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FEP-2	Desing and Control of Lightweight Static Inverter for EMU	1666
	Jeongmin Jo, Youngjae Han, Changyoung Lee, Hyunseung Jeong and Sangyoung Jeong	
FEP-3	Power usage pattern and consumption separation method by load devices based on remote metering system's Load profile data	1669
	Sun Ic Kim, Hae Soon Kim, Yong Jae Joo and Jihyun Kim	
FEP-4	A Study of Train Power Consumption Pattern of Tilting Train	1672
	Su-Gil Lee	
FEP-5	Multichannel Current Control of LED Light for Large Area Solar Simulator	1675
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FEP-6	A NEURAL NETWORK APPROACH TO COLOR CONSTANCY (ICCAS 2011)	1678
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FEP-7	Design of T-S Fuzzy-Model-Based Controller for Depth Control of Autonomous Underwater Vehicles with Parametric Uncertainties	1682
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FEP-8	Experiment of Thrust Characteristic of a Robot Fish Swimming Dongwon Yun, Jinho Kyung, Chanhun Park, Yijun Yu and Sunghee Lee	1685
FEP-9	Welding on the Fly using Laser Scanner and Robot HeeShin Kang, Jeong Suh and SungJo Kwak	1688
FEP-10	Development of a Mobile Manipulator using Robotic Intelligent Components Young-Ho Choi, Jung-Woo Lee, Jin-Ho Suh, Suk-Joong Kim and Sung-Ho Hong	1696
FEP-11	Wearable Robotic System Using Hydraulic Actuator Kyoung Taik Park and Han Me Kim	1697
FEP-12	Design Consideration for Shock-Absorbing Spring at the Tail of Firefighter-Assistive Robot Dong-Hwan Shin, Jinung An and Yong-Soo Kang	1702
FEP-13	Motion Save and Play Function Realization of the Robotic Follow Spot JeHun Yoo and IlWoo Park	1706
FEP-14	Remote Modular Design for a Bridge Transported Dual Arm Servo-Manipulator Applied in Pyroprocessing Facility Byung Suk Park	1708
FEP-15	Vision Tracking Realization of a Robotic Follow Spot System JeHun Yoo and IlWoo Park	1712
FEP-16	Development of DSP-based control system for master-slave manipulation Jong Kwang Lee, Byung Suk Park and Kiho Kim	1714
FEP-17	Robust Detection System of a Bolt Hole using Template Matching and Feature based Matching Yung Hak Mo	1718
FEP-18	Development of Plating System having Current Control Type Power Supply Module using High Pulse Width Control for Printed Circuit Board Plating MYUNGJIN CHUNG	1720
FEP-19	Process Modeling of an Entrained flow Coal Gasifier Mi Yeong Kim and Ui Sik Kim	1724
FEP-20	Design of Instrumentation and Control System for Research Reactors Gee-Yong Park	1728
FEP-21	Multiple Mobile Robot Path Planning for Rollover Prevention and Collision Avoidance Jae Byung Park	1732
FEP-22	Development of LabVIEW Programs for Simulating Resonator Gyros Jaehyun Jin and Huinam Rhee	1735
FEP-23	Aided Navigation Using Invariant State Error Sang Man Seong	1738
FEP-24	Applying HOG Feature to the Detection and Tracking of a Human on a Bicycle HEEWOOK JUNG, JOO KOOI TAN and SEIJI ISHIKAWA	1740
FEP-25	Extraction of Individual Pedestrians Employing Stereo Camera Images Mitsuhisa Kawabe, Joo Kooi Tan, Hyoungeop Kim and Seiji Ishikawa	1744
FEP-26	Detection of Pedestrians Employing a Wide-angel Camera Ryuichi Matsuda, Joo Kooi Tan, Hyoungeop Kim and Seiji Ishikawa	1748
FEP-27	Moving Objects Detection at an Intersection by Sequential Background Extraction Shinichiro Sonoda, Joo Kooi Tan, Hyoungeop Kim and Seiji Ishikawa	1752
FEP-28	A Study on Ship's Autopilot System for a Small Boat 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	Hardware Architecture Design for Vehicle Detection Using a Stereo Camera Jungdong Jin, Dongkyun Kim, JI HO SONG, Vinh Dinh Nguyen and Jae Wook Jeon	1761
FE01-2	Dual camera based wide-view imaging system and real-time image registration algorithm Seung Hyun Lee, Jae Hong Lee and Min Young Kim	1766
FE01-3	A Navigation System for Service Robot using Stereo Vision and Kalman Filtering widodo budiharto	1771
FE01-4	Development of a Multi-Line Laser Sensor Based Robotic 3D Measurement System Dong Gi Woo, Jong-Kyu Oh, Chan-Ho Lee, Sang-Hun Lee and Sung-Hyun Jung	1777

FE02 : [OS] Rehabilitation Mechatronics

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

FE03 : [OS] Model Predictive Control

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

FE04 : Delayed System

FE04-1	Further Enhancement of Delay-Range-Dependent Stability Criteria for Systems with Time-Varying Delays Jeong Wan Ko, SangMok Jung and PooGyeon Park	1828
FE04-2	Leader-following Consensus Criteria for Multi-agent Systems with Time-delay and Static Interconnection Topology Park Myeongjin, Kwon Ohmin, Park Juhyun and Lee Sangmoon	1833
FE04-3	Synchronization of a time-varying delayed complex dynamical network with nonidentical nodes and free coupling matrix Tae Hee Lee, Ju Hyun Park, Oh Min Kwon and Sang Moon Lee	1837
FE04-4	BIBO Stability of Fractional Delay Systems in the Parametric Space of Delays Mohammad Haeri, Afshin Mesbahi and Hamid Reza Nasiri	1841
FE04-5	The Control of Nonlinear Thermal System with Large Delay Time Using Feedback	1845

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 Estitimation 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