## Table of Contents

- Welcome Message from the Chairs ................................................................. v
- Conference Organization ................................................................................ vii
- International Program Committee ................................................................. viii
- International Reviewers ................................................................................ ix
- Sponsors, Patrons, Promoters and Supporters ................................................ x
- Keynote Speakers ......................................................................................... xi

### Track: 01. A. Neural Networks

- Two Novel Generic, Reconfigurable Neural Network FPGA Architectures .................................................. 3
  - Ayman Youssef, Karim Mohammed, and Amin Nasar
- Modified Neural Network Activation Function ......................................................................................... 8
  - Adamu I. Abubakar, Haruna Chiroma, Sameem Abdulkareem,
  - Abdulsalam Ya’u Gital, Sanah Abdullahi Muaz, Jafaar Maitama,
  - Muhammad Lamir Isah, and Tutut Herawan

### Track: 02. B. Fuzzy Systems

- Intelligent Techniques for MPPT Control in Photovoltaic Systems: A Comprehensive Review .................................................. 17
  - Mohamed E. El Telbany, Ayman Youssef, and Abdelhalim Abdelnaby Zekry
Track: 03. C. Evolutionary Computation

A Multi-Objective Evolutionary Approach to Optimize the Morphology of a Six Articulated-Wheeled Robot .............................................................. S.H. Lim and J. Teo

A Comparative Study of Three Artificial Intelligence Techniques: Genetic Algorithm, Neural Network, and Fuzzy Logic, on Scheduling Problem ...................................... Abdollah Ansari and Azuraliza Abu Bakar

Simultaneous Evolutionary-Based Optimization of Controller and Morphology of Snake-Like Modular Robots ............................................................... Wei Shun Chee and Jason Teo

Classifying Piper Nigrum Using Artificial Bee Colony Algorithm ........................................ Norfadzlan Yusup, Awang Iskandar, and Siti Hazemah Hassan

Automated Regression Test Suite Optimization Based on Heuristics ................................ Dhanyamraju S U M Prasad, Simy Chacko, Satya Sai Prakash Kanakadand, and Gopi Krishna Durbhaka

Track: 08. H. Data and Semantic Mining

Review of Frequent Itemsets Mining in High Dimensional Dataset ................................... Mohammad Arsyad Mohd Yakop, Sofianita Mutalib, and Shuzlina Abdul Rahman

Reviewing Personalizing Filtering Approaches in Web .................................................. Nor Nadiah Yusof, Azlinah Mohamed, and Shuzlina Abdul-Rahman


Orphan Defects: Chance Finding? ........................................................................ Dhanyamraju S U M Prasad and Satya Sai Prakash Kanakadand


Track: 10. J. Emergent technologies

Present & Future Paradigms of Cyber Crime & Security Majors - Growth & Rising Trends ................................................................................................. Vinit Kumar Gunjan, Amit Kumar, and Allam Appa Rao
Track: 11. K. Intelligent Systems and Applications

Utilization of Genetic Algorithm for Optimal EEG Channel Selection in Brain-Computer Interface Application .................................................................97

Intan Helina Hasan, Abd Rahman Ramli, and Siti Anom Ahmad

Feature Selection and Classifier Parameter Estimation for EEG Signal Peak Detection Using Gravitational Search Algorithm ..............................................103

Asrul Adam, Norrima Mokhtar, Marizan Mubin, Zuwairie Ibrahim, Mohd Zaidi Mohd Tumari, and Mohd Ibrahim Shapiai

Energy Saving in Electric Heater of Carbon Fiber Stabilization Oven ..........................................................109

Khashayar Badii, Minoo Naebe, Gelayol Golkarnarenji, Navej Dhami, Stephen Atkiss, Derek Buckmaster, Bronwyn Fox, and Hamid Khayyam

Wearables, Social Networking and Veracity: The Building Blocks of a Verified Exercise Application ..................................................115

Chiung Ching Ho and Mehdi Sharifi

A Review on Recent Traffic Congestion Relief Approaches .............................................................121

Norulhidayah Isa, Marina Yusoff, and Azlinah Mohamed

Track: 15. O. e-Science and e-Systems

Crowdsourcing: The Trend of Prior Studies ..................................................................................129

Zazaleena Zakariah, Norjansalika Janom, Noor Habibah Arshad, Siti Salwa Salleh, and Syaripah Ruzaini Syed Aris

Track: 16. P. Robotics, Cybernetics, Engineering, Manufacturing and Control

Automatic Mobile Robot Obstacles Avoidance in a Static Environment by Using a Hybrid Technique Based on Fuzzy Logic and Artificial Neural network ................................................................................137

Nohaidda Binti Sariff and Nur Hidayatul Nadihah Bt Abd Wahab

SiFEB & #8211; A Simple, Interactive and Extensible Robot Playmate for Kids ........................................143

Hashini Senaratne, Pubudu Gunatilaka, Udith Gunaratna, Yasura Vithana, Chathura de Silva, and Piyum Fernando

Track: 17. Q. Methodologies, Tools and Operations Research

Characterization Study of Using Acoustic Signals for Underwater Non-Destructive Testing .................................151

Sien Yan Kong, Bih Lii Chua, Kenneth Tze Kin Teo, and Renee Ka Yin Chin

The NP-completeness of Eulerian Recurrent Length for 4-regular Eulerian Graphs ........................................155

Shuji Jimbo
Track: 18. R. Discrete Event and Real Time Systems
Verifying Solutions to the Dining Philosophers Problem with Activity-Oriented Petri Nets .................................................................................................................................................. 163
  Reggie Davidrajuh

Track: 19. S. Image, Speech and Signal Processing
Optimal Combination of Color Components for Skin Detection ................................................................. 171
  Koh Klevan, Marsyita Hanafi, and Abdul Ramli
Partial Image Encryption Algorithm Using Pixel Position Manipulation Technique: The SMART Copyback System .................................................................................................................. 177
  Parameshachari B D, Rajashe Karappa, K M Sunjiv Soyjaudah, and Sumithra Devi K A
The Design and Compilation of a Facial Spoof Database on Various Textures ............................................. 182
  Sajida Parveen, Sharifah Muntazah Syed Ahmad, Marsyita Hanafi, and Wan Azizun Wan Adnan
Facial Expression Recognition Using Neural Network Trained with Zernike Moments .......................................................... 187
  Mohammed Saaidia, Narima Zermi, and Messaoud Ramdani
Vehicle Tracking Using Particle Filter for Parking Management System .................................................. 193
  Kenneth Tze Kin Teo, Renee Ka Yin Chin, N.S.V. Kameswara Rao, Farrah Wong, and Wei Leong Khong
Trajectory Clustering for Behavioral Pattern Learning in Transportation Surveillance .................................................. 199
  Mei Yeen Choong, Renee Ka Yin Chin, Kiam Beng Yeo, and Kenneth Tze Kin Teo

Track: 19. SA. Natural Language Processing/Language Technologies
A Word Sense Disambiguation Technique for Sinhala .................................................................................... 207
  Janindu Arukgoda, Vidudaya Bandara, Samiththa Bashani, Vijayindu Gamage, and Daya Wimalasuriya
Natural Language Processing for Sentiment Analysis: An Exploratory Analysis on Tweets ................................. 212
  Wei Yen Chong, Bhawani Selvaretnam, and Lay-Ki Soon

Electric Vehicle Penetration Model Considering Policy Subsidy and Fuel Price Uncertainty .................................................................221
  D. Yamashita, Y. Daisho, D. Satoya, H. Takamori, and R. Yokoyama

Microsourcing Job Provider Maturity Model .................................................................................................................................227
  Norjansalika Janom, Nor Hasmira Abu Bakar, Noor Habibah Arshad,
  Siti Salwa Salleh, Syaripah Ruzaini Syed Aris, and Nor’azam Mastuki

Proposed Usability Heuristics for Testing Gestural Interaction ........................................................................................................233
  Ngip Khean Chuan, Ashok Sivaji, and Wan Fatimah Wan Ahmad


Community Energy Management with Electric Vehicles for Effective Use of Solar Energy .................................................................................................................................................................241
  D. Satoya, D. Yamashita, and R. Yokoyama

Maximum Power Point Tracking of Partially Shaded Photovoltaic Arrays Using Particle Swarm Optimization .................................................................247
  Kenneth Tze Kin Teo, Pei Yi Lim, Bih Lii Chua, Hui Hwang Goh, and Min Keng Tan

Linear Model of Flicker Due to Vertical Wind Shear for a Turbine Mounted on a Green Building .................................................................253
  Datta. S. Chavan and P. B. Karandikar

Assessment of Flicker Due to Vertical Wind Shear in a Wind Turbine Mounted on a Hill with Linear Approach .................................................................259
  Datta. S. Chavan and P. B. Karandikar

Track: 23. W. Internet Modelling, Semantic Web and Ontologies

3GPP Technologies: Load Balancing Algorithm and InterNetworking .................................................................267
  Belal Abuhaija

Track: 24. X. Mobile/Ad hoc wireless networks, mobicast, sensor placement, target tracking

Adaptive Transceivers for Mobile Communications .................................................................275
  Teckchai Tiong

Power Adjustment Based Congestion Control in Vehicular Ad-hoc Networks .................................................................280
  Guofeng Lei, Fuqiang Liu, Ping Wang, Xinhong Wang, and Ning Wang
A Beacon Rate Control Scheme Based on Fuzzy Logic for Vehicular Ad-Hoc Networks .................................................................286
   Ning Wang, Guofeng Lei, Xinhong Wang, Ping Wang, and Fuqiang Liu
A Study on Radio Interference Estimation Method for Wireless Relay Network Link Scheduling ........................................................................................................................................292
   Yoshiaki Taniguchi
An Adaptive Approach for RFID Based Data Dissemination in VANETs through ABC Algorithm Using Android Mobiles ..................................................................................................................298
   Lalitha R.V.S. and Jaya Suma G.

Track: 25. Y. Performance Engineering of Computer & Communication Systems
Capacity Analysis of Full Rate Linear Dispersion Codes ........................................................................307
   Mabruk Gheryani and Mohamed Elfituri
OCDM Network Implementation of 1-D OOC and Passive Correlation Receiver ........................................311
   Huda Saleh Abbas and Mark A Gregory

Track: 26. Z. Circuits, Sensors and Devices
PC Based Blood Pressure Meter for E-health Application ........................................................................319
   B. Mustapha, M. Z. Hassan, Z. Mohamad, I. Kamaruddin, and R. Yahya
Microcontroller Based Wireless Obstacle Detection System for the Elderly ........................................325
   B. Mustapha, A. Zayegh, and R.K. Begg

Author Index .............................................................................................................................................330