2007 International Conference on Industrial and Information Systems

(ICIIS 2007)

Peradeniya, Sri Lanka
9 – 11 August 2007
# TABLE OF CONTENT

<table>
<thead>
<tr>
<th>Title</th>
<th>Authors</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Leader Election Algorithm for Clustered Groups</td>
<td>Amir Sharifloo, Mehdi Mirakhorli, Mostafa Esmaeili, Haghighat A.T.</td>
<td>1-4</td>
</tr>
<tr>
<td>Architecting Secure Web Services Through Policies</td>
<td>Mifla Mashood, Gihan Wikramanayake</td>
<td>5-10</td>
</tr>
<tr>
<td>Priority Based Distributed Job Scheduler for Java Compute Servers</td>
<td>W.D. Indika, A Kalawila, D. N. Ranasinghe</td>
<td>11-16</td>
</tr>
<tr>
<td>Environment Monitoring System for Distributed Network Cabinets in Typical Campus Network</td>
<td>Malinda Punchimudiyanse</td>
<td>17-20</td>
</tr>
<tr>
<td>Evaluation and Demonstration of the Usage of a Virtual Honeynet for Monitoring and Recording Online Attacks</td>
<td>Rajiv J. C. Ponweera, Ravindra Koggalage, Narada Wickramage</td>
<td>21-26</td>
</tr>
<tr>
<td>Insight to the Large Scale Information Systems Implementation in Sri Lanka</td>
<td>D.K.A. Vithanage, W.M.J.I. Wijayanayake</td>
<td>33-40</td>
</tr>
<tr>
<td>SAS-3: A Polynomial Based Strong Password Authentication Protocol</td>
<td>N. S Weragama, M. Sandirigama</td>
<td>41-46</td>
</tr>
<tr>
<td>Optimum Filter Design for Detecting QRS Complexes in a Cardiac Signal - GA based Approach</td>
<td>Awantha Jayasiri, Buddhika Jayasekara, Achala Pallegedara</td>
<td>47-52</td>
</tr>
<tr>
<td>Information Integration in a Collaborative Web Portal along the Spatial Dimension</td>
<td>G. N. Jayasena, D. D. Karunaratne</td>
<td>53-58</td>
</tr>
<tr>
<td>Fabrication and Characterization of Nano-structured Conducting Polymer Electrodes for Glucose Biosensor Applications</td>
<td>E. M. I. Mala Ekanayake, D. M. G. Preethichandra, K. Kaneto</td>
<td>63-66</td>
</tr>
<tr>
<td>A Zone Based Self Repairing SRAM Architecture using Adaptive Body Biasing Schemes</td>
<td>Dr. K. Gunavathi, N. M. Sivamangai</td>
<td>67-72</td>
</tr>
</tbody>
</table>
Simultaneous Localization and Mapping (SLAM) Based on Pseudolinear Measurement Model with a Bias Reduction Approach
Chandima Dedduwa Pathiranage, Keigo Watanabe, Kiyotaka Izumi 73-78

Stability Improvement of Two Wheel Mobile Manipulator by Real Time Gain Control Technique
P.K.W Abeygunawardhana, Murakami Toshiyuki 79-84

Agricultural Robotics: A Streamlined Approach to Realization of Autonomous Farming
H.Pota, R.Eaton, J.Katupitiya, S.D.Pathirana 85-90

Application of Taguchi Technique to Reduce Positional Error in Two Degree of Freedom Rotary-Rotary Planar Robotic Arm
Vineet Tirth, Abhishek Kumar, Parul Gupta 91-96

On the simplest fuzzy two-term controller structure derived via algebraic product t-norm - bounded sum t-conorm - Mamdani minimum inference combination
B. M. Mohan, Arpita Sinha 97-100

Fuzzy Logic Based Bridge Management System for Handheld Devices
Deepak Pushpakar, S. V. Barai 101-106

Fuzzy Logic Based Traffic Light Controller
Ms. Girija H Kulkarni, Ms. Poorva G Waingankar 107-110

Support for Spinning Reserve from DFIG based wind turbines
G. Ramtharan, J. B. Ekanayake, N. Jenkins 111-116

Demand and Supply Analysis of Community Type Wind Power System at Gurugoda Village in Sri Lanka
Mahinsasa Narayana 117-122

The Ocean Thermal Energy Conversion Strategies and Analysis of Current Challenges
Lasantha Meegahapola, Lanka Udawatta, Sanjeeva Witharana 123-128

Trends in wind power technology and grid code requirements
A. Arulampalam, G. Ramtharan, N. Jenkins, V.K. Ramachandaramurthy, J.B. Ekanayake, G. Strbac 129-134

Doubly-fed Induction generators for wind power generation
A.P. Tennakoon, A. Atputharajah, S.G. Abeyratne, J.B. Ekanayake 135-140

Grid side converter controller for DFIG for wind power generation
R.P.S. Chandrasena, A. Arulampalam, J.B. Ekanayake, S.G.Abeyratne 141-146
<table>
<thead>
<tr>
<th>Title</th>
<th>Authors</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self Embedding Technique for Digital Color Image Authentication and Security</td>
<td>S. Shefali, S.M. Deshapande</td>
<td>147-152</td>
</tr>
<tr>
<td>A Prototype PC-Based System of Giving Color Estimation Ability to Monochrome Security Cameras</td>
<td>Yoichi Sugita, Yusaku Fujii, Naoya Ohta, Hiroshi Ueda, Masayuki Yokota, Ryosuke Sakurai</td>
<td>153-158</td>
</tr>
<tr>
<td>Design and Analysis of a Modified Photonic Crystal Fiber Structure</td>
<td>Sanjay Kumar C. Gowre, S. Mahapatra, P. K. Sahu, J. C. Biswas</td>
<td>159-162</td>
</tr>
<tr>
<td>A new multi wavelength - optical code division multiple access code design based on balanced incomplete block design</td>
<td>M. Ravi Kumar, S. S. Pathaky, N. B. Chakrabartiz</td>
<td>163-168</td>
</tr>
<tr>
<td>Level of IP Aggregation in Automatically Switched Optical Networks</td>
<td>R. Parthiban</td>
<td>169-174</td>
</tr>
<tr>
<td>Radiating Element Characteristics Effect on the Scanning Performance of Phased Array Antenna for Tracking Purpose</td>
<td>Atanu Roy, Saswati Ghosh, Ajay Chakrabarty</td>
<td>175-180</td>
</tr>
<tr>
<td>Gaussian Vs Differentiated Gaussian as the Input Pulse for Ground Penetrating Radar Applications</td>
<td>D. Uduwawala</td>
<td>199-202</td>
</tr>
<tr>
<td>An approach to humanizing e-Learning Systems</td>
<td>Asoka S. Karunananda</td>
<td>203-208</td>
</tr>
<tr>
<td>Effect of varying filter length on the performance of LMS Turbo Equalizers</td>
<td>Aruna Tripathy, Sant Saran Pathak, Saswat Chakrabarati</td>
<td>221-224</td>
</tr>
</tbody>
</table>
PEP Bound for Multiple Relay Transmission over Nakagami-m Fading Channels
Saman Atapattu, Nandana Rajatheva
225-230

Construction of Irregular LDPC Codes Based on Balanced Incomplete Block Designs
Siddarama R. Patil, Sant S. Pathak
231-234

Leverage the use of XML in dynamic GUI parsing and database stored procedures.
D.S.S.Gunathunga, A.U.Umagiliya, S.R.Kodituwakku
235-238

Enhanced Agile Software Development – Hybrid Paradigm with LEAN Practice
G.I.U.S. Perera, M.S.D. Fernando
239-244

Optimal Selection of Failure Data for Reliability Estimation Based on a Standard Deviation Method
K.B.P.L.M. Kelani Bandara, G.N. Wikramanayake, J.S. Goonethillake
245-248

“Requirement Declarative Markup Language” for Timetabling: A Case Study Based Development
Arunasiri K. Liyanage, L.S.K. Udugama
249-254

Delay-dependent stability analysis of linear system with multiple state delays
Rajeeb Dey, Sandip Ghosh, Goshaidas Ray
255-260

Increasing Hard drive Performance From a Thermal Perspective
Subashana Suwandarathna, Assoc. Prof. Ravindra Koggalage
261-266

A Passivity-Based Controller for an Electrostatic MEMS Model in the Presence of Parasitics
267-272

Using Qualitative and Commonsense knowledge to expand horizons of Cognitive Computer Vision Systems
D.D.M. Ranasinghe, A.S. Karunanananda
273-278

Tacit knowledge modeling in intelligent Hybrid systems
279-284

Formalisms for Ontology Validation
O. W. H. Kumanayaka, D. N. Ranasinghe
285-290

Unbalanced Decision Trees for Multi-class Classification
A.Ramanan, S.Suppharangsan, M.Niranjan
291-294
Towards an enhanced driver situation awareness system
S. Kodagoda, S. Sehestedt, A. Alempijevic, Z. Zhang, A. Donikian, G. Dissanayake

Artificial Neural Network Approach to Credit Risk Assessment

Accelerated Learning in MLP using Adaptive Learning Rate with Momentum Coefficient
S. Sheel, T. Varshney, R. Varshney

Tracking of rotor angle for control of Doubly Fed Induction Generators in Wind power applications
A.P. Tennakoon, A. Arulampalam, J.B. Ekanayake, S.G. Abeyratne

A Comparative Study of State Estimation Algorithms
Ananyo Sengupta, A. K. Sinha

A Study on Real and Reactive Power Optimization using Particle Swarm Optimization
J. Hazra, A. K. Sinha

Hardware modeling and implementation of modified SPIHT algorithm for compression of images
Anilkumar V. Nandi, Dr. R. M. Banakar

New Steganography Technique for Palette Based Images
S.G.K.D.N. Samaratunge

Verification of Hand Printed Signature Images Using Discrete Dyadic Wavelet Transform
Jayadevan R, Shaila Subbaraman, Pradeep M Patil

Enhanced Face Recognition through Principle Component Analysis
D.A. Meedeniya, D.A.A.C. Ratnaweera

A New Wavelet Based Ground Fault Protection Scheme for Turbo Generators
Shaik Abdul Gafoor, P.V. Ramana Rao

Prasanta Kundu, Prof. N. K. Kishore, Prof. A. K. Sinha

Investigations on Pulsed Power Application for Nano-material Consolidation
N. K. Kishore, E. Sriram Sarma, V.B. Somu, Soumen Kar, V. Srinivas

Distributed Generator Interconnection Protection
Janaki Balakrishnan
License Plate Identification Based on Image Processing Techniques
373-378

MAP Decoder Design for Distributed Video Coding In Error Prone Wireless Channels
W.A.R.J.Weerakkody, W.A.C. Fernando, J.L. Martínez, P.Cuenca, F.Quiles
379-382

An adaptable ES Based Motion Estimation Technique for 3D Integral Video Compression
S. Adedoyin, W.A.C. Fernando, A.Aggoun
383-386

Automated Rain Gauge Stations with A GSM Data Transmission Link
B. A. Indunil, H. A. P. K. Hettiarachchi
387-392

Student Information Access System via Bluetooth
K.A.C. Dushamali, V.I.R. Fernando, Ravindya Samarakoon, Udayanthi Weerasooriya
393-398

An Analysis on Guaranteed Network Lifetime for Cluster-Based Wireless Sensor Network
Ashraf Hossain, S. Chakrabarti, P. K. Biswas
399-402

A Cluster Based Energy Balancing Strategy to Improve Wireless Sensor Network Lifetime
Sankalpa Gamwarige, Chulantha Kulasekere
403-408

Estimating Signal Strength Prior to Field Trials in Wireless Local Loop Networks
L.P.I.M.Hissalle, Sanath Alahakoon
409-414

Performance of Shallow Water Equations Model on the Computational Grid with Overlay Memory Architectures
K.Ganeshamoorthy, D.N.Ranasinghe, K.P.M.K.Silva, R.Wait
415-420

Coupling Aware Energy-Efficient Data Scrambling On Memory-Processor Interfaces
K S Sainarayanan, J V R Ravindra, C Raghunandan, M B Srinivas
421-426

A Novel High-Speed Binary and Gray Incrementer/Decrementer for an Address Generation Unit
Sreehari Veeramachaneni, Lingamneni Avinash, Kirthi Krishna M, M.B. Srinivas
427-430

Data memory management in partial dynamically reconfigurable systems
A. Montone, Vincenzo Rana, M.D. Santambrogio
431-434

Mechanisms for Timing Optimization and Reliability Improvement of a Fast Data Acquisition System
S.M.K.B. Samarakoon
435-440
<table>
<thead>
<tr>
<th>Title</th>
<th>Authors</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>RFID-Based Anti-theft Auto Security System with an Immobilizer</td>
<td>Geeth Jayendra, Sisil Kumarawadu, Lasantha Meegahapola</td>
<td>441-446</td>
</tr>
<tr>
<td>Topological Structure of a Special Class of Linear Switched Systems</td>
<td>P. C. Perera</td>
<td>447-450</td>
</tr>
<tr>
<td>Controllers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Actuators Based on PEDOT and PPY Conducting Polymer Bilayers and</td>
<td>U.L. Zainudeen, M.A. Careem, S. Skaarup</td>
<td>461-464</td>
</tr>
<tr>
<td>Trilayers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Analysis and Optimization of MEMS Electrostatic Microactuator</td>
<td>V. Behjat, A. Vaheedi</td>
<td>465-472</td>
</tr>
<tr>
<td>Virtual Instrumentation Based Intelligent Vibrobench for Bearing</td>
<td>D.Ganeshkumar, Dr. T. Manigandran, Dr. S. Palaniswami</td>
<td>473-478</td>
</tr>
<tr>
<td>Testing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The travelling salesman problem: A self adapting PSO-ACS algorithm</td>
<td>David G’omez-Cabrero, Carmen Armero, D. Nalin Ranasinghe</td>
<td>479-484</td>
</tr>
<tr>
<td>Interactive Intelligent Collision Avoidance Control: Theory and</td>
<td>Geeth Jayendra, Sisil Kumarawadu, Ravipriya Ranatunga, Samitha</td>
<td>485-490</td>
</tr>
<tr>
<td>Experiments</td>
<td>Ransara</td>
<td></td>
</tr>
<tr>
<td>Passive Multipath Ranging in Sonars Using Auto-correlation Processing</td>
<td>Sunetra Pawar, Shaila Subbaraman</td>
<td>491-496</td>
</tr>
<tr>
<td>Studies on Pulsed Electric Field Applications for Food Sterilization</td>
<td>N. K. Kishore, Sriram Sarma Emanil, T. K. Maity, Gobind Singh Bisht</td>
<td>497-502</td>
</tr>
<tr>
<td>Converter for Fuel-Cell to Utility-Interface Application</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Detection/ Estimation of Adulteration in Gasoline and Diesel using</td>
<td>R.K. Sharma, Anil Kumar Gupta</td>
<td>509-512</td>
</tr>
<tr>
<td>Ultrasonics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fabrication of (110) GOI Layers by Ge Condensation of SiGe/ (110)</td>
<td>S. Dissanayake, S. Sugahara, M. Takenaka, S. Takagi</td>
<td>513-516</td>
</tr>
<tr>
<td>SOI Structures and Application to pMOSFET Devices</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Behavior Generation Through Interaction in an Emotionally Intelligent Robot System
Sajal Chandra Banik, Chandima Dedduwa Pathiranage, Keigo Watanabe, Kiyotaka Izumi

ANFIS Based Active Personal Space for Autonomous Robots in Ubiquitous Environments
Janaka Chaminda Balasuriya, Keigo Watanabe, Achala Pallegedara

Giving Robots Some Feelings Towards Interaction With Humans in Ubiquitous Environment
Janaka Chaminda Balasuriya, Keigo Watanabe, Achala Pallegedara

Development of an Exoskeleton Robot for Human Wrist and Forearm Motion Assist
R. A. R. C Gopura, K. Kiguchi

A Threshold Voltage Model for DMG-MOS Transistors Taking into Account the Varying Depth of Channel Depletion Layers Around the Source and Drain
-Prof. Chandan Sarkar

Work Behaviors in Cation Driven Conducting Polymer Soft Actuators
Prof. Keiichi Kaneto

Power Quality: Overview and Monitoring
Dr. Ghanim Putrus

Ensuring power system security against contingencies
Prof. Udaya Annakage

An Enhanced Top-Down Cluster and Cluster Tree Formation Algorithm for Wireless Sensor Networks
-Prof. Anura Jayasumana

Future of Silicon Integrated Circuit Technology
-Prof. Hiroshi Iwai

Evaluation Complexity Problem in Agent based Software Development Methodology
-Amin Saremi, Mahshid Rahnam, Mostafa Esmaeili

Author Index