Robot Interaction with Multi-Human Social Pattern Inference on a Multi-Modal Robot 819
Shih-Huan Tseng, Tung-Yen Wu, Ching-Ying Cheng, Li-Chen Fu(National Taiwan University, Taiwan)

TB06 Autonomous Multi-UAV Systems

208B, 13:30~15:00

TB06-1 Fast Location Survey of DGNSS Reference Station to Support UAV Navigation 825
Dong-Kyeong Lee, Jiyun Lee(KAIST, Republic of Korea)

TB06-2 MDP-Based Mission Planning for Multi-UAV Persistent Surveillance 831
Byeong-Min Jeong(Korea Aerospace Industry, Republic of Korea), Jung-Su Ha, Han-Lim Choi(KAIST, Republic of Korea)

TB06-3 Optimal Path Planning Based on Spline-RRT* for Fixed-Wing UAVs Operating in Three-Dimensional Environments 835
Dasol Lee, HanJun Song, David Hyunchul Shim(KAIST, Republic of Korea)

TB06-4 Ad-hoc Network for Inter-Vehicle Communication of Multiple UAVs 840
Youngjoo Kim, Hyochoong Bang(KAIST, Republic of Korea)

TB06-5 An indoor autonomous flight of multiple ornithopters following a circular path 844
Ho-Young Kim, Jun-Seong Lee, Jae-Hung Han(KAIST, Republic of Korea)

TB06-6 Design of a Multiple-UAS Mission Model using Activity-based Modeling 848
Hyunjin Park, Seongsik Jeong, Jaemyung Ahn(KAIST, Republic of Korea)

TP1 Special Environment Navigation & Localization

212&213, 16:30~18:00

TP1-1 2D Grid Map Building Using ICP Algortihm and Line Extraction 852
Dongju Lee, Yeolmin Yun, Yoseop Hwang, Jangmyung Lee(Pusan national University, Republic of Korea)

TP1-2 De-noising Filter Study of the Sound-Source Using the DWT 856
Bo-Yeon Hwang, Jong-Ho Han, Min-Gyu Kim, Jang-Myung Lee(Pusan National University, Republic of Korea)

TP2 Navigation and Application

212&213, 16:30~18:00

TP2-1 Estimation of Relative Distance from Surrounding Buildings 862
SungJin Kang, Hyung Keun Lee(Korea Aerospace University, Republic of Korea)

TP2-2 Analysis of laser focusing device to improve sensor node positioning 866

performance in optics-based WSN
Hyun Cheol Jeon, Chan Gook Park(Seoul National University, Republic of Korea)

TP2-3 Development of a Robust Attitude Determination System for a Nano-satellite 870
Chul Woo Kang, Ji Hyun Park, In-Seuck Jeung, Chan Gook Park(Seoul National University, Republic of Korea)

TP2-4 Development of a Piezoresistive MEMS Pressure Sensor for a Precision Air Data Module 874
Jang-sub Lee, Eun-Shil Yoo, Chi-hyun Park(Microinfinity Co., Ltd., Republic of Korea), Jun-Eon An(Agency for Defense Development, Republic of Korea), Chan Gook Park, Jin Woo Song(Seoul National University, Republic of Korea)

TP2-5 Reducing the Computation Time in the State Chi-Square Test for IMU Fault Detection 879
Se Hyun YUN, Chul Woo Kang, Chan Gook Park(Seoul National University, Republic of Korea)

TP2-6 Collision Avoidance in On-Road Environment for Autonomous Driving 884
Samyeul Noh, Woo-Yong Han(Electronics and Telecommunications Research Institute (ETRI), Republic of Korea)

TP3 Control Theory and Applications II

212&213, 16:30~18:00

TP3-1 A fixed budget implementation of a new variable step size kernel proportionate NLMS algorithm 890
Felix Albu(Valahia University of Targoviste, Romania), Kiyoshi Nishikawa(Tokyo Metropolitan University, Japan)

TP3-2 Necessary and sufficient conditions for consensus of third-order multi-agent systems 895
yanfen cao, Yuangong Sun(University of Jinan, China)

TP3-3 H∞ consensus for heterogeneous multi-agent systems with time-delay 901
beibei wang, Yuangong Sun(University of Jinan, China)

TP3-4 Design of Nonfragile Robust H∞ Filter for Fuzzy Stochastic Systems with Time-Varying Delay 907
Mingang Hua, Yixi Cai, Huasheng Tan(Hohai University, China)

TP3-5 A Simplified Nonlinear Control for Sawyer Motors based on Singular Perturbation Theory 913
hyungduk Seo, donghoon Shin, youngwoo Lee, chung choo Chung(Hanyang university, Republic of Korea)

TP3-6 Distributed Leader-Following Formation Control of Quadcopters 919
ARSHAD MAHMOOD, Yoonsoo Kim(Gyeongsang National University, Republic of Korea)

TP3-7 H2 Control Based on LPV for Speed Control of Permanent Magnet Synchronos Motors 922
Hyunmin Hwang, Youngwoo Lee, Donghoon Shin, Chung Choo Chung(Hanyang University, Republic of Korea)

TP3-8 Parametric Control of Quasi-linear Systems by Output Feedback 928
Guang-Ren Duan(Harbin Institute of Technology, China)

TP3-9 Quaternion-based Satellite Attitude Control—A Direct Parametric Approach 935
Guang-Ren Duan(Harbin Institute of Technology, China)

TP3-10 Correction of the Spacecraft Attitude Error induced by Scan Mirror-Gimbal Motion 942
Young-Hee Lee, Young-Hee Lee(ASCL, Republic of Korea), Sujang Jo, Hyochoong Bang(KAIST,

Republic of Korea)

TP3-11 control analysis for a non-minimum phase static unstably missile 947
Jun-fang FAN, Ying CHEN, Peng LIN(Beijing Information Science & Technology University, China)

TP3-12 Residual vibration suppression of an under-water fuel transport system 953
Umer Hameed Shah, Mingxu Piao(Pusan National University, Republic of Korea), Jae Young Jeon(POWER MnC Co., Ltd., Republic of Korea), Keum-Shik Hong(Pusan National University, Republic of Korea)

TP4 Controls in Industry and Practice II

212&213, 16:30~18:00

TP4-1 Extended Airtime Fair Scheduling Method for a Zigbee Network 958
Quyen T.T. Bui, Tu Van Chau, Vinh Quang Thai(Institute of Information Technology, Vietnam Academy of Science and Technology, Viet Nam)

TP4-2 The Development of Ethernet based Radar and ECDIS Image Processing for Voyage Data Recorder 963
Chanmin Jung, Jonggu Kang, Minjung Jin(Hyundai Heavy Industries, Republic of Korea)

TP4-3 Adaptation of 6LoWPAN to Ship Area Sensor Networks with wired Ethernet backbone and Performance Analysis 967
Sang-Joon Nam, Jonggu Kang, Daekeun Moon(Hyundai Heavy Industries, Republic of Korea)

TP4-4 Variable Forgetting Factor RLS Algorithm for Adaptive Echo Cancellation 971
Sethaphak Sukhumalchayaphong, Chawalit Benjangkaprasert(King Mongkut's Institute of Technology Ladkrabang(KMITL), Thailand)

TP4-5 Application of Adaptive Notch Filter for Resonance Suppression in Industrial Servo Systems 976
Wook Bahn, Jong-Min Yoon(Seoul National University, Republic of Korea), Nyeon-Kun Hahm, Sang-Sub Lee, Sang-Hoon Lee(RS Automation, Republic of Korea), Dong-Il Cho(Seoul National University, Republic of Korea)

TP4-6 On-Off Shaping Commands for Acceleration Limits 980
Yoon-Gyung Sung, Yoon-Sang Min(Chosun University, Republic of Korea)

TP4-7 Recognition of Object by Extended Histograms of Oriented Gradients (EHOG) on Route for a Mobile Robot 986
Yuri Shimanuki, Koichi Hidaka(Tokyo Denki University, Japan)

TP4-8 A Study on Traction Motor Characteristic in EMU Train 992
SuGil Lee(Institute, Republic of Korea)

TP4-9 A Study of Train Braking Energy for Energy Bank Design 997
SuGil Lee(Institute, Republic of Korea)

TP4-10 The Design of Monorail Rolling Stock for Running Performance and Maintenance 1002
WooDong Lee(Korea Railroad Research Institute, Republic of Korea)

TP4-11 Analysis of Performance of GPS L1 Signal Generator in GPS L1 Signal 1006
Tae Hee Kim(ETRI, Republic of Korea)

TP4-12 Spoofing Detection Module Test of GPS Jamming Monitoring System 1010
Seongkyun Jeong, Sanguk Lee, Jaehoon Kim(Electronics and Telecommunications Research Institute, Republic of Korea)

TP4-13 Development & Test of GPS Interference Monitoring System 1014
inone joo(ETRI, Republic of Korea)

TP5 Robotics and Systems II

212&213, 16:30~18:00

TP5-1	Development of Traveling Surface Characteristics Extraction Equipment Using Optical Mouse Array *Sungbok Kim, Minkyu Park(Hankuk Univ. of Foreign Studies, Republic of Korea)*	1018
TP5-2	Robust Localization Using RGB-D Images *Yoonseon Oh, Songhwai Oh(Seoul National University, Republic of Korea)*	1023
TP5-3	The study on scan matching method using Procrustes analysis *Hyung Kim, Batsaikhan Dugarjav(kYUNGHEE UNIVERSITY, Mongolia), Soongeul Lee(KYUNGHEE UNIVERSITY, Republic of Korea), Kwanghun Lee(kYUNGHEE UNIVERSITY, Republic of Korea)*	1027
TP5-4	Trot Gait simulation of Four Legged Robot Based on a Sprawled Gait *Changhoi Kim, Hochel Shin, Kyungmin Jeong(Korea Atomic Energy Research Institute, Republic of Korea)*	1031
TP5-5	Analysis of Mobile Robot Navigation using Vector Field Histogram in Various Conditions *Whee Jae Yim, Jin Bae Park(Yonsei University, Republic of Korea)*	1037
TP5-6	Detection of Wheel Faults in Electric Vehicles via Localization Data *Carl Crane, Robert Kidd(University of Florida, United States)*	1041
TP5-7	Parallel Implementation of Saliency Maps for Real-Time Robot Vision *Keigo Shirai, Hirokazu Madokoro, Satoshi Takahashi, Kazuhito Sato(Akita Prefectural University/Akita, Japan)*	1046
TP5-8	A Method of Estimating Motion Trajectory with Combining Particle Filter and Optical Flow *Junichi Oura, Teruo Yamaguchi, Hiroshi Harada(Kumamoto University, Japan)*	1052
TP5-9	Remote Position Detection of Steel Coils Using 2D Laser Scanners : Two-line-tracker *Yonghun Kim, Pyungkang Kim, Kyeongyong Cho, Yoon-Shik Hong, Soohyun Kim, Kyung-Soo Kim(KAIST, Republic of Korea), Young-Keun Kim(Handong Global Univ, Republic of Korea), Tae-Gyoon Lim(Research Institute of Industrial Science and Technology, Republic of Korea)*	1056
TP5-10	Image Signal Processing, Analysis and Detection for Robotic System *Jiri Haska, Martin Pies, Zdenek Machacek(VSB-Technical university of Ostrava/FEECS, Czech Republic)*	1060
TP5-11	Polygonal Symmetry Transform for Detecting Rectangular Traffic Signs *Jea Young Jeon, JeongMok Ha, Sung Yong Jo, Gi Yeong Bae, Hong Jeong(Pohang University of Science and Technology (POSTECH), Republic of Korea)*	1064
TP5-12	Designing of the input filter group of the multichannel optical flow estimate method *Marina Morimitsu, Teruo Yamaguchi, Hiroshi Harada(Kumamoto University, Japan)*	1070
TP5-13	Robust Ground Plane Detection from 3D Point Clouds *Sunglok Choi(ETRI, Republic of Korea)*	1076
TP5-14	Sensorless Admittance Control of Cycle Ergometer for Rehabilitation *Useok Jeong, Daegeun Park, Kyu-Jin Cho(Seoul National University, Republic of Korea)*	1082
TP5-15	A Robot system and Virtual Environment for Therapeutic Exercise in Upper Limb Rehabilitation: Robotic Exercise System *Seungyeol Lee(Daegu Gyeongbuk Institute of Science & Technology, Republic of Korea), Hyungjoon Sim(ISOL Technology, Republic of Korea), Jeon-Il Moon(Daegu Gyeongbuk Institute of Science & Technology, Republic of Korea)*	1087
TP5-16	Gait Pattern Generation for Robotic Gait Rehabilitation System on Treadmill	1090

Kap-Ho Seo(Korea Institute of Robot and Convergence, Republic of Korea)

FA01 Identification, Estimation, and Observers

206A, 09:10~10:40

FA01-1 Online Black-box Model Identification and Output Prediction for Sampled-data Systems 1095
Asim Zaheer, Muhammad Salman(National University of Sciences & Technology, Pakistan)

FA01-2 An Aircraft's Parameter Identification Algorithm Based on Cloud Model Optimization 1101
Wei Zhang, Yi-Lei Liu(Northwestern Polytechnical University, China), Da-peng Guo(AVIC Aerodynamics Research Institute, China), Khayyam Masood, Jing Tian(Northwestern Polytechnical University, China)

FA01-3 Identification of Continuous-time Hammerstein Models Using Simultaneous Perturbation Stochastic Approximation 1107
Mohd Ashraf Ahmad, Shun-ichi Azuma, Toshiharu Sugie(Kyoto University, Japan)

FA01-4 Multi-Target Tracking Algorithm Based on FIR filters 1112
Changjoo Lee, Kyung Min Min, Hyun Duck Choi, Choon Ki Ahn, Myo Taeg Lim(Korea University, Republic of Korea)

FA01-5 Observer-based Admissible Control for Singular Delta Operator Systems 1117
Xin-zhuang Dong, MINGQING XIAO(Southern Illinois University Carbondale, United States), Yushun Wang, Wenxue He(Qingdao University, China)

FA01-6 Sliding Mode Control of a Rotary Inverted Pendulum using Higher Order Differential Observer 1123
Philippe Faradja, Guoyuan Qi, Martial Tatchum(Tshwane University of Technology, South Africa)

FA02 Controls for Energy Systems

206B, 09:10~10:40

FA02-1 One-Step ahead Stabilizing Model Predictive Control for a Three-Phase AC/DC Converter 1128
Seok-Kyoon Kim, Young Il Lee(SeoulTech., Republic of Korea)

FA02-2 Voltage Regulation System based on ADRC for Doubly Salient Electro-magnetic Generator 1134
Jun Ding, Weili Dai, Hao Tian, Juntao Fei(Hohai University, China)

FA02-3 Hierarchical Control of Power Networks by using Overlapping Information 1140
Tomoharu Suehiro, Toru Namerikawa(Keio University, Japan)

FA02-4 Shunt Active Power Filter Based on a Novel Sliding Mode Backstepping Control for Three-phase Three-wire System 1146
Lihua Deng, Juntao Fei, Changchun Cai(College of IOT Engineering, Hohai University, China)

FA02-5 EKF-Based Fault Detection and Isolation for PMSM Driver Inverter 1152
Dan Luo, Sang Man Seong(Korea Univ. of Tech. and Education, Republic of Korea)

FA02-6 Developing a Linear Model of RF Power Generators with Pseudo Random Binary Signals (PRBS) 1158
Haijun Fang(MKS Instruments, United States)

FA03 Control of Multi-modal Robots

207A, 09:10~10:40

FA03-1 Omni-directional walking control for a six-legged robot using differential kinematics algorithm 1163
Giang Hoang, Jung Hu Min(Pukyong National University, Republic of Korea), Gyeong Mok Lee, Bong Huan Jun(Korea Research Institute of Ships and Ocean Engineering, Republic of Korea), Hak Kyeong Kim, Sang Bong Kim(Pukyong National University, Republic of Korea)

FA03-2 Vision-based collaborative lifting using quadrotor UAVs 1169
Suseong Kim, Seungwon Choi, Hyeonbeom Lee, H. Jin Kim(Seoul National University, Republic of Korea)

FA03-3 Pursuit and Evasion in a Recursive Nested Behavioral Control Structure for Unmanned Aerial Vehicles 1175
Alexander Alexopoulos, Tobias Schmidt, Essameddin Badreddin(Heidelberg University, Germany)

FA03-4 3-Dimensional Kinodynamic Motion Planning for an X4-Flyer Using 2-Dimensional Harmonic Potential Fields 1181
Kimiko Motonaka, Keigo Watanabe, Shoichi Maeyama(Okayama University, Japan)

FA03-5 The Development of a 3D Position Measurement System for Indoor Aerial Robots 1185
Keigo Watanabe(Okayama Univ, Japan), Yuya Yamada(OMRON Corporation, Japan), Isaku Nagai(Graduate School of Natural Science and Technology, Okayama University, Japan)

FA03-6 Hierarchical Backstepping Control for Trajectory-Tracking of Autonomous Underwater Vehicles Subject to Uncertainties 1191
Hsiu-Ming Wu, Mansour Karkoub(Texas A&M University at Qatar, Qatar)

FA04 Disturbance Observers in Control Engineering

207B, 09:10~10:40

FA04-1 Design of Q-filters for disturbance observers via BMI approach 1197
Jung-Su Kim(Seoul National University of Science and Technology, Republic of Korea), Juhoon Back(Kwangwoon University, Republic of Korea), Gyunghoon Park(Seoul National University, Republic of Korea)

FA04-2 Reinterpretation of Disturbance Observer as an Add-on Controller 1201
Hyungtae Seo, Kyung-Soo Kim, Soohyun Kim(KAIST, Republic of Korea)

FA04-3 High Order Extended Observer Based Output Feedback Control for Unknown Nonlinear Systems N/A
Wonhee Kim(Dong-A University, Republic of Korea), Chung Choo Chung(Hanyang University, Republic of Korea)

FA04-4 Reduced Order Type-k Disturbance Observer based on Generalized Q-filter Design Scheme 1211
Youngjun Joo, Gyunghoon Park(Seoul National University, Republic of Korea)

FA04-5 Frequency-Shaped Impedance Control for Safe Human-Robot Interaction in Reference Tracking Application N/A
Kyoungchul Kong, Sehoon Oh, Hanseung Woo(Sogang University, Republic of Korea)

FA04-6 Application of a Disturbance Observer for Wireless Network Control Systems N/A
Yeongtae Jung, Joonbum Bae(UNIST, Republic of Korea)

FA05 Electric Vehicle Control

208A, 09:10~10:40

FA05-1 Integrated Estimation of Vehicle States, Tire Forces, and Tire-Road Friction Coefficients 1227
Tesheng Hsiao, Jing-Yuan Lan(National Chiao Tung University, Taiwan), Hanping Yang(Industrial

Technology Research Institute, Taiwan)

FA05-2 A CAN-Based Design for the Control of Electric Vehicle 1233
Der-Cherng Liaw, Cheng-Yu Yu, Kuo-Chen Wu(National Chiao Tung University, Taiwan)

FA05-3 A TDMA Based Scheme for the Construction of R2R Communication Platform 1238
Der-Cherng Liaw, Chia-Wei Yeh, Sung-Ming Lo(National Chiao Tung University, Taiwan)

FA05-4 An Anti-Racing PWM-based Battery Pack Equalization 1244
Lan-Rong Dung(National Chiao Tung University, Taiwan)

FA05-5 A New Method for Three-dimensional Measurement with Two Horizontally-aligned Omni-directional Cameras 1249
Sheng-Fuu Lin, Jau-Chi Ke, Hsin-Yi Liu, Jiao-Rou Liao(National Chiao Tung University, Taiwan)

FA06 Basics on Collaborative Filtering and Recommendation System

208B, 09:10~10:40

FB01 Robust Control

206A, 13:30~15:00

FB01-1 H-infinity Performance Analysis of Singular Systems via Delta OperatorMethod 1255
Xin-zhuang Dong, MINGQING XIAO(Southern Illinois University Carbondale, United States)

FB01-2 Robust PI compensators design for FOPDT systems with large uncertainty 1261
Pedro Mercader, Alfonso Baños(University of Murcia, Spain)

FB01-3 Adaptive Sliding Mode Control for Dual Missile 1267
Seunghyun Kim, H. Jin Kim(Seoul National University, Republic of Korea)

FB01-4 Linear Quadratic Evolution Algorithm Optimizer for Model Predictive Control at Model Uncertainty 1272
Haitham Osman(King Khalid University, Saudi Arabia)

FB01-5 Modal Parametric Optimization of Control Laws with Special Structure 1278
Evgeny I. Veremey, Margarita V. Sotnikova, Vladimir V. Eremeev, Maxim V. Korovkin(Saint Petersburg State University, Russian Federation)

FB01-6 Robust L2-L∞ Filtering for Uncertain Neutral Stochastic System with Markovian Jumping Parameters and Time Delay 1284
Huasehng Tan, Mingang Hua(Hohai University, China)

FB02 Bio-systems and Process Control

206B, 13:30~15:00

FB02-1 Automatic Segmentation of Phalanges Regions in CR Images Based on MSGVF Snakes 1290
Shota Kajihara, Seiichi MURAKAMI, Hyoungseop KIM, Joo Kooi TAN, Seiji ISHIKAWA(Kyushu Institute of Technology, Japan)

FB02-2 Dynamic analysis of the spinal-pelvic motion match during feline galloping for speed increase into quadruped robotic system 1294
Young Kook Kim, Jongwon Park, Byungho Yoon, Kyung-Soo Kim, Soohyun Kim(KAIST, Republic of Korea)

FB02-3 Soft sensor design with state estimator for lipid estimation of microalgal photobioreactor system 1299
Sung Jin Yoo, Jung Hun Kim, Jong Min Lee(Seoul National University, Republic of Korea)

FB02-4 Optimal Design and Operation of an Extractive Fermentation Process for Continuous Biobutanol Production 1305
Boeun Kim, Hong Jang, Moon-Ho Eom, Jay H. Lee(KAIST, Republic of Korea)

FB02-5 Development of CAD for Zone Dividing of Process Control Networks to Improve Cyber Security 1311
Hiroki Moritani(Nagoya Institute of Technology, Japan)

FB02-6 A Conceptual Approach to Construction of Large Information Systems International 1317
Bikesh Khaidarovna Kurmangalieva, Raissa Kabievna Uskenbayeva, Abu Abdykadyrovich Kuandykov(International Information Technology University, Kazakhstan), Young Im Cho(University of Suwon, South Korea, Republic of Korea), Gulnara Umitkulovna Bektemyssova(International Information Technology University, Kazakhstan)

FB03 Robot Systems Control

207A, 13:30~15:00

FB03-1 Input shaper design using impulse-time perturbation method 1321
Chang-Wan Ha(KIMM, Republic of Korea), Keun-Ho Rew(Hoseo University, Republic of Korea), Kyung-Soo Kim(KAIST, Republic of Korea)

FB03-2 Posture Control Strategy of a Platform using a RP Manipulator 1325
M. M. Gor, P. M. Pathak(Indian Institute of Technology Roorkee, India), A. K. Samantaray(Indian Institute of Technology Kharagpur, India), J.- M. Yang(Kyungpook National University, Republic of Korea), S. W. Kwak(Keimyung University, Republic of Korea)

FB03-3 Impedance Controlled Twisted String Actuators for Tensegrity Robots 1331
In-Won Park, Vytas SunSpiral(NASA Ames Research Center, United States)

FB03-4 A Novel PID Controller Gain Tuning Method for a Quadrotor Landing on a Ship Deck using the Invariant Ellipsoid Technique 1339
Chun Kiat Tan, Jianliang Wang(Nanyang Technological University, Singapore)

FB03-5 Wheel Angular Velocity Stabilization using Rough Encoder Data 1345
Margarita V. Sotnikova, Evgeny I. Veremey, Natalia A. Zhabko(Saint-Petersburg State University, Russian Federation)

FB03-6 Consensus of Networked Multi-Agent Systems With Communication Delay Compensation 1351
Xieyan Zhang, Jing Zhang(Hunan University, China)

FB04 Statistical Inference and Data Mining

207B, 13:30~15:00

FB04-1 Movement Characteristics of Entire Bodies in Dancers' Interaction 1357
Nao Shikanai(Japan Women's University, Japan), Worawat Choensawat(Bangkok University, Thailand), Kozaburo Hachimura(Ritsumeikan University, Japan)

FB04-2 Statistical Mechanical Bayesian Inference and Its Applications 1362
Yohei Saika(Gunma National College of Technology, Japan)

FB04-3 Retrieval of Similar behavior data using Kinect Data 1368
Kenta Sakurai, WOONG CHOI(Gunma National College of Technology, Japan), Liang Li, Kozaburo Hachimura(Ritsumeikan University, Japan)

FB04-4 Tasks scheduling and resource allocation in distributed cloud environments 1373
Raissa K. Uskenbayeva, Abu A. Kuandykov(International IT University, Kazakhstan), Young I. Cho(The University of Suwon, Republic of Korea), Zhyldyz B. Kalpeyeva(K.I.Satpayev KazNTU, Kazakhstan)

FB04-5 Sparse Representation Approach to Inverse Halftoning in Terms of DCT Dictionary 1377
Toshiaki Aida, Yuhri Ohta(Okayama University, Japan)

FB05 Measurement, Control, and Systems in the Steel Industry

208A, 13:30~15:00

FB05-1 Design of a disturbance observer for discrete-time linear systems 1381
Dongyeop Kang(POSCO, Republic of Korea)

FB05-2 Estimation of Electrode Consumption using Mast Position in Electric Arc Furnace 1384
Kyuhwan Kim, Jae Jin Jeong(Pohang University of Science and Technology, Republic of Korea), Taewon Kim(Research Institute of Science and Technology, Republic of Korea), Sang Woo Kim(Pohang University of Science and Technology, Republic of Korea)

FB05-3 An edge detection algorithm for steel bar in hot rolling process 1389
JinWoo Yoo, Won Il Lee(POSTECH, Republic of Korea), NamWoong Kong, Yong-Joon Choi(POSCO, Republic of Korea), PooGyeon Park(POSTECH, Republic of Korea)

FB05-4 Development of HILS Simulator for Steering Control in Hot Strip Finishing Mill 1392
wookyong Kwon, SungBin KIm, Sangchul Won(POSTECH, Republic of Korea)

FB06 Meet the Expert: Prof. Kazerooni

208B, 13:30~15:00

FP1 Advanced Mechatronics

212&213, 16:30~18:00

FP1-1 Pose Graph SLAM-Based Displacement Estimation for a Multiple Structural Displacement Monitoring System 1395
Donghwa Lee, Haemin Jeon, Hyun Myung(KAIST, Republic of Korea)

FP1-2 Development of a Continuum Robot using Pneumatic Artificial Muscles 1401
Bong-Soo Kang, Ryeong-Hyeon Kim(Hannam University, Republic of Korea)

FP1-3 A study on methodology to improve the power factor of high power LED module 1404
Young Hwan Lho, Sang Yong Lee(Woosong University, Republic of Korea)

FP1-4 Trajectory Generation for a Car-Like Mobile Robot using Closed-Loop Prediction 1407
Byungjae Park(ETRI, Republic of Korea)

FP1-5 Design and system configuration on the radiation tumor therapy system with safe robotic arms 1411
seungho kim, Yeong Geol Bae, Kyung Min Jung, Sung Uk Lee, Hocheol Shin, Hyeonseok Na(KAERI, Republic of Korea)

FP1-6 Control of an Robotic Vehicle for Entertainment Using Vision in University Campus 1415
Seul Jung, Sungteak Cho(Chungnam National University, Republic of Korea)

FP2 Vehicle Control Systems

212&213, 16:30~18:00

FP2-1 Estimation of Vehicle clutch torque using combined sliding mode observers and unknown input observers 1418
Kyoungseok Han, Seibum Choi, Jiwon Oh(KAIST, Republic of Korea)

FP2-2 Decision Making Methods Based on Nonlinear Model Predictive Control for Emergency Collision Avoidance in Complex Situations 1424
HYUNGJUNE BAE, YEONSIK KANG(Kookmin University, Seoul, Korea, Republic of Korea)

FP2-3 Development of auto-tuning shift-pattern in Auto-cruise vehicles 1428
Hyunsub Lee, Changwoo Shin(Seoul National University, Republic of Korea), wonsik Lim(Seoul National University of science and technology, Republic of Korea), sukwon Cha(Seoul National University, Republic of Korea), Yongdal Lee, Jeongwook Kim(Hyundai-Kia motors, Republic of Korea)

FP2-4 ECU-in-the-Loop Real-Time Simulation Technique for Developing Integrated Vehicle Safety System 1432
Kyoung-Soo We, Chang-Gun Lee, Junyung Lee, Kyuwon Kim, Kyongsu Yi(Seoul National University, Republic of Korea), Jong-Chan Kim(Kookmin University, Republic of Korea)

FP2-5 Implementation of Approach to Functional Safety Compliant Brushless DC Motor Control System 1438
Ki-Ho Lee, Chanwoo Moon, Hyun-Sik Ahn(Kookmin University, Republic of Korea)

FP2-6 Development of Lateral Control System for Autonomous Vehicle Based on Adaptive Pure Pursuit Algorithm 1443
myungwook park, sangwoo Lee, wooyoung Han(ETRI, Republic of Korea)

FP2-7 Lane Confidence Assessment and Lane Change Decision for Lane-level Localization 1448
Heong-tae Kim, Ohjoon Kwon, Bongsob Song(Ajou university, Republic of Korea)

FP2-8 Integrated Risk Management for Automated Driving 1452
Junyung Lee, Beomjun Kim, Kyongsu Yi(Seoul National University, Republic of Korea)

FP3 e-Government System

212&213, 16:30~18:00

FP3-1 Overview of Seamless Mobility in Heterogeneous Wireless Networks 1458
Aray Meyrambaykizi Kassenkhan(KAZAKH NATIONAL TECHNICAL UNIVERSITY named after K. Satpaev, Kazakhstan), Raisa Kabievna Uskenbayeva(International University of Information Technologies, Kazakhstan)

FP3-2 Construction of Recognition System at the Uranium Production Process 1462
Syrymbet Iskakov(International University of Information Technologies, Kazakhstan), Gulnara Umitkulovna Bektemyssova(International Information Technology University, Kazakhstan), Cho Young Im(University of Suwon, South Korea, Republic of Korea), Ravil Muhamediyev(Information Systems Management Institute, Latvia,, Latvia), Kuandykov Abu, Alim Khamitov(International Information Technology University, Kazakhstan)

FP3-3 Multidimensional indexing structure development for the optimal formation of aggregated indicators in OLAP hypercube 1466
Nurzhan Kakenovich Mukazhanov, Raissa Kabievna Uskenbayeva(International Information Technology University, Kazakhstan), Young Im Cho(The University of Suwon, Republic of Korea), Gulnar Umitkulovna Bektemyssova(International Information Technology University, Kazakhstan), Dinara Khanatovna Kozhamzharova(Kazakh National Technical University named after K.I. Satpayev, Kazakhstan), Bikesh Kurmangalieva(International Information Technology University, Kazakhstan)

FP3-4 Main Principles of Task Distribution in Multi-Agent Systems and Defining the Basic Parameters 1471
Dinara Khanatovna Kozhamzharova(Kazakh National Technical University named after K.I. Satpayev, Kazakhstan), Raissa Kabievna Uskenbayeva, Abu Abykadyrovich Kuandykov(IITU, Kazakhstan), Young Im Cho(The University of Suwon, Republic of Korea), Olimzhon Abdukhakimovich Baimuratov(Suleyman Demirel University , Kazakhstan)

FP4 Control Theory and Applications III

212&213, 16:30~18:00

FP4-1 The Application Methods of Wireless Technology for Operating Nuclear Power Plants 1475
Songhae Ye(Korea Hydro & Nuclear Power Co.(KHNP), Republic of Korea)

FP4-2 Implementation of Fault-tolerant Architecture for Central Data Processing System in Space Center 1479
YONGTAE CHOI(Korea Aerospace Research Institute, Republic of Korea), SUNGWOONG RA(ChungNam National University, Republic of Korea)

FP4-3 On-Board Computer Design & Implementation for Korean LEO Satellites 1484
Lee Yun Ki(KARI (Korea Aerospace Research Institute), Republic of Korea), Kim Ji Hoon(Chungnam National University, Republic of Korea)

FP4-4 Applicability test on black-box testing tool of railway signaling system in consideration of the convenience of use 1489
Jong-Gyu Hwang, Jong-Hyun Baek, Kam-Mi Lee, Hyun-Jeong Jo(Korea Railroad Research Institute, Republic of Korea)

FP4-5 Global Dynamic Neuroadaptive Tracking Control of Strict-Feedback Systems 1496
Jeng-Tze Huang(Chinese Culture University, Taiwan)

FP4-6 Part-based Face Detection using SLBP 1501
Jeonghyun Baek, jisu kim, Euntai Kim(Yonsei University, Republic of Korea)

FP4-7 T-S Fuzzy H_infinity Control of IPMSM Using Weighted Integral 1504
Seungkyu Park, Hokyun Ahn(Changwon National University, Republic of Korea)

FP4-8 The Semantic Alignment of H-FOAF, DOMAIN and 1508
syed hassan(GNU, Sweden), Abid Fareedi(Jonkoping university, Sweden)

FP4-9 THE IMPACT OF SOCIAL MEDIA NETWORKS ON HEALTHCARE PROCESS KNOWLEDGE MANAGEMENT (USING OF SEMANTIC WEB PLATFORMS) 1514
syed hassan(GNU, Sweden), abid fareedi(Jonkoping University, Sweden)

FP5 Controls in Industry and Practice III

212&213, 16:30~18:00

FP5-1 A Modular DC-DC Converter with Zero Voltage Switching Capability 1520
Seyed Hossein Hosseini, Farzad Sedaghati, Mehran Sabahi(University of Tabriz, Iran, Islamic Republic of), Gevorg Gharehpetian(Amirkabir University of Technology, Iran, Islamic Republic of)

FP5-2 Closed-Form Formulas for Continuous/Discrete-Time PID Controllers' Parameters 1526
Thanit Trisuwannawat, Numchai Narkvitul, Prapart Ukakimaparn(King Mongkut's Institute of Technology Ladkrabang (KMITL), Thailand)

FP5-3 Estimation of Burn-Through Point in the Sinter Process 1531
JIWUNG JEONG, Bo-Ram Kim, Kang-Bak Park(Korea University, Republic of Korea), Dongchang Han, Keonho Hwang, Jongjun Lee, Jaejun Lee(Hyundai Rotem Company, Republic of Korea)

FP5-4 Integration of the Microalgae Droop Model with the Metabolic Network System for Biodiesel Production 1534
Minkyu Jeon, Boeun Kim, Min-Gyu Sung, Jay H. Lee(Korea Advanced Institute of Science and Technology, Republic of Korea)

FP5-5 Arrangement of array microphones for hearing aids based on delay-weight-sum beamforming methods 1540

Jihyeon Jeong(KAIST, Republic of Korea)

FP5-6 Analog Filter Circuits Feature Selection Using MRMR and SVM 1543
Yongkui Sun, Lei Ma, Na Qin, Meilan Zhang, Qianyong Lv(Southwest Jiaotong University, China)

FP5-7 The Development of System of Accommodation To Faults of Navigation Sensors of Underwater Vehicles with Resistance to Disturbance 1548
Aleksander Protcenko(Far Eastern Federal University, Russian Federation)

FP5-8 Mobile Anchor Assisted Distributed Localization for Wireless Sensor Networks with Holes 1554
Longfei Wen, Fenxi Yao, Guang Ye, Lingguo Cui, Baihai Zhang(Beijing Institute of Technology, China)

FP5-9 Extended Virtual Force-Based Coverage Scheme for Heterogeneous Wireless Sensor Networks 1560
Guang Ye, Baihai Zhang, Longfei Wen, Senchun Chai, Lingguo Cui, Jun Li(Beijing Institute of Technology, China)

FP5-10 An Enhanced Histogram Specification Method Using Multiresolution 1565
Kang su-min, Huh Kyung-Moo(Dankook University, Republic of Korea), Joo Young-Bok(Korea University of Technology & Education, Republic of Korea), Park Se-Hyuk(Dankook University, Republic of Korea)

FP5-11 Fuzzy-EKF for the Mobile Robot Localization Using Ultrasonic Satellite 1571
Haiyun Wang(Inha University, Republic of Korea)

FP5-12 High Resolution Time Delay Estimator of Transient Detection Using Non-Uniform Sampling Model Based Parameter Estimator 1576
Songkord Thirachai(National Electronics and Computer Technology Center, NECTEC, Thailand), Sunisa Sornmuang(National Electronics and Computer Technology Center, Thailand), Jittiwut Suwatthikul(National Electronics and Computer Technology Center, NECTEC, Thailand)

FP5-13 Vibration Adaptive Vision Inspection System 1581
Kap-Ho Seo(Korea Institute of Robot and Convergence, Republic of Korea)

FP6 Robotics and Systems III

212&213, 16:30~18:00

FP6-1 Playing Alkagi with a Humanoid Robot 1587
JOONSIG GONG, Songhwai Oh(Seoul National University, Republic of Korea)

FP6-2 Portable Serial Robot Manipulator with Distributed Actuation Mechanism 1590
Sung-Hwan Kim, Byungho Yoon, Ho Ju Lee, Soohyun Kim, Kyung-Soo Kim(KAIST, Republic of Korea), Jong Cheol Kim, Tae Yang Noh(Hyundai Heavy Industries, Republic of Korea)

FP6-3 Mechanism and kinematic analysis of a robotic gadget for assisting hand movements of persons with severe disabilities to promote their community participation 1594
Seungmin Jung, Kwangok An(Korea National Rehabilitation Center, Ministry of Health & Welfare, Republic of Korea), Jongbae Kim(Yonsei University, Republic of Korea), Hyungsik Kim(Korea National Rehabilitation Center, Ministry of Health & Welfare, Republic of Korea)

FP6-4 Design of Mobile Robot for Real World Application in Path Planning Using ZigBee Localization 1600
Natthapol Watthanawisuth, Adisorn Tuantranont(National Electronics and Computer Technology Center Pathumthani, Thailand, Thailand), Teerakiat Kerdcharoen(Faculty of Science, Mahidol University, 272 Rama 6 Rd, Ratchatawee, Bangkok 10400, THAILAND, Thailand)

FP6-5 Soil sensing survey robots based on electronic nose 1604
Teerakiat Kerdcharoen, Theerapat Pobkrut(Faculty of Science, Mahidol University, 272 Rama 6 Rd, Ratchatawee, Bangkok 10400, THAILAND, Thailand)

FP6-6	Development of the Portable Two-Wheeled Inverted Pendulum Type Personal Vehicle *Hiroki Hata, Takashi Takimoto(Kitakyushu National College of Technology, Japan)*	1610
FP6-7	Development of a walking algorithm for stair formed obstacle for the Hexapod Walking Robot LCR200 *Won-Suk Ji, Baek-Kyu Cho(Kookmin University, Republic of Korea)*	1614
FP6-8	A Novel Steering Sections of Hybrid Rotary Steerable System for Directional Drilling *Jong Heon Kim, Hyun Myung(KAIST, Republic of Korea)*	1617
FP6-9	Reaction Force based Grasping Position Estimation of Multi-Teleoperated Robots for Pipe Installation in Offshore Plants *Sunghoon Eom, Seungyeol Lee, Deajin Kim, Dongbin Shin, Jeon Il Moon(Daegu Gyeonbuk Institute of Science & Technology, Republic of Korea)*	1620
FP6-10	Development of an Unmanned Autonomous Flying Wing for Aerial Observations *Takumi Fukuda, Takashi Takimoto(Kitakyushu National College of Technology, Japan)*	1623
FP6-11	Development of Flying Observation System with Helium gas balloon and Tilt rotors *Satoshi Kubo, akinori sakaguchi, Takashi Takimoto(Kitakyushu National College of Technology, Japan)*	1627
FP6-12	Study on Ellipse Fitting Problem for Vision-based Autonomous Landing of an UAV *Youeyun Jung(Korea Advanced Institute of Science and Technology, Republic of Korea), Dongjin Lee(Hanseo University, Republic of Korea), Hyochoong Bang(Korea Advanced Institute of Science and Technology, Republic of Korea)*	1631
FP6-13	Wake Modeling and Simulation of Tilt Rotor UAV Shipboard Landing *Changsun Yoo(Korea Aerosapce Research Institute, Republic of Korea)*	1635
FP6-14	A Study on Energy Application of electric Train *Hanmin Lee, Donguk Jang, Jaisung Hong(Korea Railroad Reserach Institute, Republic of Korea)*	1640
FP6-15	When path tracking using look-ahead distance about the lateral error method and the velocity change method tracking comparison *Jun Beom Park(Kookmin universidy, Republic of Korea)*	1643
FP6-16	Unmanned ground vehicle for driving based global path Is Lateral avoidance path planning *Jo sungwook(kookmin university, Republic of Korea)*	1648
FP6-17	Development of armour stone covering robots for breakwater construction *Min Ki Lee(Chang Won National University, Republic of Korea), Chi Hyo Kim(Changwon National University, Republic of Korea)*	1652
FP6-18	Underwater Construction Robot for rubble leveling on the seabed for port construction *Min Ki Lee(Chang Won National University, Republic of Korea), Tae Sung Kim(Changwon National University, Republic of Korea)*	1657