2015 IEEE 28th Canadian Conference on Electrical and Computer Engineering

(CCECE 2015)

Halifax, Nova Scotia, Canada 3-6 May 2015

Pages 1-811



IEEE Catalog Number:

ISBN:

CFP15758-POD 978-1-4799-5830-6

SESSION INDEX

Session MA1 : Modeling I Session Chairs : Shuang Song and Lina Zhang Simulation and Optical Measurement of MEMS Thermal Actuator Sub-micron Displacements in Air and Water Bruno Barazani, Stephan Warnat and Ted Hubbard Analysis of a Radial Flux Hysteresis IPM motor S. F. Rabbi and M. A. Rahman A Machine Learning Approach to Identify DNA Replication Proteins from Sequence-Derived Features Runtao Yang, Chengjin Zhang, Rui Gao and Lina Zhang Study on Mathematic Magnetic Field Model of Rectangular Coils for Magnetic Actuation Shuang Song, Haoyong Yu and Hongliang Ren Off-Line Signature Evaluation for dqWPT Hybrid Technique Based Differential Protection of Power Transformer Adel Aktaibi, S.F. Rabbi, Glyn George and M.A. Rahman Incorporating g-Gap Dipeptide Composition and Position Specific Scoring Matrix for Identifying Antioxidant Proteins Lina Zhang, Chengjin Zhang, Rui Gao and Runtao Yang Session MA2 : Power System Operation and Planning I Session Chairs : Walid Morsi and Hamed Aly Novel Feature Extraction and Classification Algorithm Based on Power Components Using Single- point Monitoring for NILM Minh Nguyen, Sami Alshareef, A. Gilani and Walid Morsi A Proposed Operating Plant Risk Profile to Improve the System Performance Harmanveer Cheema, Manpreet Sidhu, Shoaib Qabil, Hamed H. Aly and Rob MacNeil Cost-Effectiveness Analysis of Battery Energy Storage in Distribution Systems Embedded with Plug- in Electric Vehicles Medhat El-Far and Walid Morsi An Islanding Detection Method Based on Measuring Impedance at the Point of Common Coupling Penah Yazikhasti and Christopher P. Diduch		
and Water Bruno Barazani, Stephan Warnat and Ted Hubbard Analysis of a Radial Flux Hysteresis IPM motor S. F. Rabbi and M. A. Rahman A Machine Learning Approach to Identify DNA Replication Proteins from Sequence-Derived Features Runtao Yang, Chengjin Zhang, Rui Gao and Lina Zhang Study on Mathematic Magnetic Field Model of Rectangular Coils for Magnetic Actuation Shuang Song, Haoyong Yu and Hongliang Ren Off-Line Signature Evaluation for dqWPT Hybrid Technique Based Differential Protection of Power Transformer Adel Aktaibi, S.F. Rabbi, Glyn George and M.A. Rahman Incorporating g-Gap Dipeptide Composition and Position Specific Scoring Matrix for Identifying Antioxidant Proteins Lina Zhang, Chengjin Zhang, Rui Gao and Runtao Yang Session MA2: Power System Operation and Planning I Session Chairs: Walid Morsi and Hamed Aly A Novel Feature Extraction and Classification Algorithm Based on Power Components Using Single- point Monitoring for NILM Minh Nguyen, Sami Alshareef, A. Gilani and Walid Morsi Application of Wavelet-Based Classification in Non-Intrusive Load Monitoring Mathew Gray and Walid Morsi A Proposed Operating Plant Risk Profile to Improve the System Performance Harmanveer Cheema, Manpreet Sidhu, Shoaib Qabil, Hamed H. Aly and Rob MacNeil Cost-Effectiveness Analysis of Battery Energy Storage in Distribution Systems Embedded with Plug- in Electric Vehicles Medhat El-Far and Walid Morsi An Islanding Detection Method Based on Measuring Impedance at the Point of Common Coupling 57	Session Chairs : Shuang Song and Lina Zhang	
Analysis of a Radial Flux Hysteresis IPM motor S. F. Rabbi and M. A. Rahman A Machine Learning Approach to Identify DNA Replication Proteins from Sequence-Derived Features Runtao Yang, Chengjin Zhang, Rui Gao and Lina Zhang Study on Mathematic Magnetic Field Model of Rectangular Coils for Magnetic Actuation Shuang Song, Haoyong Yu and Hongliang Ren Off-Line Signature Evaluation for dqWPT Hybrid Technique Based Differential Protection of Power Transformer Adel Aktaibi, S.F. Rabbi, Glyn George and M.A. Rahman Incorporating g-Gap Dipeptide Composition and Position Specific Scoring Matrix for Identifying Antioxidant Proteins Lina Zhang, Chengjin Zhang, Rui Gao and Runtao Yang Session MA2: Power System Operation and Planning I Session Chairs: Wallid Morsi and Hamed Aly A Novel Feature Extraction and Classification Algorithm Based on Power Components Using Single- point Monitoring for NILM Minh Nguyen, Sami Alishareef, A. Gilani and Walid Morsi A Proposed Operating Plant Risk Profile to Improve the System Performance Harmanveer Cheema, Manpreet Sidhu, Shoaib Qabil, Hamed H. Aly and Rob MacNeil Cost-Effectiveness Analysis of Battery Energy Storage in Distribution Systems Embedded with Plug- in Electric Vehicles Medhat El-Far and Walid Morsi An Islanding Detection Method Based on Measuring Impedance at the Point of Common Coupling 57	and Water	1
S. F. Rabbi and M. A. Rahman A Machine Learning Approach to Identify DNA Replication Proteins from Sequence-Derived Features Runtao Yang, Chengjin Zhang, Rui Gao and Lina Zhang Study on Mathematic Magnetic Field Model of Rectangular Coils for Magnetic Actuation Shuang Song, Haoyong Yu and Hongliang Ren Off-Line Signature Evaluation for dqWPT Hybrid Technique Based Differential Protection of Power Transformer Adel Aktaibi, S.F. Rabbi, Glyn George and M.A. Rahman Incorporating g-Gap Dipeptide Composition and Position Specific Scoring Matrix for Identifying Antioxidant Proteins Lina Zhang, Chengjin Zhang, Rui Gao and Runtao Yang Session MA2: Power System Operation and Planning I Session Chairs: Walid Morsi and Hamed Aly A Novel Feature Extraction and Classification Algorithm Based on Power Components Using Single- point Monitoring for NILM Minh Nguyen, Sami Alshareef, A. Gilani and Walid Morsi Application of Wavelet-Based Classification in Non-Intrusive Load Monitoring Mathew Gray and Walid Morsi A Proposed Operating Plant Risk Profile to Improve the System Performance Harmanveer Cheema, Manpreet Sidhu, Shoaib Qabil, Hamed H. Aly and Rob MacNeil Cost-Effectiveness Analysis of Battery Energy Storage in Distribution Systems Embedded with Plugin Electric Vehicles Medhat El-Far and Walid Morsi An Islanding Detection Method Based on Measuring Impedance at the Point of Common Coupling	Bruno Barazani, Stephan Warnat and Ted Hubbard	
A Machine Learning Approach to Identify DNA Replication Proteins from Sequence-Derived Features **Runtao Yang, Chengjin Zhang, Rui Gao and Lina Zhang Study on Mathematic Magnetic Field Model of Rectangular Coils for Magnetic Actuation **Shuang Song, Haoyong Yu and Hongliang Ren Off-Line Signature Evaluation for dqWPT Hybrid Technique Based Differential Protection of Power Transformer **Adel Aktaibi, S.F. Rabbi, Glyn George and M.A. Rahman Incorporating g-Gap Dipeptide Composition and Position Specific Scoring Matrix for Identifying Antioxidant Proteins **Lina Zhang, Chengjin Zhang, Rui Gao and Runtao Yang Session MA2: Power System Operation and Planning I Session Chairs: Walid Morsi and Hamed Aly **A Novel Feature Extraction and Classification Algorithm Based on Power Components Using Single-point Monitoring for NILM **Minh Nguyen, Sami Alshareef, A. Gilani and Walid Morsi Application of Wavelet-Based Classification in Non-Intrusive Load Monitoring **Aproposed Operating Plant Risk Profile to Improve the System Performance **Harmanveer Cheema, Manpreet Sidhu, Shoaib Qabil, Hamed H. Aly and Rob MacNeil Cost-Effectiveness Analysis of Battery Energy Storage in Distribution Systems Embedded with Plugin Electric Vehicles **Medhat El-Far and Walid Morsi** An Islanding Detection Method Based on Measuring Impedance at the Point of Common Coupling **Total Common Coupling Storage Impedance at the Point of Common Coupling Storage Impedance Impeda		7
Features Runtao Yang, Chengjin Zhang, Rui Gao and Lina Zhang Study on Mathematic Magnetic Field Model of Rectangular Coils for Magnetic Actuation Shuang Song, Haoyong Yu and Hongliang Ren Off-Line Signature Evaluation for dqWPT Hybrid Technique Based Differential Protection of Power Transformer Adel Aktaibi, S.F. Rabbi, Glyn George and M.A. Rahman Incorporating g-Gap Dipeptide Composition and Position Specific Scoring Matrix for Identifying Antioxidant Proteins Lina Zhang, Chengjin Zhang, Rui Gao and Runtao Yang Session MA2: Power System Operation and Planning I Session Chairs: Walid Morsi and Hamed Aly A Novel Feature Extraction and Classification Algorithm Based on Power Components Using Single- point Monitoring for NILM Minh Nguyen, Sami Alshareef, A. Gilani and Walid Morsi Application of Wavelet-Based Classification in Non-Intrusive Load Monitoring Mathew Gray and Walid Morsi A Proposed Operating Plant Risk Profile to Improve the System Performance Harmanveer Cheema, Manpreet Sidhu, Shoaib Qabil, Hamed H. Aly and Rob MacNeil Cost-Effectiveness Analysis of Battery Energy Storage in Distribution Systems Embedded with Plug- in Electric Vehicles Medhat El-Far and Walid Morsi An Islanding Detection Method Based on Measuring Impedance at the Point of Common Coupling 57	S. F. Rabbi and M. A. Rahman	
Study on Mathematic Magnetic Field Model of Rectangular Coils for Magnetic Actuation Shuang Song, Haoyong Yu and Hongliang Ren Off-Line Signature Evaluation for dqWPT Hybrid Technique Based Differential Protection of Power Transformer Adel Aktaibi, S.F. Rabbi, Glyn George and M.A. Rahman Incorporating g-Gap Dipeptide Composition and Position Specific Scoring Matrix for Identifying Antioxidant Proteins Lina Zhang, Chengjin Zhang, Rui Gao and Runtao Yang Session MA2: Power System Operation and Planning I Session Chairs: Walid Morsi and Hamed Aly A Novel Feature Extraction and Classification Algorithm Based on Power Components Using Single-point Monitoring for NILM Minh Nguyen, Sami Alshareef, A. Gilani and Walid Morsi Application of Wavelet-Based Classification in Non-Intrusive Load Monitoring Mathew Gray and Walid Morsi A Proposed Operating Plant Risk Profile to Improve the System Performance Harmanveer Cheema, Manpreet Sidhu, Shoaib Qabil, Hamed H. Aly and Rob MacNeil Cost-Effectiveness Analysis of Battery Energy Storage in Distribution Systems Embedded with Plugin Electric Vehicles Medhat El-Far and Walid Morsi An Islanding Detection Method Based on Measuring Impedance at the Point of Common Coupling 57		13
Shuang Song, Haoyong Yu and Hongliang Ren Off-Line Signature Evaluation for dqWPT Hybrid Technique Based Differential Protection of Power Transformer Adel Aktaibi, S.F. Rabbi, Glyn George and M.A. Rahman Incorporating g-Gap Dipeptide Composition and Position Specific Scoring Matrix for Identifying Antioxidant Proteins Lina Zhang, Chengjin Zhang, Rui Gao and Runtao Yang Session MA2: Power System Operation and Planning I Session Chairs: Walid Morsi and Hamed Aly A Novel Feature Extraction and Classification Algorithm Based on Power Components Using Single-point Monitoring for NILM Minh Nguyen, Sami Alshareef, A. Gilani and Walid Morsi Application of Wavelet-Based Classification in Non-Intrusive Load Monitoring Mathew Gray and Walid Morsi A Proposed Operating Plant Risk Profile to Improve the System Performance Harmanveer Cheema, Manpreet Sidhu, Shoaib Qabil, Hamed H. Aly and Rob MacNeil Cost-Effectiveness Analysis of Battery Energy Storage in Distribution Systems Embedded with Plugin Electric Vehicles Medhat El-Far and Walid Morsi An Islanding Detection Method Based on Measuring Impedance at the Point of Common Coupling 57	Runtao Yang, Chengjin Zhang, Rui Gao and Lina Zhang	
Off-Line Signature Evaluation for dqWPT Hybrid Technique Based Differential Protection of Power Transformer Adel Aktaibi, S.F. Rabbi, Glyn George and M.A. Rahman Incorporating g-Gap Dipeptide Composition and Position Specific Scoring Matrix for Identifying Antioxidant Proteins Lina Zhang, Chengjin Zhang, Rui Gao and Runtao Yang Session MA2: Power System Operation and Planning I Session Chairs: Walid Morsi and Hamed Aly A Novel Feature Extraction and Classification Algorithm Based on Power Components Using Single-point Monitoring for NILM Minh Nguyen, Sami Alshareef, A. Gilani and Walid Morsi Application of Wavelet-Based Classification in Non-Intrusive Load Monitoring Mathew Gray and Walid Morsi A Proposed Operating Plant Risk Profile to Improve the System Performance Harmanveer Cheema, Manpreet Sidhu, Shoaib Qabil, Hamed H. Aly and Rob MacNeil Cost-Effectiveness Analysis of Battery Energy Storage in Distribution Systems Embedded with Plugin Electric Vehicles Medhat El-Far and Walid Morsi An Islanding Detection Method Based on Measuring Impedance at the Point of Common Coupling 57	Study on Mathematic Magnetic Field Model of Rectangular Coils for Magnetic Actuation	19
Transformer Adel Aktaibi, S.F. Rabbi, Glyn George and M.A. Rahman Incorporating g-Gap Dipeptide Composition and Position Specific Scoring Matrix for Identifying Antioxidant Proteins Lina Zhang, Chengjin Zhang, Rui Gao and Runtao Yang Session MA2: Power System Operation and Planning I Session Chairs: Walid Morsi and Hamed Aly A Novel Feature Extraction and Classification Algorithm Based on Power Components Using Single-point Monitoring for NILM Minh Nguyen, Sami Alshareef, A. Gilani and Walid Morsi Application of Wavelet-Based Classification in Non-Intrusive Load Monitoring Mathew Gray and Walid Morsi A Proposed Operating Plant Risk Profile to Improve the System Performance Harmanveer Cheema, Manpreet Sidhu, Shoaib Qabil, Hamed H. Aly and Rob MacNeil Cost-Effectiveness Analysis of Battery Energy Storage in Distribution Systems Embedded with Plugin Electric Vehicles Medhat El-Far and Walid Morsi An Islanding Detection Method Based on Measuring Impedance at the Point of Common Coupling 57	Shuang Song, Haoyong Yu and Hongliang Ren	
Incorporating g-Gap Dipeptide Composition and Position Specific Scoring Matrix for Identifying Antioxidant Proteins Lina Zhang, Chengjin Zhang, Rui Gao and Runtao Yang Session MA2: Power System Operation and Planning I Session Chairs: Walid Morsi and Hamed Aly A Novel Feature Extraction and Classification Algorithm Based on Power Components Using Single-point Monitoring for NILM Minh Nguyen, Sami Alshareef, A. Gilani and Walid Morsi Application of Wavelet-Based Classification in Non-Intrusive Load Monitoring Mathew Gray and Walid Morsi A Proposed Operating Plant Risk Profile to Improve the System Performance Harmanveer Cheema, Manpreet Sidhu, Shoaib Qabil, Hamed H. Aly and Rob MacNeil Cost-Effectiveness Analysis of Battery Energy Storage in Distribution Systems Embedded with Plugin Electric Vehicles Medhat El-Far and Walid Morsi An Islanding Detection Method Based on Measuring Impedance at the Point of Common Coupling 57		25
Antioxidant Proteins Lina Zhang, Chengjin Zhang, Rui Gao and Runtao Yang Session MA2: Power System Operation and Planning I Session Chairs: Walid Morsi and Hamed Aly A Novel Feature Extraction and Classification Algorithm Based on Power Components Using Single-point Monitoring for NILM Minh Nguyen, Sami Alshareef, A. Gilani and Walid Morsi Application of Wavelet-Based Classification in Non-Intrusive Load Monitoring Mathew Gray and Walid Morsi A Proposed Operating Plant Risk Profile to Improve the System Performance Harmanveer Cheema, Manpreet Sidhu, Shoaib Qabil, Hamed H. Aly and Rob MacNeil Cost-Effectiveness Analysis of Battery Energy Storage in Distribution Systems Embedded with Plugin Electric Vehicles Medhat El-Far and Walid Morsi An Islanding Detection Method Based on Measuring Impedance at the Point of Common Coupling 57	Adel Aktaibi, S.F. Rabbi, Glyn George and M.A. Rahman	
Session MA2: Power System Operation and Planning I Session Chairs: Walid Morsi and Hamed Aly A Novel Feature Extraction and Classification Algorithm Based on Power Components Using Single- point Monitoring for NILM Minh Nguyen, Sami Alshareef, A. Gilani and Walid Morsi Application of Wavelet-Based Classification in Non-Intrusive Load Monitoring Mathew Gray and Walid Morsi A Proposed Operating Plant Risk Profile to Improve the System Performance Harmanveer Cheema, Manpreet Sidhu, Shoaib Qabil, Hamed H. Aly and Rob MacNeil Cost-Effectiveness Analysis of Battery Energy Storage in Distribution Systems Embedded with Plug- in Electric Vehicles Medhat El-Far and Walid Morsi An Islanding Detection Method Based on Measuring Impedance at the Point of Common Coupling 57		31
Session Chairs: Walid Morsi and Hamed Aly A Novel Feature Extraction and Classification Algorithm Based on Power Components Using Single- point Monitoring for NILM Minh Nguyen, Sami Alshareef, A. Gilani and Walid Morsi Application of Wavelet-Based Classification in Non-Intrusive Load Monitoring Mathew Gray and Walid Morsi A Proposed Operating Plant Risk Profile to Improve the System Performance Harmanveer Cheema, Manpreet Sidhu, Shoaib Qabil, Hamed H. Aly and Rob MacNeil Cost-Effectiveness Analysis of Battery Energy Storage in Distribution Systems Embedded with Plug- in Electric Vehicles Medhat El-Far and Walid Morsi An Islanding Detection Method Based on Measuring Impedance at the Point of Common Coupling 57	Lina Zhang, Chengjin Zhang, Rui Gao and Runtao Yang	
A Novel Feature Extraction and Classification Algorithm Based on Power Components Using Single-point Monitoring for NILM Minh Nguyen, Sami Alshareef, A. Gilani and Walid Morsi Application of Wavelet-Based Classification in Non-Intrusive Load Monitoring Mathew Gray and Walid Morsi A Proposed Operating Plant Risk Profile to Improve the System Performance Harmanveer Cheema, Manpreet Sidhu, Shoaib Qabil, Hamed H. Aly and Rob MacNeil Cost-Effectiveness Analysis of Battery Energy Storage in Distribution Systems Embedded with Plugin Electric Vehicles Medhat El-Far and Walid Morsi An Islanding Detection Method Based on Measuring Impedance at the Point of Common Coupling 57	Session MA2: Power System Operation and Planning I	
point Monitoring for NILM Minh Nguyen, Sami Alshareef, A. Gilani and Walid Morsi Application of Wavelet-Based Classification in Non-Intrusive Load Monitoring Mathew Gray and Walid Morsi A Proposed Operating Plant Risk Profile to Improve the System Performance Harmanveer Cheema, Manpreet Sidhu, Shoaib Qabil, Hamed H. Aly and Rob MacNeil Cost-Effectiveness Analysis of Battery Energy Storage in Distribution Systems Embedded with Plugin Electric Vehicles Medhat El-Far and Walid Morsi An Islanding Detection Method Based on Measuring Impedance at the Point of Common Coupling 57	•	
Application of Wavelet-Based Classification in Non-Intrusive Load Monitoring Mathew Gray and Walid Morsi A Proposed Operating Plant Risk Profile to Improve the System Performance Harmanveer Cheema, Manpreet Sidhu, Shoaib Qabil, Hamed H. Aly and Rob MacNeil Cost-Effectiveness Analysis of Battery Energy Storage in Distribution Systems Embedded with Plugin Electric Vehicles Medhat El-Far and Walid Morsi An Islanding Detection Method Based on Measuring Impedance at the Point of Common Coupling 57	point Monitoring for NILM	37
Mathew Gray and Walid Morsi A Proposed Operating Plant Risk Profile to Improve the System Performance Harmanveer Cheema, Manpreet Sidhu, Shoaib Qabil, Hamed H. Aly and Rob MacNeil Cost-Effectiveness Analysis of Battery Energy Storage in Distribution Systems Embedded with Plugin Electric Vehicles Medhat El-Far and Walid Morsi An Islanding Detection Method Based on Measuring Impedance at the Point of Common Coupling 57	Minh Nguyen, Sami Alshareef, A. Gilani and Walid Morsi	
A Proposed Operating Plant Risk Profile to Improve the System Performance Harmanveer Cheema, Manpreet Sidhu, Shoaib Qabil, Hamed H. Aly and Rob MacNeil Cost-Effectiveness Analysis of Battery Energy Storage in Distribution Systems Embedded with Plugin Electric Vehicles Medhat El-Far and Walid Morsi An Islanding Detection Method Based on Measuring Impedance at the Point of Common Coupling 57		41
Harmanveer Cheema, Manpreet Sidhu, Shoaib Qabil, Hamed H. Aly and Rob MacNeil Cost-Effectiveness Analysis of Battery Energy Storage in Distribution Systems Embedded with Plugin Electric Vehicles Medhat El-Far and Walid Morsi An Islanding Detection Method Based on Measuring Impedance at the Point of Common Coupling 57	Mathew Gray and Walid Morsi	
Cost-Effectiveness Analysis of Battery Energy Storage in Distribution Systems Embedded with Plugin Electric Vehicles Medhat El-Far and Walid Morsi An Islanding Detection Method Based on Measuring Impedance at the Point of Common Coupling 57	A Proposed Operating Plant Risk Profile to Improve the System Performance	46
in Electric Vehicles Medhat El-Far and Walid Morsi An Islanding Detection Method Based on Measuring Impedance at the Point of Common Coupling 57	Harmanveer Cheema, Manpreet Sidhu, Shoaib Qabil, Hamed H. Aly and Rob MacNeil	
Medhat El-Far and Walid Morsi An Islanding Detection Method Based on Measuring Impedance at the Point of Common Coupling 57		51
	An Islanding Detection Method Resed on Measuring Impedance at the Point of Common Coupling	5 7
	Pegah Yazdkhasti and Christopher P. Diduch	3/

A Scalable Methodology to measure Power Distribution Networks Reliability Victor Torres, Breno Costa, Gustavo Horta, Henrique Borges, Paulo Almeida and Rodrigo Cardoso	63
Curuoso	
Session MA3 : Optimization	
Session Chairs: Xavier Fernando and Kaamran Raahemifar Exploration of Optimal Multi-Cycle Transient Fault Secured Datapath during High Level Synthesis based on User Area-Delay Budget Anirban Sengupta and Reza Sedaghat	69
GA DRIVEN INTEGRATED EXPLORATION OF LOOP UNROLLING FACTOR AND DATAPATH FOR OPTIMAL SCHEDULING OF CDFGS DURING HIGH LEVEL SYNTHESIS Pallabi Sarkar, Anirban Sengupta and Mrinal Kanti Naskar	75
Modeling and Optimization of PHEV Charging Queues Hesam Akbari and Xavier Fernando	81
Enhanced Placement Algorithm for FPGAs using Sparse Circuit Bahman Tavassoli, Farah Mohammadi and Kaamran Raahemifar	87
Optimization of Control Parameters Using Averaging of Handover Indicator and Received Power for Minimizing Ping-Pong Handover in LTE Noha Hassan, Khalid Elkhazeen, Kaarman Rahemafar and Xavier Fernando	92
Leaky Feeder, A New Linear Array Transceiver for Micro/Pico Cells Hasan Farahneh and Xavier Fernando	98
Session MA4 : Digital Circuits and Systems I	
Session Chairs : Xiang Li and Sidney Givigi	
A DLL-based Period Synthesis	103
Haizheng Guo and Tadeusz Kwasniewski	
Generalized Parallel CRC Computation on FPGA Christopher Kennedy and Mehran Mozaffari-Kermani	107
A DLL Fractional M/N Frequency Synthesizer Haizheng Guo and Tadeusz Kwasniewski	114
Enhancement of Gaussian Background Modelling Algorithm for Moving Object Detection & Its Implementation on FPGA Ge Guo, Mary Kaye and Yun Zhang	118
Calibration of Tri-axial Magnetometer in Magnetic Compass Using Vector Observations Xiang Li, Yongjun Wang and Zhi Li	123
A Self-Healing Technique Using ZTC Biasing for PVT Variations Compensation in 65nm CMOS Technology Hamidreza Nateghi and Kamal El-Sankary	128

Session MA5 : Computer Applications I	
Session Chairs: Bao-Liang Lu and Ying Tan	
A case Study on a Systematic Approach for Developing a User Interface Software for Programming	132
Intensive Software Tools Sharif Elshafai and Mahmaud Manshauii	
Sherif Elshafei and Mahmoud Menshawi	
Hybrid Concentration Based Feature Extraction Approach for Malware Detection	140
Pengtao Zhang and Ying Tan	
Robust Group Sparse Representation via Half-Quadratic Optimization for Face Recognition	146
Yong Peng and Bao-Liang Lu	140
rong reng and buo clang tu	
A Wearable and Ubiquitous NFC Wallet	152
Alaa Eddin Al-Chalabi, Samer Essa, Hasseb Shahzad, and Issam Damaj	
Key-Value Store Implementations for Arduino Microcontollers	158
Scott Fazackerley, Eric Huang, Graeme Douglas, Raffi Kudlac and Ramon Lawrence	
Subspace Method for Local Trend Extraction	165
Xuan Wu and Bin Xi	
Session MA6 : Biomedical Engineering I	
Session Chairs : Amine Miled and Vaidehi Vijayakumar	
A robust classification model based on iBSA and GCA Biomarkers for Diagnosis of Epilepsy	171
Ali Hassan, Farhan Riaz and Abdul Basit	
A robust classification model with Voting based feature selection for Diagnosis of Epilepsy	176
Ali Hassan, Farhan Riaz and Abdul Basit	
4V Microfluidic Platform for Biological Manipulation with Glycine, Glutamate, GABA and	180
Acetylcholine	100
Jessy Mathault, Benoit Gosselin and Amine Miled	
An Empirical Study to Remove Noise from Single-Trial MRCP for Movement Intention Detection	184
Ali Hassan, Farhan Riaz, Saad Rehman, Mads Jochumsen, Imran Niazi and Kim Dremstrup	
An efficient rule balancing for Scalable Complex Event Processing	190
Ravi Pathak and Vaidehi Vijayakumar	
A Genetic approach for Personalized Healthcare	196
Vaidehi Vijayakumar, Kirupa Ganapathy and Vignesh Raghuraman	.50
Session MP1 : Communications and Networking I	
Session Chairs: Amir Aghdam and Youmin Zhang	
Wireless Transmitter Bandwidth Extension using Dynamically Varying Capacitors	202

Connectivity Measures for Directed Random Graphs with Applications to Underwater Sensor Networks	208
Mohammad Mehdi Asadi, Hamid Mahboubi, Amir G. Aghdam and Stephane Blouin	
M-ary Chirp Modulation for Coherent and non-Coherent Data Transmission Mohammad Alsharef and Ravvendra Rao	213
Internet Traffic Control with the H_2/H_∞ Controller Navin Haghighizadeh and Oliver Yang	220
BER Performance of SC-FDMA with Subcarrier Sharing: Improvements on Spectral Efficiency Aymen Ben Salem and Claude D'Amours	226
Generalized Formulation for Trajectory Optimization in Patrolling Problems Walaaeldin Ahmed, Jalal Habibi, Amir Aghdam and Youmin Zhang	231
Session MP2 : Power System Operation and Planning II Session Chairs : Lin Gui and Chengnian Long	
A Power Quality Monitor System for Quantifying the Effects of Photovoltaic Penetration on the Grid	237
Sarah Kandil, Hany Farag, L. Hilaire and E. Janssen	
A Homogenized-overload Model Applied for Infeasible Security-Constrained Unit Commitment(SCUC) Problem	242
Chang He, Qixin Chen, Haiwang Zhong, Qing Xia, Lei Shi, Jing Zhang and Jianxun Song	
A New Criterion for GCB Open-phase Protection in Large Pumped Storage Units Heting Li, Lin Gui, Jun Chen, Rufei He, Shichao Liu and Xiaoyu Wang	248
Correlation of Weather Conditions and Power Quality for Distributed Generation and Modern Loads	254
Peter Sztur and Nafia Al-Mutawaly	
On-demand State Estimation with Sampling Time Skew in Power Systems Xinjun Ma, Chensheng Liu, Jing Wu and Chengnian Long	259
Comparative Study for Improving Damping Oscillation of SMIB System with STATCOM and BESS Using Remote and Local Signal Hesamaldin Maleki and Rajiv K. Varma	265
Session MP3 : Performance & Optimization	
Session Chairs: Stefano Gregori and Kaamran Raahemifar	_
A Hybrid Genetic Algorithm for Job-Shop Scheduling Problem	271
Lihong Wang, Haikun Ten and Guanghua Yu	

Indoor positioning of mobile devices with agile iBeacon deployment Hadis Kakanejadi Fard, Yuanzhu Chen and Kyung Kook Son	275
Efficiency Optimization for Monolithic Step-up DC-DC Converters Ahmed Shaltout and Stefano Gregori	280
Specific Azimuth Self-Calibration of PIGA of Inertial Platform System Zhou Yuan, Yan Lu, Zhang Jinyun, and Yu Pei	286
Transient Stability Optimization & Analysis for Transmission Systems & Generators to Prevent Cascade Failure by Coordinating Contingency Planning & Load-Shedding in Power Transmission Grid Shriram Shukla, Alan Fung and Kaamran Raahemifar	291
Designing a 2D Color Barcode Rinju Alice John and Kaamran Raahemifar	297
Session MP4 : Mobile Robotics I	
Session Chairs: Mae Steo and Sidney Givigi	
Construction, Modeling and Control of A Quadrotor for Target Localization	308
Amr Nagaty, Carl Thibault, Michael Trentini, Tullio Facchinetti and Howard Li	
Handling Stochastic Reward Delays in Machine Reinforcement Learning	314
Jeffrey Campbell, Sidney Givigi and Howard Schwartz	
Hybrid Virtual Holonomic Constraints for 2-D.O.F. Bipedal Robots	320
Mohamed Al Lawati and Christopher Nielsen	
Fast Monte Carlo Localization of AUV Using Acoustic Range Measurement	326
Sajad Saeedi, Mae Seto and Howard Li	320
Extracting Seafloor Elevations from Side-scan Sonar Imagery for SLAM Data Association Colin MacKenzie, Mae Seto and Yajun Pan	332
Cassian NADE - Camputan Applications II	
Session MP5 : Computer Applications II Session Chairs : Mark Wachowiak and Mohammed Khalid	
Cloud Computing and Visual Attention Based Object Detection for Power Substation Surveillance Robots	337
Yang Jian and Xin Wang	
Dynamic Particle Swarm Optimization with Heterogeneous Multicore Parallelism and GPU Acceleration	343
Mark Wachowiak, Renata Wachowiak-Smolikova and Devin Rotondo	
A Survey on Object Cache Locality in Automated Memory Management Systems	349
Marcel Dombrowski, Konstantin Nasartschuk, Kenneth B. Kent and Gerhard W. Dueck	

Accurate Shellcode Recognition from Network Traffic Data using Artificial Neural Nets	355
Patrick Onotu, David Day and Marcos A. Rodrigues	
Code Compression in Embedded Processors using Multi-dictionary and Pattern Blocks Ji Tu, Zilong Wang, Meisong Zheng, Lijian Li and Junye Wang	361
An Efficient Algorithm for Localization Using RSSI Based on ZigBee Khan Wahid, Xuechao Zhang and Ravi Shrestha	366
Session MP6 : Biomedical Engineering II Session Chairs : Amine Miled and Jing Ren Simulating Electrical Properties of Interdigitated Electrode Designs for Impedance-based Biosensing	370
applications Scott MacKay, Peter Hermansen, David Wishart, Wayne Hiebert and Jie Chen	370
Graph Search Based Detection of Periodic Activations in Complex Periodic Signals: Application in Atrial Fibrillation Electrograms Rupin Dalvi, Adrian Suszko and Vijay Chauhan	376
Class E RF Amplifier Design in an Ultrasonic Link for Wireless Power Delivery to Implanted Medical Devices	382
Hugo Vihvelin, Jeff Leadbetter, Manohar Bance, Jeremy Brown, and Robert Adamson	
Activation Detection of Intracardiac Electrogram During Atrial Fibrillation Based on the Variance Equality Test	387
Mohammad Hassan Shariat, Javad Hashemi, Saeed Gazor and Damian Redfearn	
Localization of the Ectopic Spiral Electrical Source Using Intracardiac Electrograms During Atrial Fibrillation Mohammad Hassan Shariat, Javad Hashemi, Saeed Gazor and Damian Redfearn	392
An Efficient Mining Algorithm for key Segment from DNA Sequences Guojun Mao	396
Session ME1 : Control System I	
Session Chairs: Luay Taha and Shuang Song On the Synthesis of Output Feedback Controllers for Increasing the Domain of Attraction of Piecewise Polynomial Systems Chuen Kit Luk and Graziano Chesi	400
Decentralized Leader-Follower Formation Control with Obstacle Avoidance of Multiple Unicycle Mobile Robots Mohamed A. Kamel and Youmin Zhang	406
Electrostatic Harvester for Wind Energy Harvesting and Wind Speed Remote Sensing	412

Optimal Teleoperation Control of A Constrained Tendon-driven Serpentine Manipulator Jan Feiling, Zheng Li, Haoyong Yu and Hongliang Ren	418
An Interval Type-2 Fuzzy Regulator for Magnetic Levitation System Umar Farooq, Jason Gu, Mohamed El-Hawary, Ghulam Abbas and Muhammad Usman Asad	424
Design of a 50nW, 0.5VDD Sub-Threshold OTA Amplifier with Indirect Compensation Technique and Class AB Output Stage	432
Ranga Babu Ganta, Mengye Cai, Kyle Fricke and Robert Sobot	
Session ME2 : Power Quality & Systems	
Session Chairs : Walid Morsi and Michael Dang	
Photovoltaic Inverters Technology	436
Shadi Shehadeh, Hamed Aly and Mohamed El-Hawary	
ROTOR ANGLE WIND TURBINE ENERGY CAPTURE CONTROL	444
Abdulrazig Alaraby and Mohamed El-Hawary	
From Transmission to Distribution Networks Harmonics Impacts on Modern Grid Michael Dang, Nafia Al-Mutawaly and John Lepoutre	452
Impacts of Distributed Generation on the Coordination of Protective Devices in Distribution Network	460
Paul Makanga Koumba, Ahmed Chériti and Mamadou Lamine Doumbia	
Shunt Active Power Filtering for Smart Appliances	466
Laith Al-Musawi, Nafia Al-Mutawaly and Nigel Schofield	
Practical Considerations For a Photovoltaic System Connected to the Network	471
Khedidja Ayache, Ahmed Chériti, Hocine Labar and Abdelhalim Sandali	
Session ME3 : Intelligent Transportation	
Session Chairs : Huseyin Akcay and Behrouz Far	
Spectral Modeling of Longitudinal Road Profiles	477
Semiha Turkay and Huseyin Akcay	
Short-Term Travel Time Estimation: A Case Study	489
Emad Mohammed, Charan Aulakh, Diwakar Krishnamurthy, Christopher Naugler and	
Behrouz Far	
Application of RFID System for the Process Control of Distributed Manufacturing System	497
Aliakbar Akbari, Shiva Mirshahi and Majid Hashemipour	

Comparison of RFID System and Barcode Reader for Manufacturing Processes	502
Aliakbar Akbari, Shiva Mirshahi and Majid Hashemipour	
Simulation-Based Benefit Analysis of Pattern Recognition Application in Intelligent Transportation Systems Hamdy Ibrahim and Behrouz Far	507
Session ME4 : Modelling II Session Chairs : Stephane Blouin and Greg Franks	
Simulating RCS of dispersive media using SO-FDTD-DPW method	513
Farid Mirhosseini and Bruce Colpitts	
Coherence Verification of Transmission Line Parameters with PMUs measurements at its ends	519
Claude Lafond, Innocent Kamwa, Jacques Prevost and Mathieu Nadeau	
LOCALIZATION ERROR OF UNDERWATER MULTISTATIC SCENARIOS WITH UNCERTAIN TRANSDUCERS' LOCATION Stephane Blouin	525
Mission Planning for Electromagnetic Environment Monitors Satellite Based on Simulated Annealing Algorithm Zhenhai Lin	530
A New Fractional Spur Modeling in Fractional-N Frequency Synthesizers	536
Najmeh Sadatnejad and Hossein Miar-Naimi	
Improved Interlock Correction When Solving Layered Queueing Networks Using Decomposition	541
Lianhua Li and Greg Franks	
Session ME5 : Computer Applications III Session Chairs : Mohammed Khalid and Ying-Wen Bai Using a Hybrid LDO Regulator and a Switching Regulator Circuit to Reduce the Power Consumption	547
in the Light Load Operation of a Server Motherboard Ying-Wen Bai and Cheng-Hung Lin	
This went but and energ trang bill	
Design and Evaluation of Avalon Compatile Adapter and Parametrizable NoC Router for FPGAs	553
Matthew Murawski, Jenita Manokaran and Mohammed Khalid	
An Overview of Altera SDK for OpenCL : A User Perspective	559
Ian Janik, Qing Tang and Mohammed Khalid	
Binary Input-Output Compressive Sensing: A Sub-Gradient Reconstruction	565
Sofiane Hachemi and Daniel Massicotte	

A Qualitative Comparison of FlexRay and Ethernet in Vehicle Networks Weiying Zeng, Mohammed Khalid and Sazzadur Chowdhury	571
Anti-Ghost Key Design for a Notebook Keyboard Chun-Hung Cheng and Ying-Wen Bai	577
Session ME6 : Biomedical Signal Processing I Session Chairs : Anh Dinh and Jing Ren	
A New Approach to Automatically Generate Optimal Poincaré Plane from Discrete Time Series	581
Babak Sharif and Amir Homayoun Jafari	
Online ECG Quality Assessment for Context-Aware Wireless Body Area Networks Diana P. Tobon and Tiago H. Falk	587
Accurate Seed Points classification Using Invariant Moments & Neural Network Anwar Abdalbari and Jing Ren	597
Feature Selection from Multisession Electrocardiogram Signals for Identity Verification	603
Majid Komeili, Narges Armanfard, Dimitrios Hatzinakos and Anastasios Venetsanopoulos	
Home Telehealth by Internet of Things (IoT) Salah Al-Majeed, Intisar Al-Mejibli and Jalal Karam	609
Session TA1: Image Processing I Session Chairs: Rachid Beguenane and Muhammad Talal Ibrahim Moving Objects Tracking from Most Probable Regions and Eliminating Camera Motion Mohammad Anvaripour, Shahpour Alirezaee, Majid Ahmadi and Sima Sotanpour	614
Encoding Spatio-temporal Distribution by Generalized VLAD for Action Recognition Biyun Sheng, Yan Yan and Changyin Sun	620
A COMPARATIVE STUDY OF DIRECTIONAL FILTERS WITH APPLICATION TO ANGIOGRAM IMAGE ENHANCEMENT Muhammad Talal Ibrahim, A. N. Venetsanopoulos and Ling Guan	626
A Variational Textured Image Decomposition Model and Its Efficient MPI Implementation Reza Shahidi and Cecilia Moloney	630
Applications and Validation Tests of Ground-Based Coherent Radar for Deformation and Vibration Measurements in Canada's Atlantic Region A. Hakobyan, P. McGuire, D. Power, T. Puestow, C. Moloney, G. Luzi, P. Guccione	638
Research on Image Denoising Using Patch-based Singular Value Decomposition	643

Session TA2 : Power Electronic Converters & Controls I Session Chairs : Vijay Sood and Gang Yao	
Photovoltaic Multi-level Inverter Technology	648
Shadi Shehadeh, Hamed Aly and Mohamed El-Hawary	
Open Circuit Fault Diagnosis for the Power Electronic Converter Stages using ANFIS Algorithm	656
Tamer Kamel, Yevgen Biletskiy and Liuchen Chang	
Capacitor Aging Detection for the DC Filters in the Power Electronic Converters using ANFIS Algorithm	663
Tamer Kamel, Yevgen Biletskiy and Liuchen Chang	
commissioning generator AVR, PSS and Model Validation Wenyan Gu	669
A Flexible Laboratory Platform for Multidisciplinary Electrical Engineering Courses	674
Marcos Aguirre, Vijay Sood and Julio Pimentel	
The Study of Hybrid Modulation Based on Cascade SVG and its DC Control Method	680
Gang Yao, Luan He, Xin Wang, Lidan Zhou and Huajun Yu	
Session TA3: Circuit and System Session Chairs: Naraig Manjikian and Xiang Li Low Noise CMOS Voltage-Control Oscillator Design Methodology with Emphasis on Non-linear Effect Contributions, 2.4 GHz CMOS Design Example Zhe Jiang, Haizheng Guo and Tadeusz Kwasniewski	686
Design of a low-power 2.4GHz Current Reuse VCO for Biomedical Implantable Applications Mengye Cai, Kyle Fricke and Robert Sobot	69 1
Hardware Implementation of a High Speed Self-Synchronizing Cipher Mode Yuanchi Tian and Howard Heys	695
An Integrated Hardware Platform for Four Different Lightweight Block Ciphers	70 1
Haohao Liao and Howard Heys	
Dynamic RAM-Based Programs and Tasks in the Freescale MQX Operating System Naraig Manjikian	706
A Smart System Connecting e-Health Sensors and the Cloud Mohammad S. Jassas, Abdullah A. Qasem, Qusay H. Mahmoud	712

Session TA4: Mobile Robotics II

Session Chairs: Guohui Tian and Claude DAmours Path Planning for Autonomous Underwater Vehicle Based on Artificial Potential Field and Velocity	717
Synthesis Chunlei Cheng, Daqi Zhu, Bing Sun, Zhenzhong Chu, Jianduo Nie and Sheng Zhang	, _ ,
Dynamics Modelling and Implementation of an Attitude Control on an Octorotor	722
S. Jamal Hadaddi, Payam Zarafshan and Farahnaz J. Niroumand	
Design of a dead reckoning based motion control system for small autonomous underwater vehicle	728
Zhenzhong Chu, Daqi Zhu, Bing Sun, Jianduo Nie and Di Xue	
Design and Implementation of a Robotic Car to Recognize Traffic Signs	734
Hassam Moazzam, Muhammad Usman Asad, Ghulam Abbas, Umar Farooq and Jason Gu	
Monitoring the dispersion of an intentionally released tracer, SF5CF3 with an instrumented,	738
unmanned surface vehicle. Chris Lesperance and Douglas Wallace	
Vision Based Autonomous Gap-Flying-Through Using the Micro Unmanned Aerial Vehicle	744
Erli Lyu, Yuan Lin, Wei Liu, Max Q.–H. Meng	
Session TA5 : Computer Applications IV	
Session Chairs : Colin O'Flynn and Mary Kaye	
Side Channel Power Analysis of an AES-256 Bootloader	750
Colin O'Flynn and Zhizhang Chen	
A Tweet Grouping Methodology Utilizing Inter and Intra Cosine Similarity	756
Navneet Kaur and Craig Gelowitz	
Navneet Kaur and Craig Gelowitz A method of vision-based navigation for rescue robots using motion information	765
A method of vision-based navigation for rescue robots using motion information	
A method of vision-based navigation for rescue robots using motion information Jun Luo, Chunming Yan, Huayan Pu, Hengli Liu, Shaorong Xie and Jason Gu	765
A method of vision-based navigation for rescue robots using motion information Jun Luo, Chunming Yan, Huayan Pu, Hengli Liu, Shaorong Xie and Jason Gu GPU Acceleration for Fixed Complexity Sphere Decoder in Large MIMO Uplink Systems	765
A method of vision-based navigation for rescue robots using motion information Jun Luo, Chunming Yan, Huayan Pu, Hengli Liu, Shaorong Xie and Jason Gu GPU Acceleration for Fixed Complexity Sphere Decoder in Large MIMO Uplink Systems Tianpei Chen and Harry Leib	765 771
A method of vision-based navigation for rescue robots using motion information Jun Luo, Chunming Yan, Huayan Pu, Hengli Liu, Shaorong Xie and Jason Gu GPU Acceleration for Fixed Complexity Sphere Decoder in Large MIMO Uplink Systems Tianpei Chen and Harry Leib High-level Spatial Modeling in Convolutional Neural Network with Application to Pedestrian Detection	765 771
A method of vision-based navigation for rescue robots using motion information Jun Luo, Chunming Yan, Huayan Pu, Hengli Liu, Shaorong Xie and Jason Gu GPU Acceleration for Fixed Complexity Sphere Decoder in Large MIMO Uplink Systems Tianpei Chen and Harry Leib High-level Spatial Modeling in Convolutional Neural Network with Application to Pedestrian Detection Feng Liu, Yongzhen Huang, Wankou Yang and Changyin Sun	765 771

Feature Extraction for Identification of Extension and Flexion Movement of Wrist using EMG Signals	792
Ijlal Haider, Muhammad Shahbaz, Muhammad Abdullah and Muhammad Nazim	
Segmentation of voiced newborns' cry sounds using Wavelet Packet based features	796
Lina Abou-Abbas, Hesam Farsaie Alaie and Chakib Tadj	
Contact-free Detection of Respiration Signal from Continuously Moving-object Noise via a Doppler Radar Using Adaptive Line Enhancer Chuantao Li, Guohua Lu, Fuming Chen, Fugui Qi and Jianqi Wang	801
Classifier Fusion Interactive Software Toolbox for EMG Signal Decomposition Sarbast Rasheed, Daniel Stashuk and Mohamed Kamel	806
The effect of Propofol induced anesthesia on Human 40-Hz Auditory Steady State Response	812
Sahar Javaher Haghighi, Dimitrios Hatzinakos and Hossam El Beheiry	
Session TP1 : Wireless Networks I Session Chairs : Bradford Nickerson and Adel Merabet	
Electrical Grid Peak Reduction With Efficient and Flexible Automated Demand Response Scheduling	818
Michelle Clark and Lutz Lampe	
On the Performance of Beamforming-based Channel Assignment in Dense Wireless Mesh Networks	824
Aizaz Chaudhry, Roshdy Hafez and John Chinneck	
A Sociality-Aware Online AP Association Algorithm Based on Spectral Clustering Haibo Ni, Lei Wang, Zhenjie Yang, Ming Zhu, Feng Ding and Zhenquan Qin	830
A Method for Intrusion Detection in Web Services Based on Time Series	836
Paria Shirani,Mohammad Abdollahi Azgomi and Saed Alrabaee	
A Low Cost and Flexible Open Source Communications Framework for Temporally Aligned Sampling in Distributed Sensing Systems Scott Fazackerley, Dan Lang and Craig Nichol	842
A Measurement Study of a Campus Wi-Fi Network with Mixed Handheld and Non-handheld Traffic	848
Ming Zhu, Zhicheng Zeng, Lei Wang, Zhenquan Qin, An Pan, Yuanyuan Zhang and Lei Shu	
Session TP2 : Power Electronic Converters & Controls II	
Session Chairs : Shaoxing Zhao and Mohammad Uddin	
Simulation of Heat Transfer and Air Cooling in a Power Rectifier Cabinet for Generator Excitation System	854
Yixiang Shao, Qipin Xu, Qiantao Huo, Chunjian Xu and Shaoxing Zhao	

Improving Inverter Efficiency at Low Power by Reducing Switching Frequency	859
Tahsina Hossain Loba, David Wood and Edwin Nowicki	
Optimization Research of Turn-on Angle and Turn-off Angle based on Switched Reluctance Starter/generator System	864
Xiaoshu Zan, Yingjie Huo and Jason Gu	
Design of a Synchronous Sepic DC-DC Converter for a Stand-alone Photovoltaic System M. Kaouane, A. Boukhelifa and A. Cheriti	870
Performance Enhancement of a Bi-Directional DC-DC Converter using a Cuk Converter for Electric Vehicle Applications Mohammad Uddin, Md. Mizanur Rahman and Md. Khurshedul Islam	875
A Novel Probabilistic Load Model and Probabilistic Power Flow Mohammed E. Nassar and M.M.A Salama	881
Session TP3 : Communications and Networking II	
Session Chairs: Colin O'Flynn and Maazen Alsabaan A Novel Low-Complexity Statistical Discrimination Technique for Collision Detection in Wireless Sensor Networks Based on Short Pilot Periods Transmission Fawaz Alassery, Walid Ahmed, Mohsen Sarraf and Victor Lawrence	887
Competitive Clustering of Wireless Sensor Networks with Ultra-Wideband Multiple-Access Relay Channel	893
Assad Sahebalam and Soosan Beheshti	
Greener Electric Vehicles with VANETs Maazen Alsabaan	898
SNACK: An Efficient Intrusion Detection System in Mobile Ad-Hoc Network based on the Selective-Negative Acknowledgement Algorithm Babak Emami Abarghouei, Saeed Samet, Abouzar Azarpira and Ali Farrokhtala	903
Orthogonal Stacked Composite M-sequence Labels for Quick Packet Routing over Optical MPLS Network Sheng-Hui Meng, Kai-Sheng Chen, Jen-Fa Huang and Chao-Chin Yang	908
Error Performance of BPSK-Modulated Radio Transmissions over SQC-Coded Optical CDMA Network Chao-Chin Yang, Jia-Cyuan Kuo, Jen-Fa Huang and Kai-Sheng Chen	914
Session TP4 : Control System II Session Chairs : Rachid Beguenane and Hamed Hossein Afshari	
State Estimation of A Faulty Actuator Using the Second-Order Smooth Variable Structure Filter	919

Robustness Comparison of Some State Estimation Methods with an Explicit Consideration of Modeling Uncertainties	925
Hamed Afshari, Dhafar Al-Ani and Saeid Habibi	
CMOS based Single Active Element PID Controllers	932
Meftah Mahmoud Mohamed and Jason Gu	
Adaptive Nonsingular Terminal Sliding Mode Control for Variable Speed Wind Turbine Saravanakumar Rajendran and Debashisha Jena	937
Feedback Linearization Control with Sliding Mode Disturbance Compensator for PMSG based Wind Energy Conversion System	943
Adel Merabet, Khandker Tawfique Ahmed, Rachid Beguenane and Hussein Ibrahim	
Intelligent Real-time Fault Diagnosis: Methodology and Application Hosein Marzi	948
Session TP5 : Modelling III Session Chairs : Kon Wong and Binqiang Si	
Remedial Operations for Open- and Short-Circuit Faults of Permanent Magnet Fault Tolerant Motor	953
Binqiang Si, Jihong Zhu, Guangshang Zeng and Zongxia Jiao	
DETECTION OF NARROW-BAND SONAR SIGNAL ON A RIEMANNIAN MANIFOLD	959
Jiaping Liang, Kon Max Wong and Jian Kang Zhang	
Online Parameter Identification for a DFIG Driven Wind Turbine Generator based on Recursive Least Squares Algorithm Karim Belmokhtar, Hussein Ibrahim and Adel Merabet	965
Dynamic Modeling and Simulation of Temperature and Current Effects on an Electric Vehicles Lithium Ion Battery Hanane Hemi, Jamel Ghouili and Ahmed Cheriti	970
EXHAUST GAS TEMPERATURE DATA PREDICTION BY AUTOREGRESSION MODELS	976
Amar Kumar, Alka Srivastava, Nita Goel and Jon McMaster	
Semiglobal Robust decentralized tracking control for a class of uncertain MIMO nonlinear systems	982
Yukun Guo, Yao Yu, Yidao Ji and Changyin Sun	

Session TP6 : Control Applications	
Session Chairs: Dong Eui Chang and Yintao Wang Quasi-Linearizability of Various Benchmark Control Mechanical Systems	995
	333
Dong Eui Chang and Kyung-Hyun Choi	
Distributed Path Following Control of Multiple Underactuated AUVs via Constructing an Interconnected system Structure Approach Yintao Wang and Qi Sun	1000
The Residual Gradient FACL Algorithm for Differential Games	1006
Mostafa D. Awheda and Howard M. Schwartz	
Impact of PMU's on Robust Estimators In The Presence of Gross Errors Ibrahim Habiballah	1012
An Open Source Inertial Sensor Network with Bluetooth Smart Hao Yan and David Johns	1018
Session TE1: Wireless Networks II Session Chairs: Vijay Bhargava and Bradford Nickerson A Unified Practical Approach to Modulation Classification in Cognitive Radio using Likelihood-Based Techniques Ahmed Abdul Salam, Ray Sheriff, Saleh Al-Araji, Kahtan Mezher and Qassim Nasir	1024
Zero-Forcing Assisted Spatial Stream Allocation in Uplink Multiuser MIMO Systems Aasem Alyahya and Jacek Ilow	1030
The Performance Analysis of Hard Spectrum Sensing Schemes based on Non-Reconstruction Compressed Sampling Hao Wu, Hangsheng Zhao, Yong Chen and Yongxiang Liu	1036
Downlink Cell Association for Large-Scale MIMO HetNets Employing Small Cell Wireless Backhaul Ning Wang, Ekram Hossain and Vijay K. Bhargava	1042
Performance of Mobile Wireless Sensor Network Communication with 6LoWPAN Weiqi Zhang, Mohammadreza Yavari and Bradford Nickerson	1048
Design of Adaptive Antenna Systems for LTE using Genetic Algorithm and Particle Swarm Optimization Naga Raghavendra Surya Vara Prasad Koppisetti, Shankhanaad Mallick and Vijay K Bhargava	1054
Session TE2 : Power Electronic Converters & Controls III	
Session Chairs : Xiaoyu Wang and Mohammad Uddin	
Modeling and Control for an Integrated Thermal Hydronic System	1060

Performance and Control of a Back to Back MMC-HVDC for Asynchronous ac Networks Interconnection	1066
Khaled Hazem and Mohamed Moustafa	
Impact Assessment of Electric Vehicle Charging on Hydro Ottawa Distribution Networks at Neighborhood Levels Jian Xiong, Di Wu, Haibo Zeng, Shichao Liu and Xiaoyu Wang	1072
Droop Control Based Stabilization Method for V/f PWM Inverter Fed Induction Motor Drive System	1078
Shuying Yang, Pengpeng Cao, Liuchen Chang, Zhen Xie and Xing Zhang	
A Parameter-Robust Sliding Mode Observer for Speed Sensorless Torque Control of PMSG in Wind Power Generation System Shuying Yang, Leilei Guo, Lifeng Qi, Liuchen Chang and Xing Zhang	1083
Investigating the Vibration-based Energy Harvester Characteristics to Obtain Maximum Efficiency for an Electrical Interface Ahmed Badr, Jonathan Lueke, Walied Moussa, Ying Tsui and Edmond Lou	1088
Session TE3 : Communications and Networking III	
Session Chairs : Zhipeng Wang and Carey Williamson	
Performance Evaluation and Improvement of TCP/IPv6 over IEEE 802.15.4 under Wi-Fi Interference	1095
Gerry Ji, Zhipeng Wang, Diandi Zhu, Dimitrios Makrakis and Hussein Mouftah	
Energy Efficient Cognitive Radio MAC Protocol for Battlefield Communications	1101
S. M. Kamruzzaman, M. Anwar Hossain and Abdullah Alghamdi	
Sensor Medium Access Control (SMAC)-based Epilepsy Patients Monitoring System	1109
Safa Otoum, Muayad Ahmed and Hussein T. Mouftah	
Evaluating Packet Erasure Recovery Techniques for Video Streaming	1115
Murali k Padmanaban and Jacek Ilow	
A Novel Detection Scheme for Space-Time Block Coded Systems with Imperfect CSI and CFO Estimation	1120
Garima Deep, Behnam Shahrrava and Shayondip Sinha	
Performance Evaluation of an ITS System Integrated with Complementary LEO mobile satellite system	1124
Tianning Liang, Zhipeng Wang and Hussein T. Mouftah	

Session TE4 : Control System III Session Chairs : Guohui Tian and Adel Merabet Sliding Mode Speed Control for Wind Energy Conversion System Adel Merabet, Khandker Tawfique Ahmed, Hussein Ibrahim, Rachid Beguenane and Karim Belmokhtar	1130
Adaptive Controller Design for Generic Quadrotor Aircraft Platform Subject to Slung Load Ying Feng, Camille Alain Rabbath, Subhash Rakheja and Chun-Yi Su	1135
A modified pseudo inverse method for control allocation in electromechanical coupled systems	1140
Messaoud Bernia, Hakim Teiar, and Pierre Sicard	
Posture Control of 3DOF Parallel Manipulator using Feedback Linearization and Model Reference Adaptive Control	1145
Sahar Alinia, Masoud Hemmatian, Wen-Fang Xie and Rui Zeng	
A hierarchical algorithm for load sharing in Multi-machine Multi-converter Systems with flexible coupling	1151
Messaoud Bernia and Pierre Sicard	
Target Tracking of Cloud Robot in Intelligent Space	1156
Guohui Tian, Sen Sang, Fei Lu and Xiaoguang Shi	
Session TE5: Digital Circuits and Systems II Session Chairs: Dong Eui Chang and Binqiang Si CS-based TIAs Using Inductive Feedback approach in 90nm CMOS	1162
Omidreza Ghasemi	1102
Sound Target Localization in a 2-D Microphone Array Sajad Gholamrezaei, Shahpour Alirezaee, Arash Ahmadi, Majid Ahmadi and Shervin Erfani	1168
A CMOS Implementation of Programmable Gaussian Fuzzifier	1172
Amir Alikhani, Arash Ahmadi, Shahpour Alirezaee, Majid Ahmadi and Shervin Erfani	
A Novel Memristor Based Integrate-and-Fire Neuron Implementation Using Material Implication Logic	1176
Mehri Teimoori, Arash Ahmadi, Shahpour Alirezaee, Seyed Vahab Al-Din Makki and Majid Ahmadi	
Real-Time Implementation of an Adaptive Noise Canceller based on MicroBlaze Soft Processor	1180
Mohammed Bahoura and Hassan Ezzaidi	

A Low Power Sigma-Delta Modulator using Charge-Steering Opamp for Bluetooth Application Sarah El-Sayed, Ghazal Fahmy, Aziza Hussein and Farouk Al Geldawy	1184
Session TE6 : Human Computer Interactions	
Session Chairs: Fakhri Karray and Sabast Rasheed	
An adaptive time window method for human activity recognition Sheng Zhang, Hailong Chen, Chuan Jiang and Shaojun Zhang	1188
Some Issues of Mood Classification for Chinese Popular Music	1193
Jianglong Zhang, Xianglin Huang, Lifang Yang and Ye Xu	
Cloud-Assisted Framework for Health Monitoring	1199
M. Shamim Hossain and Ghulam Muhammad	
A Speller System for Locked-in Patient to Communicate with Friends Rui Zhang, Yanping Yang, Junbo Wang, Teng Ma, Xulin Lv and Peng Xu	1203
A High Performance Algorithm to Diagnosis of Skin Lesions Deterioration in Dermatoscopic Images Using New Feature Extraction	1207
Neda Razazzadeh and Mehdi Khalili	
Spectral Emotion Profile	1213
Pouria Fewzee and Fakhri Karray	
Session WA1 : Image Processing II	
Session Chairs: Soosan Beheshti and Saif alZahir Robustness of Wavelet Domain Watermarking Against Scaling Attack Yashar Naderahmadian and Soosan Beheshti	1218
New Gage for Measuring Image Quality Saif AlZahir and Radwa Hamma	1223
A FAST WAVELET PACKET AND PCA BASED IMAGE INDEXING AND AUTHENTICATION METHOD	1228
Saif AlZahir and D. Singh	
Contourlet Domain Image Denoising based on the Bessel k-form Distribution	1234
Hamidreza Sadreazami, M.Omair Ahmad and M.N.S. Swamy	
A Realistic Attack on SVD Based Watermarking Scheme Yashar Naderahmadian and Soosan Beheshti	1238
rashar Maderannadian ana soosan benesila	

Facial emotion detection of smartphone games users Nazih Heni and Habib Hamam	1243
Session WA2: Speech, Audio and Language Processing Session Chairs: Azeddine Kaddouri Kaddouri and Shashidhar Koolagudi Comparative Analysis of Speech Dereverberation in Noisy Acoustical Environments Marjan Joorabchi, Seyed Ghorshi and Ali Sarafnia	1248
The effects of whispered speech on state-of-the-art voice based biometrics systems Milton Sarria, Mohammed Senoussaoui and Tiago Falk	1254
Performance of Using LDA for Chinese News Text Classification Xiaojun Wu, Liying Fang, Pu Wang and Nan Yu	1260
Automatic Emotion Recognition using Auditory and Prosodic Indicative Features Soumaya Gharsellaoui, Sid-Ahmed Selouani and Adel Omar Dahmane	1265
Classification of Vocal and Non-vocal Regions from Audio Songs using Spectral Features and Pitch Variations Y.V. Srinivasa Murthy and Shashidhar G. Koolagudi	1271
On the Use of a Codebook-based Modeling Approach for Bayesian STSA Speech Enhancement Golnaz Ghodoosipour, Eric Plourde and Benoit Champagne	1277
Session WA3 : Controls and Robotics I	
Session Chairs: Nicholas Krouglicof and Peter Caines A Novel Robust Trajectory Tracking Controller for Small-Scale Unmanned Helicopter Xing Fang, Ai-guo Wu and Na Dong	1283
Rapid-Prototyping of Iterative Learning Control Using MATLAB/Simlink Hybrid-Programming Yongqiang Ye, Abdelhamid Tayebi and Xiaoping Liu	1289
Controller Design for Low-Input Voltage Switching Converters having Non-minimum Phase Characteristics Ghulam Abbas, Umar Farooq, Jason Gu and Usman Asad	1294
An Estimation Based Allocation Rule with Super-linear Regret and Finite Lock-on Time for Time-dependent Multi-armed Bandit Processes Prokopis Prokopiou, Peter Caines and Aditya Mahajan	1299
Optimization of Controller Gains for FPGA-Based Multivariable Motion Controller Using Response Surface Methodology Hari Priyai Sekaran, Migara Liyanage and Nicholas Krouglicof	1307
Efficient robot navigation for semi-structured indoor storehouse Kai Sun, Yuanlong Yu and Jason Gu	1313

Session WA4 : Communications and Networking IV Session Chairs : Wahab Almuhtadi and Carey Williamson Implementation of Structural Health Monitoring based on RFID and WSN	1318
Shiva Mirshahi, Aliakbar Akbari and Sener Uysal	
Comparison of Simulated and Real Network Traffic Results for Multimedia Streaming Over WiMAX Networks with QoS Scheduling	1324
Natalia Gorbenko, Emmanuel Jean-Pierre, Wahab Almuhtadi and Anand Srinivasan	
Bit Error Probability Performance Bounds of CPFSK over Fading Channels	1329
Abdulbaset Hamed, Mohammad Alsharef and Raveendra Rao	
An Atomic Capability Chain Composition Method Zhongyun Tang, Rong Jin and Ligang Dong	1335
A reconfigurable system of routing and switching node based on ATC Chengming Huang, Rong Jin, Chuanhuang Li and Kelei Jin	1339
Deduping the Internet: An Email Case Study Carey Williamson	1345
Constant MART - Martin Lone Martin and a UI	
Session WA5 : Wireless Networks III	
Session WA5: Wireless Networks III Session Chairs: Fadhel Ghannouchi and Diane Kelly	
	1351
Session Chairs : Fadhel Ghannouchi and Diane Kelly	1351
Session Chairs: Fadhel Ghannouchi and Diane Kelly Temporal and Spatial Correlation based Distributed Fault Detection in Wireless Sensor Networks	1351 1356
Session Chairs: Fadhel Ghannouchi and Diane Kelly Temporal and Spatial Correlation based Distributed Fault Detection in Wireless Sensor Networks Tianqi Yu, Auon Muhammad Akhtar, Xianbin Wang and Abdallah Shami A Publish/Subscribe Middleware Cost in Wireless Sensor Networks	
Session Chairs: Fadhel Ghannouchi and Diane Kelly Temporal and Spatial Correlation based Distributed Fault Detection in Wireless Sensor Networks Tianqi Yu, Auon Muhammad Akhtar, Xianbin Wang and Abdallah Shami A Publish/Subscribe Middleware Cost in Wireless Sensor Networks Tarek Sheltami, Anas Al-Roubaiey, Ashraf Mahmoud and Elhadi Shakshuki Performance Optimization of Big Data in Mobile Networks Abhinandan Ramaprasath, Anand Srinivasan and Chung-Horng Lung End-to-End Delay and Throughput Analysis and Performance of Satellite-UMTS Telecommunication Networks	1356
Session Chairs: Fadhel Ghannouchi and Diane Kelly Temporal and Spatial Correlation based Distributed Fault Detection in Wireless Sensor Networks Tianqi Yu, Auon Muhammad Akhtar, Xianbin Wang and Abdallah Shami A Publish/Subscribe Middleware Cost in Wireless Sensor Networks Tarek Sheltami, Anas Al-Roubaiey, Ashraf Mahmoud and Elhadi Shakshuki Performance Optimization of Big Data in Mobile Networks Abhinandan Ramaprasath, Anand Srinivasan and Chung-Horng Lung End-to-End Delay and Throughput Analysis and Performance of Satellite-UMTS Telecommunication	1356 1364

Session WA6: Digital Circuits and Systems III Session Chairs: Mahmoud Smadi and Yuan Ma Er3+- Er3+ interaction effects and performance evaluation of Erbium Doped Fiber Amplifiers	1383
Md. Ziaul Amin and Khurram Karim Qureshi	
Effect of Image Degradation on nm-scale MEMS FFT optical displacement measurements	1387
Hunter King, Stephan Warnat and Ted Hubbard	
Photonic nanojets generated by rough surface micro-cylinders	1393
Ran Chen, Jie Lin, Peng Jin, Michael Cada and Yuan Ma	
An Enhanced Combining Technique of Homodyne ASK Optical System with Laser Phase Noise	1398
Mahmoud Smadi and Yazan Al-Badarneh	
A Novel Asymmetrical SRAM Cell Tolerant to Soft Errors	1403
Lixiang Li, Yuanqing Li, Yuan Ma and Li Chen	
A Robust Fuzzy Logic Controller For A Green Plug–Switched Filter For Nonlinear Loads Albe Bloul, Adel Sharaf, Hossam Mossbah and Mohamed El-Hawary	1409
Session WP1 : Image Processing III	
Session Chairs: Jean-Philippe Montillet and Yuan Ma On User-Defined Region Matching for Augmented Reality	1414
Jiawei Zhou and Shahram Payandeh	2121
Covariance Matrix Analysis for Higher Order Fractional Brownian Motion Time Series	1420
Jean-Philippe Montillet and Kegen Yu	
An Improved Mean Shift Algorithm for Moving Object Tracking	1425
Ning Li, Dan Zhang, Xiaorong Gu, Li Huang, Wei Liu and Tao Xu	
A New Petiole Detection Algorithm Based on Leaf Image	1430
Zhaobin Wang, Xu Zheng, Xiaoguang Sun, Hao Wang, Ying Zhu, Jiangpeng Liu and Yide Ma	
Visual Tracking Based on Compressive Sensing and Particle Filter	1435
Wenhui Huang, Jason Gu and Xin Ma	
Super-resolution Focusing with Polarized Optical Beam	1441
Jie Lin, Ran Chen, Peng Jin, Michael Cada and Yuan Ma	
Session WP2 : Artificial Intelligence	
Session Chairs: Azeddine Kaddouri Kaddouri and Eduardo Castillo Guerra	4 4 4 5
Artificial Intelligence Application for Improving Cyber-Security Acquirment	1445

Identification of Piezoelectric LuGre model based on Particle Swarm Optimization and Real-Coded Genetic algorithm Raoul Irakoze, Khadidja Yakoub and Azeddine Kaddouri	1451
Implementation of machine learning algorithms on a fixed-point DSP Swetha Bharati and Ashok Jhunjhunwala	1458
A Study on Dimensions of Feature Space for Text-Independent Speaker Verification Systems Arash Mansouri, J. Cardenas-Barrera and Eduardo Castillo-Guerra	1464
Speaker Models Reduction for Optimized Telephony Text-Prompted Speaker Verification Elaheh Kalantari, Hossein Sameti and Hossein Zeinali	1470
Learning to Reason in A Probably Approximately Correct Manner Jane Gomes and Daniel Silver	1475
Session WP3 : Controls and Robotics II	
Session Chairs: Xianjun Sheng and Zhao-Hui Jiang Adaptive Motion Pattern Generation on Balancing of Humanoid Robot Movement Azhar Aulia Saputra, Achmad Subhan Khalilullah, Indra Adji Sulistijono and Naoyuki Kubota	1479
Study on Aircraft Engine Installation System Based on Automated Docking Technology Jie Wang, Xianjun Sheng, Tao Jiang and Min Xie	1485
iPlant: The Greenhouse Robot Bashayer Al-Beeshi, Bashayer Al-Mesbah, Sara Al-Dosari and Mohammed El-Abd	1489
A Hardware In the Loop Simulation for Electrically Driven robot manipulator Lilia Zouari, Mossaad Ben Ayed and Mohamed Abid	1495
Workspace Trajectory Control of Flexible Robot Manipulators Using Neural Network and Visual Sensor feedback Zhao-Hui Jiang	1502
Observer Based Fuzzy LMI Regulator for Stabilization and Tracking Control of an AeroPendulum	1508
Umar Farooq, Jason Gu, Mohamed El-Hawary, Jun Luo and Usman Asad	
Session WP4: Current Challenges in Networked Underwater Systems Session Chairs: Stephane Blouin and Amir G. Aghdam Autonomy and Networking Challenges of Future Underwater Systems	1514
Stephane Blouin, Garry J. Heard and Sean P. Pecknold	

Time-Variant Acoustic Propagation Characterization in Seaport Deployments Jean-Francois Bousquet, Graham McIntyre and J. Quirion	1520
Performance Investigation on Constraint Sufficient Statistics Distributed Particle Filter Jun Ye Yu, Michael Rabbat, Mark Coates and Stephane Blouin	1526
Simulation of Underwater Communications with Colored Noise Approximation and Mobility Michel Barbeau, Stephane Blouin, Gimer Cervera, Joaquin Garcia-Alfaro, Bita Hasannezhad and Evangelos Kranakis	1532
Simulation of Communications Based on Underwater Acoustic Signals Impaired by Wide Band Attenuation Jie Huang, Michel Barbeau, Stephane Blouin, Craig Hamm and Martin Taillefer	1538
Location-free Link State Routing for Underwater Acoustic Sensor Networks Michel Barbeau, Stephane Blouin, Gimer Cervera, Joaquin Garcia-Alfaro and Evangelos Kranakis	1544
Session WP5 : Smart System	
Session Chairs: Diane Kelly and Abdallah Farraj Forecasting the Power Consumption of a Single Domestic Electric Water Heater for a Direct Load Control Program Mostafa Shaad, Ahmadreza Momeni, Christopher P. Diduch, Mary E. Kaye and Liuchen Chang	1550
Requirements Gathering and Testing by Game Playing Diane Kelly, Joshua De Boer, Peter Uhlenbruck and Stuart Webb	1556
A Medical Computing Lab and a Model of Learning Diane Kelly and Maria Skordaki	1561
Performance Analysis of LTE Protocol for EV to EV Communication in Vehicle-to-Grid (V2G) Santoshkumar Hampannavar and Udaykumar Yaragatti	1567
Cooperative Microgrid Networks for Remote and Rural Areas Eman Hammad, Abdallah Farraj and Deepa Kundur	1572
On Using Distributed Control Schemes to Mitigate Switching Attacks in Smart Grids	1578
Abdallah Farraj, Eman Hammad and Deepa Kundur	

Session WP6 : Marine Technology Session Chairs : Mae Seto and Jie Chen

Preliminary Study on Navigation Performance Optimization Analysis of A New Type USV and Its Methods	1583
Shengping Jing, Tianyu Ma and Songlin Yang	
A Wave Simulator and Active Heave Compensation Framework for Demanding Offshore Crane Operations	1588
Filippo Sanfilippo, Lars Ivar Hatledal, Houxiang Zhang, Webjørn Rekdalsbakken and Kristin Ytterstad Pettersen	
AIS Data Exchange Protocol Study and Embedded Software Development for Maritime Navigation	1594
Essaadali Riadh, Chokri Jebali, Grati Khaled and Kouki Ammar	
Selective Orthogonal Predistortion for Power Amplifiers	1600
Chokri Jebali, Riadh Essaadali, Hung Cao and Ammar Kouki	
Observer–Based Synchronization of Networked Hindmarsh–Rose Neurons	1605
F. Kemal Bayat, Mutlu Yilmaz and M. E. El-Hawary	