

2009 IEEE International Conference on Industrial Technology

(ICIT)

**Churchill, Victoria, Australia
10 – 13 February 2009**

Pages 1-505



**IEEE Catalog Number: CFP09CIT-PRT
ISBN: 978-1-4244-3506-7**

TABLE OF CONTENTS

A New ZVZCS Isolated DC-DC Converter	1
<i>K. Rahimi, A.N. Motlagh, M. Pakdel</i>	
Performance Evaluation of the Ultra High-Speed Synchronous Arbitration for Transient Pixels' Events	6
<i>A.N. Belbachir, M. Hofstatter, M. Litzenberger, P. Schon</i>	
Wheel-Rail Contact Parameters Estimation for a Conical Solid-Axle Railway Wheelset Using Least-Absolute Error with Variable Forgetting Factor Method	10
<i>H. Selamat, R. Yusof</i>	
Workflow for Automotive Test Data Analysis Based on Petri Nets and Stored by ASAM ODS	16
<i>R. Bartz</i>	
Power-Assist Control Switching from Adaptive Nonstationary Servo Control to Force Sensorless Nonstationary Impedance Control	22
<i>S. Hara, Y. Yamada, S. Lee</i>	
A TDMA-based Protocol and Implementation for Avoiding Inter-Cluster Interference of Wireless Sensor Network	28
<i>X. Zhuang, Y. Yang, W. Ding</i>	
Nanohandling Automation as an Emerging Industrial Technology	34
<i>S. Fatikow, T. Wich, C. Dahmen, M. Jahnisch, C. Stolle, V. Eichhorn</i>	
The Adaptive Algorithm in Turbo-OFDM Based on the Interactive Channel Estimation	40
<i>Y. Luo, G. Wan, D. Dong</i>	
Application of Fresnel Equations to Improve Interface Reflection of Inclined Exposure and Develop Micro-Mirrors for Blu-ray DVDs	44
<i>K. Hung, P. Wu, T. Tsai, D. Shye, H. Wu</i>	
A Shelf Antenna Using Near-field Without Dead Zones in UHF RFID	50
<i>J. Hong, J. Choo, J. Ryoo, C. Choi</i>	
Optimal Control of Railway Vehicle System	54
<i>H. Selamat, A.J. Alimin, M.A. Zawawi</i>	
Strategic Product- and Technology-Planning with the Innovation-Database: A Field-proven Approach from the Market-oriented Product Idea up to an Operational Development Roadmap	60
<i>J. Gausmeier, V. Brink, S. Ihmels, M. Kokoschka, F. Reymann</i>	
Long Range Predictive PID Control for Nonlinear Boiler-Turbine Dynamics	66
<i>K. Hoshmandi, M. Montazeri</i>	
Application of FIX Software on Hydraulic Control Technology	72
<i>B. Wu, J. Jiang, T. Liu, Z. Tian</i>	
Reconfigurable Fuzzy Networked Control Following LMI Based on a Structural Reconfiguration Algorithm Considering Time Delays	78
<i>E. Mendez-Monroy, H. Benitez-Perez, P. Quinones-Reyes, F. Cardenas-Flores, F. Garcia-Nocetti</i>	
Study on the Decoding Algorithm for LDPC based on DMB-TH	84
<i>G. Wan, Y. Luo, X. Liu, D. Dong</i>	

Performance Analysis of Smart Camera Based Distributed Control Flow Logic for Machine Vision Applications	90
<i>P. Madhuri, A.S. Nagesh, M. Thirumalaikumar, Z. Varghese, A.V. Varun</i>	
An Optimized Variable Structure Control for Hydraulic AGC of Cold Rolling Mill	96
<i>Y. Yang, X. Zhang</i>	
Implementation of a Fast Terminal Sliding Mode Controller for Direct Thrust Control Systems	102
<i>Y. Huang, C. Sung</i>	
Gyro Sensor Drift Compensation by Kalman Filter to Control a Mobile Inverted Pendulum Robot System	108
<i>H. Lee, S. Jung</i>	
A Novel DTC-SVM Method Using Matrix Converter Fed Induction Motor	114
<i>H.M. Nguyen, H. Lee, T. Chun</i>	
Reinforcement Learning Control of Robot Manipulators in Uncertain Environments	120
<i>H. Shah, M. Gopal</i>	
Guidelines for Evaluating Grid Connected PV System Topologies	126
<i>D. Picault, B. Raison, S. Bacha</i>	
Rectangular Coordinates State Estimation of Electrical Power System Using Singular Value Decomposition	131
<i>C. Rakpenthai, S. Uatrongjit</i>	
Autopilot of an Unmanned Monowheeler	135
<i>P. Chen</i>	
A Three-dimensional Node Localization Algorithm of High-precision in Wireless Sensor Network	141
<i>X. Wei, Q. Wang, C. Yang, Y. Yang</i>	
An Experimental Investigation of Corona Sound in Pins to Plane Electrostatic Discharge System	146
<i>G.N. Popa, I. Sora, S.I. Deaconu, C.M. Dinis, I. Popa</i>	
Grammatical Flux Estimator for Sensorless AC-Drives	150
<i>J.F. Martins, V. Ferao Pires</i>	
The Application of the Artificial Neural Network and Hot Probe Method in Thermal Parameters Determination of Heat Insulation Materials Part 1- Thermal Model Consideration	155
<i>S. Chudzik, S. Gryś, W. Minkina</i>	
The Application of the Artificial Neural Network and Hot Probe Method in Thermal Parameters Determination of Heat Insulation Materials Part 2- Application of the Neural Network	161
<i>S. Chudzik, W. Minkina, S. Gryś</i>	
A New Methodology for Aircraft HVDC Power Systems Design	166
<i>D. Hernandez, M. Sautreuil, N. Retiere, D. Riu, O. Sename</i>	
Control Design of a STATCOM with Energy Storage System for Stability and Power Quality Improvements	172
<i>R. Kuiava, R.A. Ramos, N.G. Bretas</i>	
Operating Regions of PWM Rectifier under Unbalanced Voltage Supply	178
<i>M. Chomat, L. Schreier, J. Bendl</i>	
A Unified Audio and Image Steganography by Spectrum Modification	184
<i>K. Gopalan</i>	

A Path Planning Algorithm for Multi Manipulators	189
<i>S. Tamura, T. Murata, M.Z. Islam, T. Yanese, S. Taniguchi</i>	
Mechanisms for Anonymous Memories	195
<i>S. Tamura, H.A. Haddad, H. Tsurugi, A.K.M. Rokibul</i>	
A Real-Time Utilities Management System for Optimising Cleaning Operations in a Brewery	201
<i>M. Lees, R. Ellen, P. Brodie, M. Steffens</i>	
A New Type of Wide-Range Vacuum Sensor	207
<i>E.A. Deulin, A.S. Galkhar, M.S. Basmanov</i>	
SIMS Method of Material Wear Diagnosis	212
<i>A. Benninghoven, E.A. Deulin</i>	
Real-Time Walking Trajectory Generation Method at Constant Body Height in Single Support Phase for Three-Dimensional Biped Robot	214
<i>T. Sato, S. Sakaino, K. Ohnishi</i>	
A New Technique for Diagnostics of Rubbing Machine Elements	220
<i>E.A. Deulin, S.S. Mashurov</i>	
Evaluating the Benefits Deriving from Voltage Control Capabilities of Wind Distributed Generation	223
<i>V. Calderaro, V. Galdi, A. Piccolo, P. Siano</i>	
Surface Roughness Prediction in Micromilling using Neural Networks and Taguchi's Design of Experiments	229
<i>J. Wang, Y. Gong, J. Shi, G. Abba</i>	
Speed Sensorless Variable Structure Torque Control of Induction Motor	235
<i>K. Jezernik</i>	
Development of a Novel Flexure Based Microgripper for Precision Manipulation of Micro-objects	241
<i>M.N.M. Zubir, B. Shirinzadeh</i>	
Real-time Optimal Trajectory Planning for Robotic Manipulators with Functional Redundancy	247
<i>P.J. From, J.T. Gravdahl</i>	
State Estimator Design for Solar Battery Charger	254
<i>I. Kim, P. Ji, U. Han, C. Lhee, H. Kim</i>	
Sensorless Speed Control of Synchronous Reluctance Motor Using a Novel Flux Estimator Based on Recursive Fourier Transformation	260
<i>T. Hanamoto, A. Ghaderi, M. Harada, T. Tsuji</i>	
Experimental Research and Establishment of the Model of the Two-probe Flatness Error Separation	266
<i>L. Zhang, X. Yang, X. Li, P. Guan, K. Zhang</i>	
Multirate Sampling Method for Bilateral Control with Communication Bandwidth Constraint	272
<i>D. Yashiro, K. Ohnishi</i>	
Semi-Autonomous Scheme for Pushing Micro-Objects	278
<i>S. Khan, A. Sabanovic</i>	
Robust Closed-Loop Real-Time Optimization for Refinery Utility Plant with Model Predictive Control for Constraint Handling	285
<i>T. Tani, K. Matsuo</i>	

Statistics and Neural Networks for Approaching Nonlinear Relations between Wheat Plantation and Production in Queensland of Australia	290
<i>W.W. Guo, L.D. Li, G. Whymark</i>	
Operationality Improvement Control of Electric Power Assisted Wheelchair by Fuzzy Algorithm	294
<i>H. Murakami, H. Seki, H. Minakata, S. Tadakuma</i>	
Constrained Smoothing and Interpolating Spline Surfaces using Normalized Uniform B-splines	300
<i>H. Fujioka, H. Kano</i>	
Redundant Three-Phase AC to DC Converter using Single-Phase CUK Rectifier Module with Minimized DC Bus Capacitance	306
<i>U. Kamnarn, S. Yousawat, Y. Kanthaphayao, V. Chunkag</i>	
A Biological Inspired Improvement Strategy for Particle Filters	312
<i>J.P. Zhong, Y.F. Fung</i>	
Optimal Design of a Linear Induction Motor Applied in Transportation	318
<i>W. Xu, J. Zhu, L. Tan, Y. Guo, S. Wang, Y. Wang</i>	
Development of Three Zone Quadrilateral Adaptive Distance Relay for the Protection of Parallel Transmission Line	324
<i>S.G. Srivani, V.K. Panduranga, C.R. Atla</i>	
Integrated Design for PMSM Servo Systems Based on Sliding-Mode Control	330
<i>S. Fang, B. Zhou, Y. Liu</i>	
A Novel Space-Vector PWM Algorithm for PMSM Drive Systems	335
<i>S. Fang, B. Zhou, D. Li, F. Cheng</i>	
Speed Estimation Improvement Using Full Order State Observer for a Haptic Interface	340
<i>Z. Jabbour, S. Moreau, A. Riwan, F. Khatounian, G. Champenois</i>	
Research on CAD Technique of Permanent Magnet Motor Based on Improved Genetic Arithmetic and Field Circuit Combination	345
<i>B. Zhang, J. Lin, R. Chen, Y. Zhao, Z. Cai, G. Feng</i>	
Harmonic Power Detection and Measurement Device Based on Harmonic Power Flow Analysis	351
<i>F. Zhuang, P. Cong, G. Zhuang</i>	
Modeling the Combination of UPQC and Photovoltaic Arrays with Multi-Input Single-Output DC-DC Converter	356
<i>M. Davari, S.M. Aleemran, H. Nafisi, I. Salabeigi, G.B. Gharehpetian</i>	
A Novel Approach to VFTO Analysis of Power Transformers Including FVL Based on Detailed Model	362
<i>M. Davari, S.M. Aleemran, A.R. Mobarhani, H. Nafisi, I. Salabeigi, G.B. Gharehpetian</i>	
Reducing the Size of Fast Field Cycling NMR Spectrometers based on the use of IGBTs	367
<i>D.M. Sousa, G.D. Marques, P.J. Sebastiao</i>	
Research on Dynamic Voltage Equalization Circuit for Series Connected Ultracapacitors	373
<i>A. Xu, X. Liu, S. Xie</i>	
TCM (Traditional Chinese Medicine) Telemedicine with Enterprise Ontology Support – a Form of Consensus-Certified Collective Human Intelligence	379
<i>J.H.K. Wong, W.W.K. Lin, A.K.Y. Wong, T.S. Dillon</i>	
New Fuzzy Control- Based Grasping Algorithm for a Novel Compliant Robot Gripper	385
<i>A.M. Soliman, A.M. Zaki, O.A. Mahgoub, A.M. Ragai</i>	

Green Power from Conventional Steam Power Plant Combined with Geothermal Well	391
<i>J. Buchta</i>	
Intelligent Control of a Nonlinear Tank Reactor Based on Lyapunov Direct Method	397
<i>M. Mohammadzaheri, L. Chen</i>	
Study of Partial Discharge Feature Based On Complex Wavelet For Large Power Transformer	403
<i>R. Chen, Y. Zhao, Y. Sun</i>	
Asparagus Harvesting Robot Coordinated with 3-D Vision Sensor	408
<i>N. Irie, N. Taguchi, T. Horie, T. Ishimatsu</i>	
Modeling and Design of a High Precision Microgripper for Microhandling Operation	414
<i>M.N.M. Zubir, B. Shirinzadeh</i>	
Stand-alone Operation of Cross-flow Water Turbines	420
<i>M. Andreica, S. Bacha, D. Roye, I. Munteanu, A.I. Bratcu, J. Guiraud</i>	
Power Optimization Strategy for Cascaded DC-DC Converter Architectures of Photovoltaic Modules	426
<i>A.I. Bratcu, I. Munteanu, S. Bacha, D. Picault, B. Raison</i>	
Universal Test System Architecture in Mechatronics- An Approach for Systematization of Today's Existing Test Tools.....	434
<i>D. Korotkiy, H. Dettmering</i>	
Hierarchical Fuzzy Logic Control for Multiphase Traffic Intersection Using Evolutionary Algorithms	439
<i>Y. Hu, A. Chiou, Q. Han</i>	
Reuse of HiL Simulation Models in the Operation Phase of Production Plants.....	445
<i>S. Kain, S. Dominka, M. Merz, F. Schiller</i>	
Fuzzy Controller Design Using A New Shuffled Frog Leaping Algorithm	451
<i>T. Huynh, D. Nguyen</i>	
Droop Based Control of Parallel-Connected Single-Phase Inverters in D-Q Rotating Frame.....	457
<i>S. Golestan, M. Joorabian, H. Rastegar, A. Roshan, J.M. Guerrero</i>	
Interest Points based Object Tracking with Controlled Cameras.....	463
<i>Z. Xu, H.R. Wu, X. Yu</i>	
Control of Fuel Cell/Battery/Supercapacitor Hybrid Source for Vehicle Applications.....	469
<i>P. Thounthong, P. Sethakul, S. Rael, B. Davat</i>	
Evaluation of Shaping Accuracy of Sand Mold Based on Stereo Measurement	475
<i>T. Miyake, M. Kaibeya, T. Imamura, Z. Zhang</i>	
A PLD-Microcontroller Based DC-Link Voltage Controller for Hybrid Power System Applications	483
<i>I. Vechiu, O. Curea, H. Camblong, U. Bidarte</i>	
Motion Planning of Hyper Redundant Manipulators Based on a New Geometrical Method.....	489
<i>S. Yahya, H.A.F. Mohamed, M. Moghavvemi, S.S. Yang</i>	
Improving Induction Motors Speed and Flux Control Using Fuzzy-SMC-PI.....	494
<i>H.A.F. Mohamed, S.S. Yang, M. Moghavvemi</i>	
Modeling a Contactless Power Supply using GSSA Method.....	500
<i>A.P. Hu</i>	
Controlled Hardware Access under Pentium based Linux & FreeBSD.....	506
<i>P.J. Radcliffe</i>	

Robust Cascaded Nonlinear Predictive Control of a Permanent Magnet Synchronous Motor	511
<i>R. Errouissi, M. Ouhrouche</i>	
Microwave Telemetry in High Speed Machine Tools	519
<i>W. Mahler, C.H. Schmidt, M.D. Blech, S. Bonerz</i>	
Modeling and Control of a Five-level Diode-Clamped Converter based StatCom	523
<i>D. Dupuis, F. Okou</i>	
Protocol Based on Packet Transmission to Teleoperate a Skid Steered Mobile Machine	529
<i>J. Moya, K. Huhtala</i>	
Nonlinear Friction Compensation for a High Precision Stage using Synchronous Piezoelectric Device Driver	534
<i>K. Tsuruta, K. Sato, N. Ushimi, K. Kosaka</i>	
Magnetic Saturation Due to Fast Dynamic Response of Isolated DC-DC Converter	540
<i>T. Kohama, Y. Mukuno, H. Shimamori</i>	
A Generic Analytical Model of Switching Characteristics for Efficiency-Oriented Design and Optimization of CMOS Integrated Buck Converters	545
<i>R. Modak, M.S. Baghini</i>	
A Soft Metal Hydride Actuator Using LaNi₅ Alloy and a Laminate Film Bellows	551
<i>S. Ino, M. Hosono, M. Sato, S. Nakajima, K. Yamashita, T. Izumi</i>	
A New Hybrid Complex ADALINE-LES Filter for Off-Nominal Frequency Symmetrical Components Extraction	557
<i>I. Sadinezhad, V.G. Agelidis</i>	
A High Power and High Efficiency PC Power Supply Topology with Low Cost Design to Meet 80 Plus Bronze Requirements	563
<i>S.A. Liang</i>	
Analysis of the Degradation Tendency of Industrial Manufacturing Devices and Development of a General-purpose Remote Monitoring System	569
<i>K. Sakamaki, H. Nakamura</i>	
Learning the Demand Function in Oligopoly Game for Electric Power Bidding Market	574
<i>X. Zhang</i>	
Real-Time On-Road Vehicle and Motorcycle Detection Using a Single Camera	579
<i>B. Duan, W. Liu, P. Fu, C. Yang, X. Wen, H. Yuan</i>	
Intelligent Transport Navigation System using LookAhead Continuous KNN	585
<i>G. Zhao, K. Xuan, D. Taniar, W. Rahayu, B. Srinivasan</i>	
Design of Acceleration Control System Considering Current Dynamics	591
<i>H. Tanaka, K. Ohnishi, H. Nishi</i>	
Design FPGA Speed Controllers for Air Motor	597
<i>Y. Hwang, S. Huang</i>	
Research on Over-voltage Limitation of Ultra-high Voltage System Using Magnetic Controllable Reactor	602
<i>G. Feng, J. Shao, S. Ma, Y. Zhao</i>	
An Adaptive Precise One-End Power Transmission Line Fault Locating Algorithm Based on Multilayer Complex Adaptive Artificial Neural Networks	606
<i>I. Sadinezhad, V.G. Agelidis</i>	
Simulation of a Train Communication System Using Timed Colored Petri Nets	612
<i>M. Bago, N. Peric, S. Marijan</i>	

Solid-State Transformer Topology Selection	618
<i>W. Van Der Merwe, T. Mouton</i>	
A Comparative Study of Tripping and Reclosing Schemes for Six-Phase Transmission Line Considering Transient Stability	624
<i>V. Salehi, M. Jaefary, H. Lesani, E. Mostery</i>	
An Analysis of the Impedance Perceived by An Operator in Multilateral Control System Under Constant Communication Time Delay	631
<i>A. Yamaguchi, K. Natori, K. Ohnishi</i>	
Data Fusion of ALV GPS/DR Integrated Navigation System Based on BP Neural Network	637
<i>M. Wang, Y. Fu</i>	
Online Detection and Sorting System of Bamboo Strip Based on Visual Servo	641
<i>X. Qin, X. Song, Q. Liu, F. He</i>	
Analysis of Balancing Driver for Multiple Cold Cathode Fluorescent Lamps	646
<i>H. Yen</i>	
Online Defect Inspection Algorithm of Bamboo Strip Based on Computer Vision	652
<i>X. Qin, F. He, Q. Liu, X. Song</i>	
Mathematical System Modeling and Dynamic Resource Allocation through Kalman Filter based Prediction in IEEE 802.11 PSM	657
<i>J. Lee, S. Kim</i>	
Eddy Current Field Analysis of Flameproof Induction Motor Using Edge Element Method	663
<i>B. Bai, J. Guo, H. He, Y. Li, B. Zhang</i>	
Electrical Load Emulation using Optimal Feedback Control Technique	667
<i>Y. Srinivasa Rao, M. Chandorkar</i>	
Speed Sensorless Stator Flux Oriented Control of an Induction Motor Drive	673
<i>M. Ouhrouche</i>	
Study on Air Friction Loss of High Speed PM Machine	679
<i>F. Wang, D. Zhang, J. Xing, Y. Xu</i>	
Modeling Breakdown Handling for SOA-based Factory Automation Systems	683
<i>C. Popescu, J.L. Martinez Lastra</i>	
Design of a High Speed Parallel Mechanism Based on Virtual Force Redundancy Concept	690
<i>K. Nagai, Y. Nishibu, Y. Dake, A. Yamanaka</i>	
Study on Core Loss of High Speed PM Machine	696
<i>F. Wang, Y. Xu, X. Kong, D. Zhang</i>	
Electricity Auction Market Risk Analysis Based on EGARCH-EVT-CVaR Model	700
<i>X. Gong, X. Luo, J. Wu</i>	
Design and Development of an Automated Acoustic based Jet Engine Performance Evaluator	705
<i>A. Bin Mansoor, H. Ahmed, Z. Mahmood</i>	
Energy Flow Management in Grid Connected PV Systems with Storage- A Deterministic Approach	709
<i>Y. Riffonneau, S. Bacha, F. Barruel, A. Delaille</i>	
Three-Phase Backward/Forward Power Flow Solution Considering Three-Phase Distribution Transformers	715
<i>E. Mashhour, S.M. Moghaddas-Tafreshi</i>	
A New Filter Scheme for the Filtering of Fault Currents	720
<i>C. Yu</i>	

Hybrid Ant System/Priority List Method for Unit Commitment Problem with Operating Constraints	726
<i>K. Withironprasert, S. Chusanapiputt, D. Nualhong, S. Jantarang, S. Phoomvuthisarn</i>	
General Equations for the Characteristic Impedance Matrix and Termination Network of Multiconductor Transmission Lines	732
<i>J. knockaert, J. Peuteman, J. Catrysse, R. Belmans</i>	
Internal Combustion Engine Parametric Identification Scheme for Misfire Fault Detection: Experimental Results	738
<i>J.M. Molinar-Monterrubio, R. Castro-Linares</i>	
60 kHz Electronic Ballast for Electrodeless Fluorescent Lamp	744
<i>C. Lin, W. Chen</i>	
Performance Analysis-based GA Parameter Selection and Increase of μGA Accuracy by Gradual Contraction of Solution Space	750
<i>D. Duzanec, Z. Kovacic</i>	
Non Linear Model Validation and Second Order Sliding Mode Controller Design for a Research Reactor	757
<i>S.H. Qaiser, A.I. Bhatti, M. Iqbal, R. Samar, J. Qadir</i>	
Automatic Visual Inspection of Pharmaceutical Pellets in Coating Process	763
<i>M. Mozina, M. Burmen, D. Tomazevic, F. Pernus, B. Likar</i>	
A New Algorithm for Simultaneously Compensating Harmonics and Load Unbalance in Single Phase Traction Systems	768
<i>B. Gholizad, M. Akhbari</i>	
High Speed Precision Weighing of Pharmaceutical Capsules	774
<i>M. Burmen, F. Pernus, B. Likar</i>	
Multi-robot Teleoperation under Dynamically Changing Network Topology	780
<i>U. Tumerdem, K. Ohmishi</i>	
Design of a Hybrid Type Self-Powered Active Suspension System	786
<i>H. Sahin, N. Fukushima, T. Mochizuki, I. Hagiwara</i>	
Coupling Study of a Rotary Capacitive Power Transfer System	791
<i>C. Liu, A.P. Hu, N.C. Nair</i>	
FPGA-Based Design and Implementation of Spread-Spectrum Schemes for Conducted-Noise Reduction in DC-DC Converters	797
<i>G.M. Dousoky, M. Shoyama, T. Ninomiya</i>	
A Robust Stabilizing Nonlinear Control Design for VSC-HVDC Systems: A Comparative Study	803
<i>H.S. Ramadan, H. Siguerdidjane, M. Petit</i>	
Estimating Performance Indexes of a Baggage Handling System Using Metamodels	809
<i>A. Khosravi, S. Nahavandi, D. Creighton</i>	
Interpreting and Modeling Baggage Handling System as a System of Systems	815
<i>A. Khosravi, S. Nahavandi, D. Creighton</i>	
Definition of New Polymer Packaging Solutions for Airborne Power Electronic System Applications	821
<i>M. Charlas, V. Nassiet, J.P. Habas, S. Viellard, R. Meuret</i>	
Design of a Hybrid Controller for Heading Control of an Autonomous Underwater Vehicle	827
<i>G. Xia, L. Tang, F. Guo, Q. Chen, J. Leng</i>	

Study of Position Sensorless Control of PMSM based on MRAS	832
<i>J. Kang, X. Zeng, Y. Wu, D. Hu</i>	
Dynamic Allocation of Predicted Quantities to Forecast Intervals for Pan Stage Supervisory Support System Process Models	836
<i>R. Dodd, R. Broadfoot, A. Chiou, X. Yu</i>	
Design and Implementation of Dimmable Fluorescent Lamps with TRIAC Phase Control	842
<i>Y. Chen, Y. Wu, C. Song, L. Liu</i>	
An Improved Control Method for PWM Current Source Rectifier with Active Damping Function	848
<i>L. Tan, Y. Li, P. Wang, C. Liu</i>	
Flow Estimation using Genetic Algorithm and Neural Network	854
<i>J. Lee, S. Oh, C. Choi, H. Jeong</i>	
Research on Co-simulation of Rigid- flexible Coupling System of Parallel Robot	859
<i>Y. Liu, C. Zhu, J. Zhao</i>	
The Investigation of ANN Space Vector PWM and Diagnostic Controller for Four Switch Three Phase Inverter Fed Induction Motor Drive	865
<i>H.H. Lee, P.Q. Dzung, T.P. Hoa, L.M. Phuong</i>	
VHDL Modeling of FECG Extraction from the Composite Abdominal ECG using Artificial Intelligence	871
<i>M.A. Hasan, M.I. Ibrahimy, M.B.I. Reaz, M.J. Uddin, M.S. Hussain</i>	
A Networked Sliding Mode Controller for Servomechanical Systems	876
<i>X. Li, X. Yu, C. Wang</i>	
Modified 4-Phase Interleaved Fuel Cell Converter for High-Power High-Voltage Applications	881
<i>P. Thounthong, P. Sethakul, B. Davat</i>	
A State Of The Art Opinion Mining And Its Application Domains	887
<i>H. Binali, V. Potdar, C. Wu</i>	
Machine Learning Approaches for Soil Classification in a Multi-agent Deficit Irrigation Control System	893
<i>D. Smith, W. Peng</i>	
A Utilities Consumption Model for Real-Time Load Identification in a Brewery	899
<i>M. Lees, R. Ellen, P. Brodie, M. Steffens, B. Newell, D. Wilkey</i>	
Omnidirectional Lower Limbs Rehabilitation Training Robot Based on Biofeedback	905
<i>J. Yang, W. Zhao, D. Bai, S. Wang</i>	
Adaptive State Compensation Using Parameterized Iterative Learning Control for Periodic Velocity Ripple of Permanent Magnet Linear Motor	910
<i>J. Yang, H. Ma, L. Yuan, Q. Zhang</i>	
Application of Opto-tactile Sensor in Shearer Machine Design to Recognise Rock Surfaces in Underground Coal Mining	916
<i>R. Sahoo, A.M. Mazid</i>	
Autonomous Underwater Vehicle for Surveying Deep Ocean	922
<i>T. Hyakudome, S. Tsukioka, H. Yoshida, T. Sawa, S. Ishibashi, A. Ishikawa, J. Ishiwata, K. Watanabe, M. Nakamura, T. Aoki</i>	
Disturbance Decomposition of Time Delay System by Shadow Robot Based on Network Disturbance Concept	928
<i>A.A. Rahman, K. Natori, K. Ohnishi</i>	

Fault Diagnosis Based on Grey Dynamic Prediction for AUV Sensor	934
<i>X. Bian, T. Chen, Z. Yan, D. Zhao, G. Yu</i>	
Sliding Mode Observer for Estimation of Slosh States in a Moving Container.....	940
<i>S. Kurode, B. Bandyopadhyay, P.S. Gandhi</i>	
Two Sided PWM Control of Switching Power Factor Correction AC-DC Converter	946
<i>M. Mahesh, A.K. Panda</i>	
On-Line Parameter Estimation of PMSM in Open Loop and Closed Loop	952
<i>M. Khov, J. Regnier, J. Faucher</i>	
Mapping Normal Sensor Measurement using Regions.....	958
<i>M.F. Miskon, R.A. Russell</i>	
Combination of Optimal Conductor Selection and Capacitor Placement in Radial Distribution Systems for Maximum Loss Reduction	964
<i>M. Vahid, N. Manouchehr, S.D. Hossein, A. Jamaledin</i>	
Estimation and Share of Environmental Impedance using Multiple Robots for Haptic Broadcasting.....	969
<i>K. Kitamura, D. Yashiro, K. Ohnishi</i>	
Speed Controller of Servo System Based on MRAS Method	975
<i>G. Wu, X. Xiao</i>	
Polynomial Fuzzy Modeling and Tracking Control of Wheeled Mobile Robots via Sum of Squares Approach.....	980
<i>C. Kim, J. Kwon, D. Chwa</i>	
Development of a Self-adjustment Methodology for a Maintenance-free Stereo Camera	985
<i>M. Nakagawa, Y. Kawai, F. Tomita</i>	
Stability Analysis of a Magnetically-Levitated Large Flywheel Using Flexible Rotor Modeling	991
<i>S. Yoo, C. Park, B. Park, M.D. Noh</i>	
A Design of an Intelligent Maintenance Integrated System into Manufacturing Systems	996
<i>R.A. Zaied, K. Abhary</i>	
Vector Field Trajectory Tracking Control for Wheeled Mobile Robots.....	1002
<i>J. Kwon, C. Kim, D. Chwa</i>	
A System Level Solution to Improve VRM Efficiency.....	1008
<i>P.U. Harish, D.S. Suman, S.S. Mahant Shetti</i>	
Mixed Transfer Function Neural Networks for Knowledge Acquisition	1013
<i>M.I. Khan, Y. Frayman, S. Nahavandi</i>	
Real-time Neural Network Based Identification of a Rotary-wing UAV Dynamics for Autonomous Flight.....	1019
<i>M.K. Samal, S. Anavatti, M. Garratt</i>	
Study of Nonlinear Phenomena and Chaotic Control in Current-Programmed Forward Converters.....	1025
<i>F. Hsieh, H. Wang, P. Chang, M. Syu, Y. Yang</i>	
Real-time Validation of a Dual Neural Network Controller for a Low-cost UAV	1031
<i>V.R. Puttige, S. Anavatti, M.K. Samal</i>	
Optimal Design of Toroidally–Wound Brushless DC Machines.....	1037
<i>H. Lee, M.D. Noh</i>	

A Robust Tracking Controller for Uncertain MIMO Plant Using Non-linear Sliding Surface	1042
<i>B. Bandyopadhyay, D. Fulwani</i>	
Electricity Supply Chain Coordination Based on Quantity Discount Contracts	1048
<i>Y. Dai, H. Yang, J. Wu</i>	
Online Community among Industry Workers based on Web 2.0- OCAIw	1053
<i>Y. Sung, S. Ha</i>	
Automated Inspection of Sheet Metal Parts for Manufacturing Applications	1058
<i>W. Shao, J. Guo, E. Shi, T. Zhang</i>	
Study on Design of Brushless Doubly-Fed Machine with a New Type Rotor	1064
<i>F. Zhang, G. Pan, F. Wang, M. Lin</i>	
Operation of Battery Power Modules with Series Output	1067
<i>C. Moo, K. Ng, J. Hu</i>	
Towards an Automated Generation of Device Firmware Components for Intelligent Field Devices	1073
<i>C. Hahn, A. Gossling, R. Frenzel, M. Wollschlaeger</i>	
Thermal Measurements for Service Life Estimations of High Power Induction Hardening Coils	1079
<i>K. Svendsen, S.T. Hagen, M.C. Melaen, L. Markegaard</i>	
An Interleaved Twin-Buck Converter with Zero-Voltage-Transition	1085
<i>Y. Hsieh, Y. Chen, C. Moo, H. Cheng</i>	
Modeling Atlantic Salmon Fish Farming Industry	1090
<i>R. Melberg, R. Davidrajuh</i>	
A Global Method of Error Compensation in Multi-linear Structured Light Measuring System	1096
<i>B. Liu, B. Li, Z. Jiang, J. Qi</i>	
New Approach in Design of Planar Coil of Induction Cooker Based on Skin and Proximity Effects Analysis	1100
<i>M. Hediehloo, M. Akhbari</i>	
On the Origin of Deadlocks in Robotic Cycle Shop Control	1106
<i>W. Meyer, C. Fiedler</i>	
A New Primary Power Regulation Method for Contactless Power Transfer	1112
<i>H.L. Li, A.P. Hu, G.A. Covic, C. Tang</i>	
Integration of Simulation in the Development Process of Distributed IEC 61499 Control Applications	1117
<i>I. Hegny, A. Zoitl, W. Lepuschitz</i>	
Seamless Engineering for Distributed Control Systems - An Approach for Virtual Automation Networks	1123
<i>M. Hoffmann, L. Hundt, T. Fuchs</i>	
Less Conservative Robust Kalman Filtering using Noise Corrupted Measurement Matrix for Discrete Linear Time-Varying System	1129
<i>W. Ra, I. Whang, J. Park</i>	
Available Transfer Capability Model and Calculation Considering Static Security Constraints and the Saddle Node Bifurcation	1135
<i>C. Liu, X. Tong, R. Zhou, X. Deng</i>	

Surplus Heat Drive Actuators using MH Alloys for Assistive Devices	1140
<i>M. Sato, M. Hosono, S. Nakajima, K. Yamashita, T. Izumi, S. Ino</i>	
A Novel Single-Stage High-Power-Factor AC/DC Converter Featuring High Circuit Efficiency	1146
<i>H.L. Cheng, Y.C. Hsieh, C.H. Lin</i>	
C-language Based PV Array Simulation Technique Considering Effects of Partial Shading	1152
<i>Y. Ji, J. Kim, S. Park, J. Kim, C. Won</i>	
Disturbance Rejection Tuning of a Tracking Multi-Parametric Predictive Controller	1158
<i>S. Gerksic, B. Pregelj</i>	
Proposal of Device Capability Profiling for Manufacturing Application Service Interface	1164
<i>K. Suzuki, T. Ideguchi</i>	
ZVS Resonant DC-link Inverter using Soft Switching Boost Converter	1170
<i>Y. Kim, G. Cha, Y. Ji, J. Kim, Y. Jung, C. Won</i>	
Facilitating Ad-Hoc Abstraction to Improve End-User Programmed Decision Support Tools	1175
<i>H. Thomas</i>	
Damping Subsynchronous Resonance Using A Novel Excitation Controller	1181
<i>A. Ghorbani, M.N. Hasanazadeh, S. Pourmohammad, M.R. Ahadi</i>	
Control of Parallel Flexible Five Bar Manipulator using QFT	1188
<i>S. Karande, P.S.V. Nataraj, P.S. Gandhi, M.M. Deshpande</i>	
Integrated Solar Tracker Positioning Unit in Distributed Grid-Feeding Inverters for CPV Power Plants	1194
<i>O. Stalter, B. Burger</i>	
A Multi-Pulse Structure Based AC-DC/DC-AC PWM Converter for High Power Application	1199
<i>A. Xu, S. Xie</i>	
Proposal of Reduction Method of Mixed Reality Sickness using Auditory Stimuli for Advanced Driver Assistance Systems	1205
<i>S. Nakajima, S. Ino, K. Yamashita, M. Sato, A. Kimura</i>	
Digital Voltage/Current Control of a High Voltage Output LCC Resonant Converter Based Power Supply for Capacitor Charging	1210
<i>C. Ditmanson, H. Guldner, F. Gleisberg, M. Rentzsch</i>	
Modal Transformation for Bilateral Control and Co-operational Robot Motion - Kinematics and Dynamics -	1216
<i>S. Sakaino, T. Sato, K. Ohnishi</i>	
Optimal Operation for a Wind-hydro Power Plant to Participate to Ancillary Services	1222
<i>P.D. Nguyen Ngoc, T.T.H. Pham, S. Bacha, D. Roye</i>	
Function Approximation Using Robust Fuzzy-GreyCMAC Method	1227
<i>P. Chang, Y. Yang, H. Shieh, F. Hsieh, H. Wang</i>	
Optimal Operation of a PV Based Multi-source System and Energy Management for Household Application	1233
<i>T.T.H. Pham, F. Wurtz, S. Bacha</i>	
Active Stabilization of Lateral and Rotary Slosh in Cylindrical Tanks	1238
<i>P.S. Gandhi, A. Duggal</i>	
FPGA-based Predictive Current Control of a Three-phase Active Front End Rectifier	1244
<i>M. Perez, M. Vasquez, J. Rodriguez, J. Pontt</i>	

New Optimized Text Localization and Character Segmentation Algorithms for Slab Identification Numbers	1250
<i>S. Choi, J.P. Yun, K. Koo, J. Choi, S.W. Kim</i>	
Direct Power Control for Three-Phase Power Converters under Distorted Input Voltages	1256
<i>S. Vazquez, J.A. Sanchez, J.M. Carrasco, E. Galvan, J.I. Leon, E. Dominguez, O. Martinez</i>	
An Approach to Structural Health Assessment and Management Technology	1262
<i>A. Kumar, A. Srivastava, N. Goel, V. Narasimhan, A. Nayak</i>	
Efficient Implementation of IEC 61499 Function Blocks	1268
<i>L.H. Yoong, P.S. Roop, Z. Salcic</i>	
Extreme Warranty Systems – Hybridization	1274
<i>B.P. Upadhyaya</i>	
Inverse Scaled Four Channel Control System with Wave Variables under Time Delay	1278
<i>B. Yalcin, K. Ohnishi</i>	
Adaptive Two-Degree-of-Freedom Control for Two-Phase Synchronous Reluctance Motors Based on Pole-Zero Cancellation Method	1284
<i>A. Takano</i>	
Optimization of Parameters of the Kelvin Element in Vibration Analysis	1290
<i>A. Kuznetsov, M. Mammadov, E. Hajilarov</i>	
Structural Top-k Web Navigation with Inclusive Query	1295
<i>W. Lee, C.K.S. Leung</i>	
Haptic Processing for Transmitting Real-World Haptic Information	1301
<i>Y. Kobayashi, S. Katsura</i>	
The Development of Space Vector PWM for Four Switch Three Phase Inverter Fed Induction Motor with DC – Link Voltage Imbalance	1307
<i>H. Lee, P.Q. Dzung, L.D. Khoa, L.M. Phuong</i>	
A Curriculum for Electrical Power Engineering based on Project-based Learning Philosophy	1313
<i>N. Hosseinzadeh, M. Hesamzadeh, S. Senini</i>	
Effective Supervision of Postgraduate Engineering Students at Central Queensland University	1318
<i>R. Sahoo, A.M. Mazid</i>	
Voltage Quality Behaviour of a Wind Turbine Based Remote Area Power System	1323
<i>N. Mendis, K.M. Muttaqi, S. Perera</i>	
Comparative Study of Fuzzy PD Control and PI Control for Heavy Duty Robot	1329
<i>C. Ko, S. Park, T. Yoon, D. Kim, G. Chung</i>	
Motion Control of a Nonlinear Pneumatic Actuating Table by Using Self-Adaptation Fuzzy Controller	1334
<i>S. Huang, H. Shieh</i>	
Fuzzy Logic based Integrated Control of Anti-lock Brake System and Collision Avoidance System using CAN for Electric Vehicles	1340
<i>K.S. Kumar, L. Verghese, K.K. Mahapatra</i>	
A Novel Control Circuit for Aircraft Power Supply Using Soft-Switched Inverter	1345
<i>S.K. Pattanaik, K.K. Mahapatra</i>	
Institutional, Economic and Technical Dimensions of Choosing Private Tertiary Education in Bangladesh: Lessons for Australian Universities	1351
<i>M. Salahuddin, D. Akbar, O. Hamid, R. Islam</i>	

Predictive Control Strategies for Converter and Inverter	1357
<i>D. Schroder</i>	
A New Switching Technique for Direct Torque Control of Induction Motor using Four-Switch Three-Phase Inverter with DC – Link Voltage Imbalance	1365
<i>H.H. Lee, P.Q. Dzung, L.M. Phuong, N.X. Bac</i>	
Harmonic Elimination and Reactive Power Compensation through a Shunt Active Power Filter by Twin Neural Networks with Predictive and Adaptive Properties	1371
<i>A. Bhattacharya, C. Chakraborty</i>	
Adaline Controlled 3-Phase 3-Wire Shunt Active Power Filter with Enhanced Performance Using the Capacitor Voltage Feedback	1377
<i>A. Bhattacharya, C. Chakraborty</i>	
Experimental Validation of Very-Low and Zero Speed Operation of a Flux-Eliminated Adaptive Estimator for Vector Controlled IM Drive	1383
<i>S. Maiti, C. Chakraborty</i>	
Model Predictive Control with Constant Switching Frequency Using a Discrete Space Vector Modulation with Virtual State Vectors	1389
<i>S. Vazquez, J.I. Leon, L.G. Franquelo, J.M. Carrasco, O. Martinez, J. Rodriguez, P. Cortes, S. Kouro</i>	
Petro-data Cluster Mining- Knowledge Building Analysis of Complex Petroleum Systems	1395
<i>S.L. Nimmagadda, H. Dreher</i>	
Alternative Pathways into Engineering Professions; A Student Perspective	1403
<i>M. Upton, S. Cole</i>	
Predictive Speed Control of a Synchronous Permanent Magnet Motor	1408
<i>E.J. Fuentes, C. Silva, D.E. Quevedo, E.I. Silva</i>	
Predictive Current Control in a Single Phase PFC Boost Rectifier	1414
<i>M. Perez, J. Rodriguez, A. Coccia</i>	
Two-dimensional Modulation Technique for Multilevel Cascaded H-bridge Converters	1420
<i>J.I. Leon, S. Vazquez, R. Portillo, L.G. Franquelo, J.M. Carrasco, S. Kouro, J. Rodriguez</i>	
Model Predictive Torque Control of a Switched Reluctance Motor	1426
<i>H. Peyrl, G. Papafotiou, M. Morari</i>	
A Novel 5-axis Robot for Printing High Resolution Pictures from Media on 3D Wide Surfaces	1432
<i>J. Gazeau, Z. Said, G. Ramirez-Torres</i>	
Computer Integrated Manufacturing Education to Mechanical Engineering Students: Teaching, Research and Practice	1438
<i>A.A. Chowdhury, A.M. Mazid</i>	
Pan Stage Steady State Flow Model for Integration within a Knowledge Based Supervisory Support System	1443
<i>R. Dodd, R. Broadfoot, A. Chiou, X. Yu</i>	
Electrofused Magnesium Oxide Classification Using Digital Image Processing and Machine Learning Techniques	1449
<i>A.B.M. Shawkat Ali, W.K.D. Pun</i>	
Blocking Online Advertising – A State of the Art	1455
<i>A.K. Singh, V. Potdar</i>	
Dynamic Network Control with QoS and Resource Priority Monitor Based on Active "eM" for Commercial VoIP	1465
<i>M. Grah, P. Radcliffe</i>	

Capacitor Voltage Estimation for Predictive Control Algorithm of Flying Capacitor Converters	1471
<i>R.P. Aguilera, D.E. Quevedo</i>	
Guidelines for Weighting Factors Design in Model Predictive Control of Power Converters and Drives	1477
<i>P. Cortes, S. Kouro, B. La Rocca, J.I. Leon, S. Vazquez, R. Vargas, L.G. Franquelo, J. Rodriguez</i>	
On-line Determination of Wheel Angles and Speeds for Manoeuvrable Gantry Tractor Comprising a “Chorus Line” of Synchronised Modules	1484
<i>A. Percy, I.J. Spark, M. Yousef Ibrahim</i>	
Implementation of Phase Locked Loops Using Bit-Stream Control Techniques	1490
<i>J. Bradshaw, N. Patel, U. Madawala</i>	
Analysis of Multilevel PWM Converter Based on FLC Modules for an AC Traction Application	1496
<i>S. Stynski, J. San-Sebastian, M. Malinowski, I. Etxeberria-Otadui</i>	
A Method for Reducing Wave Based Teleoperator Reflections	1502
<i>L.H. Bate, C.D. Cook, Z. Li</i>	
Author Index	