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FA06-5	<a href="#">Sensor-based Navigation Algorithm for Car-like Robot to Generate Completed GVG</a> Quan Yuan, Changsoo Han and Ji Yeong Lee	1442

## FA07 : [OS] Intelligent System

FA07-1	<a href="#">Calibration of Accelerometer using Fuzzy Inference System</a> Seungbeom Woo, Jaeyong Kim, Jungmin Kim and Sungshin Kim	1448
FA07-2	<a href="#">NCTF-EMRAN Control Method for a Two-Mass Rotary Positioning Systems</a> mohd fitri mohd yakub and Andika Aji Wijaya	1451
FA07-3	<a href="#">An EEG Signals Classification System using Optimized Adaptive Neuro-Fuzzy Inference Model based on Harmony Search Algorithm</a> Kwang-Eun Ko and Kwee-Bo Sim	1457
FA07-4	<a href="#">Stabilization of Polynomial Fuzzy Large-Scale System : Sum-of-Square Approach</a> Han Sol Kim, Jin Bae Park and Young Hoon Joo	1462
FA07-5	<a href="#">Research on the simulation of coupled dynamic model of air conditioning system</a> Noriomi Okazaki, Kunio Mizutani and Haeyoung Kim	1467
FA07-6	<a href="#">Study on Food Safety Emergencies Knowledge Acquisition and Representation on Ontology</a> Yuehua Yang, Junping Du, Zengqi Sun and Yingmin Jia	1470

## FP01 : Robot Vision Algorithm

FP01-1	<a href="#">HYBRID OBJECT DETECTION USING IMPROVED GAUSSIAN MIXTURE MODEL</a> Ahmad Fakharian, Saman Hosseini and Thomas Gustafsson	1475
FP01-2	<a href="#">What Does Ground Tell Us? Monocular Visual Odometry with Planar Motion Constraint</a> Sunglok Choi, Ji Hoon Joung, Wonpil Yu and Jae-II Cho	1480
FP01-3	<a href="#">A Technique of Camera Calibration using Single View</a> Kaset Sirisantisamrid, Kittitiraseseth and Takenobu Matsuura	1486
FP01-4	<a href="#">Towards robust Room Structure Segmentation in Manhattan-like</a> Sven Olufs and Markus Vincze	1491

## FP02 : [OS] Evolutionary and Autonomous Multi-Robot System and its Applications

FP02-1	<a href="#">Human Position Estimation in Intelligent Space for an Active Information Display</a> Ahn JaeHyun, Lee Jeong-Eom, Kim Joo-Hyung, Kim Sang-Jun, Lee Joo-Ho and Park Gwi-Tae	1497
FP02-2	<a href="#">Motion Primitives for Designing Flexible Gesture Set in Human-Robot Interface</a> Suwon Shon, Jounghoon Beh, Cheoljong Yang, David Han and Hanseok Ko	1501
FP02-3	<a href="#">Back Propagation Neural Network Based Real-Time Self-Collision Detection Method for Humanoid Robot</a> Jiyong Son, Hwan-Joo Kwak and Gwi-Tae Park	1505
FP02-4	<a href="#">Evolved Humanoid Robot Walking</a> Dong W. Kim	1509
FP02-5	<a href="#">Grey Neural Network-Based Forecasting System for Vision-Guided Robot Trajectory Tracking</a> Shih-Hung Yang, Chung-Hsien Chou, Chen-Fang Chung, Wen-Pang Pai, Tse-Han Liu, Yung-Sheng Chang, Jung-Che Li, Huan-Chan Ting and Yon-Ping Chen	1512

## FP03 : [OS] Recent Advances in Process Simulation, Identification and Control

FP03-1	<a href="#">Parameter estimation and optimization of a PSA process for CO2 capture</a>	1518
	Wangyun Won, Seongjun Hwang and Kwang Soon Lee	
FP03-2	<a href="#">Simple High-order Approximations for Unsteady-state Diffusion, Adsorption and Reaction</a>	1523
	Jietae Lee and Dong Hyun Kim	
FP03-3	<a href="#">Development of Liquid Level Control System Using Web Cam</a>	1527
	Jietae Lee and YoungHoon Na	
FP03-4	<a href="#">Tuning IMC-PID for first order plus time delay under stochastic perturbation</a>	1529
	Trung Duong Pham Luu and Moonyong Lee	
FP03-5	<a href="#">Analytical Tuning Rules for Fractional Order Proportional Integral Controllers</a>	1534
	TRUONG NGUYEN LUAN VU and Lee Moonyong	

## FP04 : Identification and Estimation

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	Dan Fan and Guiming Luo	
FP04-2	<a href="#">System Identification for an Autonomous Quadrotor using Extended and Unscented Kalman Filter</a>	1546
	Rini Akmeiliawati, Norafizah Abas and Ari Legowo	
FP04-3	<a href="#">A New Metric for Measuring the Distance Between Two Linear Systems</a>	1552
	SeyedMehrdad Hosseini, Alireza Fatehi and Ali Khakisedigh	
FP04-4	<a href="#">On cycle time approximations for the failure prone G/G/m queue: Theoretical justification of a practical approximation</a>	1558
	Woo-sung Kim and James Morrison	
FP04-5	<a href="#">Parametric identification of handwriting system based on RLS algorithm</a>	1564
	Ines CHIHI, Chekib Ghorbel, Afef ABDELKRIM and Mohamed BENREJEB	
FP04-6	<a href="#">Adaptive Parameter Identification Based on Dead-Time Compensation for Permanent Magnet Synchronous Machines</a>	1570
	Xiao Li, Tao Wang and Wei Fan	

## FP05 : [OS] Advanced Fluid Power System

FP05-1	<a href="#">Identification of a Pneumatic Actuator using Non-linear Black-Box Model</a>	1576
	THANH TRUNG NGUYEN, QUANG TRUONG DINH and KYOUNG KWAN AHN	
FP05-2	<a href="#">Experimental Investigation of a Vibration Isolation System Using Negative Stiffness structure</a>	1582
	Thanh Danh Le and Kyoung Kwan AHN	
FP05-3	<a href="#">Synchronization algorithm for controlling 3-R planar parallel pneumatic artificial muscle robot</a>	1588
	Khoa Le and Kyoung Kwan Ahn	
FP05-4	<a href="#">A study on a Closed-loop Hydraulic Braking Energy Regeneration System driven by A Sliding Mode Controller</a>	1594
	HOANG THINH DO and Kyoung Kwan Ahn	
FP05-5	<a href="#">A Study on Wave Energy Harvesting Using Hydrostatic</a>	1600
	HUU TIEN HOANG, QUANG TRUONG DINH and KYOUNG KWAN AHN	
FP05-6	<a href="#">Design of a Modified Grey Model MGM(1,1) for Real-Time Control of Wave Energy Converters</a>	1606
	QUANG TRUONG DINH, Kyoung Kwan Ahn, JONG IL YOON and CHEON KIM	

## FP06 : [OS] Navigation Technology and Application

FP06-1	<a href="#">Fast acquisition method for GPS L1/L2C software receivers</a>	1612
	Duk-Sun Shim and Keum-Cheol Kwon	
FP06-2	<a href="#">GPS Spoofing Signal Detection and Compensation Method in DGPS Reference Station</a>	1616
	Mi Hyun Jin, Young Hoon Han, Heon Ho Choi, Moon-Beom Heo, Chansik Park and Sang Jeong Lee	
FP06-3	<a href="#">Verification of eLORAN Compensation Method using Raw Measurements</a>	1620
	Se Phil Song, Heon Ho Choi, Young-Baek Kim, Sang Jeong Lee and Chansik Park	
FP06-4	<a href="#">NCO Command Generator Design for the Ultra-Tightly Coupled GPS/INS Integrated Navigation System</a>	1625
	Moon Suk Koo, Hyun-min Ji, Deok Won Lim, Sang Heon Oh and Dong-Hwan Hwang	
FP06-5	<a href="#">IMM Range Estimator Design for Uncertainly Delayed Measurements</a>	1631
	ICK-HO WHANG, SUNGJIN CHO and DONG-KYUN CHOE	

## FP07 : [OS] Intelligent System

FP07-1	<a href="#">Implementation of Laser Navigation System using Particle Filter</a>	1636
	Eunkook Jung, Hyunhak Cho, Joocheol Do, Jungmin Kim and Sungshin Kim	
FP07-2	<a href="#">Sampled-data fuzzy observer design of nonlinear system for wave energy converter</a>	1639
	Geun Bum Koo, Jin Bae Park and Young Hoon Joo	
FP07-3	<a href="#">Optimization System of Musical Expression for the Music Genre Classification</a>	1644
	Seung-Min Park, Junheong Park and Kwee-Bo Sim	
FP07-4	<a href="#">Stabilization of Takagi-Sugeno Fuzzy Interconnected Systems with Imperfect Premise Matching</a>	1649
	Ho Jun Kim, Jin Bae Park and Young Hoon Joo	
FP07-5	<a href="#">A New Stability Region Analysis of Continuous-Time Takagi-Sugeno Fuzzy Systems Using Fuzzy Lyapunov Functions</a>	1652
	Dong Hwan Lee, Jin Bae Park and Young Hoon Joo	
FP07-6	<a href="#">Evaluation and parametric study of LMS algorithms family for active noise control barriers</a>	1656
	Andrey Troshin and SangGon Cha	

## FEP : Interactive Session III (15:00~16:00)

FEP-1	<a href="#">Semi-globally Exponential Stability of BTB STATCOM System</a>	1660
	Young Ok Lee and Chung Choo Chung	
FEP-2	<a href="#">Desing and Control of Lightweight Static Inverter for EMU</a>	1666
	Jeongmin Jo, Youngjae Han, Changyoung Lee, Hyunseung Jeong and Sangyoung Jeong	
FEP-3	<a href="#">Power usage pattern and consumption separation method by load devices based on remote metering system's Load profile data</a>	1669
	Sun Ic Kim, Hae Soon Kim, Yong Jae Joo and Jihyun Kim	
FEP-4	<a href="#">A Study of Train Power Consumption Pattern of Tilting Train</a>	1672
	Su-Gil Lee	
FEP-5	<a href="#">Multichannel Current Control of LED Light for Large Area Solar Simulator</a>	1675
	kyungchan Jin	
FEP-6	<a href="#">A NEURAL NETWORK APPROACH TO COLOR CONSTANCY (ICCAS 2011)</a>	1678
	MIN HWANG	
FEP-7	<a href="#">Design of T-S Fuzzy-Model-Based Controller for Depth Control of Autonomous Underwater Vehicles with Parametric Uncertainties</a>	1682
	Sung Woo Jun, Do Wan Kim and Ho Jae Lee	

FEP-8	<a href="#">Experiment of Thrust Characteristic of a Robot Fish Swimming</a> Dongwon Yun, Jinho Kyung, Chanhun Park, Yijun Yu and Sunghee Lee	1685
FEP-9	<a href="#">Welding on the Fly using Laser Scanner and Robot</a> HeeShin Kang, Jeong Suh and SungJo Kwak	1688
FEP-10	<a href="#">Development of a Mobile Manipulator using Robotic Intelligent Components</a> Young-Ho Choi, Jung-Woo Lee, Jin-Ho Suh, Suk-Joong Kim and Sung-Ho Hong	1692
FEP-11	<a href="#">Wearable Robotic System Using Hydraulic Actuator</a> Kyoung Taik Park and Han Me Kim	1697
FEP-12	<a href="#">Design Consideration for Shock-Absorbing Spring at the Tail of Firefighter-Assistive Robot</a> Dong-Hwan Shin, Jinung An and Yong-Soo Kang	1702
FEP-13	<a href="#">Motion Save and Play Function Realization of the Robotic Follow Spot</a> JeHun Yoo and IIIWoo Park	1706
FEP-14	<a href="#">Remote Modular Design for a Bridge Transported Dual Arm Servo-Manipulator Applied in Pyroprocessing Facility</a> Byung Suk Park	1708
FEP-15	<a href="#">Vision Tracking Realization of a Robotic Follow Spot System</a> JeHun Yoo and IIIWoo Park	1712
FEP-16	<a href="#">Development of DSP-based control system for master-slave manipulation</a> Jong Kwang Lee, Byung Suk Park and Kiho Kim	1714
FEP-17	<a href="#">Robust Detection System of a Bolt Hole using Template Matching and Feature based Matching</a> Yung Hak Mo	1718
FEP-18	<a href="#">Development of Plating System having Current Control Type Power Supply Module using High Pulse Width Control for Printed Circuit Board Plating</a> MYUNGJIN CHUNG	1720
FEP-19	<a href="#">Process Modeling of an Entrained flow Coal Gasifier</a> Mi Yeong Kim and Ui Sik Kim	1724
FEP-20	<a href="#">Design of Instrumentation and Control System for Research Reactors</a> Gee-Yong Park	1728
FEP-21	<a href="#">Multiple Mobile Robot Path Planning for Rollover Prevention and Collision Avoidance</a> Jae Byung Park	1732
FEP-22	<a href="#">Development of LabVIEW Programs for Simulating Resonator Gyros</a> Jaehyun Jin and Huinam Rhee	1735
FEP-23	<a href="#">Aided Navigation Using Invariant State Error</a> Sang Man Seong	1738
FEP-24	<a href="#">Applying HOG Feature to the Detection and Tracking of a Human on a Bicycle</a> HEEWOOK JUNG, JOO KOOI TAN and SEIJI ISHIKAWA	1740
FEP-25	<a href="#">Extraction of Individual Pedestrians Employing Stereo Camera Images</a> Mitsuhisa Kawabe, Joo Kooi Tan, Hyoungseop Kim and Seiji Ishikawa	1744
FEP-26	<a href="#">Detection of Pedestrians Employing a Wide-angel Camera</a> Ryuichi Matsuda, Joo Kooi Tan, Hyoungseop Kim and Seiji Ishikawa	1748
FEP-27	<a href="#">Moving Objects Detection at an Intersection by Sequential Background Extraction</a> Shinichiro Sonoda, Joo Kooi Tan, Hyoungseop Kim and Seiji Ishikawa	1752
FEP-28	<a href="#">A Study on Ship's Autopilot System for a Small Boat</a> Toshihiko Nakatani, Makoto Endo, Keiji Sasaya, Takashi Miwa, Hiroshi Mikami, Taizo Kaneda, Emi Kanayama and Erika Ura	1756

## FE01 : Stereo Vision & 3D Measurement

FE01-1	<a href="#">Hardware Architecture Design for Vehicle Detection Using a Stereo Camera</a> Jungdong Jin, Dongkyun Kim, JI HO SONG, Vinh Dinh Nguyen and Jae Wook Jeon	1761
FE01-2	<a href="#">Dual camera based wide-view imaging system and real-time image registration algorithm</a> Seung Hyun Lee, Jae Hong Lee and Min Young Kim	1766
FE01-3	<a href="#">A Navigation System for Service Robot using Stereo Vision and Kalman Filtering</a> widodo budiharto	1771
FE01-4	<a href="#">Development of a Multi-Line Laser Sensor Based Robotic 3D Measurement System</a> Dong Gi Woo, Jong-Kyu Oh, Chan-Ho Lee, Sang-Hun Lee and Sung-Hyun Jung	1777

## FE02 : [OS] Rehabilitation Mechatronics

FE02-1	<a href="#">A Study of Knee Brace Locking Timing and Walking Pattern Detected from an FSR and Knee Joint Angle</a> sangchan moon, soongeul Lee and chaehyeok lee	1783
FE02-2	<a href="#">Two-legged Stair-Climbing Wheelchair and Its Stair Dimension Measurement Using Distance Sensors</a> Young-bong Bang, Chang-hyuk Lee, Je-hong Yoo, In-su Kim and Kyungmin Lee	1788
FE02-3	<a href="#">Motion Analysis of Mother's Embracing and Rocking a Baby and Development of Excitation Apparatus</a> Kohei Yamaguchi and Yoshifumi Morita	1792
FE02-4	<a href="#">Lightweight Prosthetic Hand with Five Fingers using SMA Actuator</a> Sungyoon Jung, Juhwan Bae and Inhyuk Moon	1797

## FE03 : [OS] Model Predictive Control

FE03-1	<a href="#">Delta-operator based adaptive MPC for an MCFC system</a> June Ho Cho, Huiyong kim, Kwang Soon Lee, Simkyun Yook and Wonhee Jung	1801
FE03-2	<a href="#">Model Predictive Control and Dynamic Programming</a> Jay Lee	1807
FE03-3	<a href="#">Robust MPC for Input Constrained Uncertain Systems with Nonzero Reference State</a> Jae Sik Lim, Kim Jung-Su and Lee Young Il	1810
FE03-4	<a href="#">Robust Nonlinear Model Predictive Control via Approximate Value Function</a> Jong Min Lee and Yu Yang	1816
FE03-5	<a href="#">Design of Extended Simplified Decoupling for Multivariable Processes</a> TRUONG NGUYEN LUAN VU and Moonyong Lee	1822

## FE04 : Delayed System

FE04-1	<a href="#">Further Enhancement of Delay-Range-Dependent Stability Criteria for Systems with Time-Varying Delays</a> Jeong Wan Ko, SangMok Jung and PooGyeon Park	1828
FE04-2	<a href="#">Leader-following Consensus Criteria for Multi-agent Systems with Time-delay and Static Interconnection Topology</a> Park Myeongjin, Kwon Ohmin, Park Juhyun and Lee Sangmoon	1833
FE04-3	<a href="#">Synchronization of a time-varying delayed complex dynamical network with nonidentical nodes and free coupling matrix</a> Tae Hee Lee, Ju Hyun Park, Oh Min Kwon and Sang Moon Lee	1837
FE04-4	<a href="#">BIBO Stability of Fractional Delay Systems in the Parametric Space of Delays</a> Mohammad Haeri, Afshin Mesbahi and Hamid Reza Nasiri	1841
FE04-5	<a href="#">The Control of Nonlinear Thermal System with Large Delay Time Using Feedback</a>	1846

Seiyed Hamid Zareh, Ali fellah Jahromi and Amir Ali Khayyat

- FE04-6 [Some Remarks on the Fragility of Smith Predictors used in Haptics](#) 1851  
Bogdan Liacu, Irinel-Constantin Morarescu, Claude Andriot, Silviu Niculescu, Didier Dumur, Patrick Boucher and Frederic Colledani

## FE05 : [OS] Smart Actuator

- FE05-1 [Identification of Ionic Polymer Metal Composite Actuator Employing fuzzy NARX model and Particle Swam Optimization](#) 1857  
NAM DOAN NGOC CHI, KYOUNG KWAN AHN, JONG IL YOON and TRUONG DINH QUANG
- FE05-2 [Force-Sensorless Damping Control for Damping Systems using MR Dampers](#) 1862  
QUANG TRUONG DINH and KYOUNG KWAN AHN
- FE05-3 [Design of a Human-Robot Cooperative Robot Manipulator using SMART Actuators](#) 1868  
Chanun Park
- FE05-4 [Implementation of Multi-axis Smart Driver System via EtherCAT Network based on IEC61800 standard](#) 1871  
JU KYUNG LEE, YOUNG HUN SONG, SUK LEE, KYUNG CHANG LEE and YOUNG JIN LEE

## FE06 : [OS] Spacecraft Guidance and Control

- FE06-1 [Feasibility Study & System Conceptual Design for the Spherical Actuator](#) 1875  
Geeyong Park, Hyungjoo Yoon, Dae-kwan Kim, Ki-Lyuk Yong and Sergei E. Petrov
- FE06-2 [A Control Strategy for Hemispherical Resonator Gyros Using Feedback Linearization](#) 1880  
Jaehwan Pi, Hyunsam Myung and Hyochoong Bang
- FE06-3 [Mass Property Estitmtation of Gyroless Spacecraft](#) 1884  
Sujang Jo and Hyochoong Bang
- FE06-4 [Spacecraft Dynamics and Control Simulation System based on LabVIEW Software](#) 1888  
Jaehyun Jin
- FE06-5 [UKF Based On-Orbit Gyro and Magnetometer Bias Estimation as a part of the Attitude Determination Procedure for a Small Satellite](#) 1891  
Halil Ersin Soken and Shin-ichiro Sakai

## FE07 : [OS] Intelligent System

- FE07-1 [Modeling and Altitude Control of Quad-Rotor UAV](#) 1897  
Keun Uk Lee, Young Hun Yun, Wook Chang, Jin Bae Park and Yoon Ho Choi
- FE07-2 [Adaptive Fault Tolerant Observer for Linear System with Separated and Disturbance](#) 1903  
Seung Jin Jang, Sin Ho Lee, Jin Bae Park and Yoon Ho Choi
- FE07-3 [A Soft Computing Approach for Collision Risk Assessments](#) 1908  
Seongkeun Park, Bumseong Kim, Baehoon Choi, Euntai Kim, Heejin Lee and Hyungjin Kang
- FE07-4 [Multiple Objects Recognition system for Intelligent Vehicle System using 24GHz Radar](#) 1911  
Baehoon Choi, Heesung Lee and Euntai Kim
- FE07-5 [Application of Instantaneous Frequency Estimation of Sweep Signal for](#) 1915  
Chun Ku Lee, Ki Seok Kwak, Tae Sung Yoon and Jin Bae Park
- FE07-6 [Adaptive Control Approach for Improving Control Systems with Unknown Backlash](#) 1919  
Jaemin Sung, Byoung Soo Kim, Kwang-Ho Han and Gi-Ok Koh