

ISMS2016

Intelligent Systems, Modelling & Simulation 2016



Seventh
International Conference on
Intelligent Systems, Modelling
& Simulation
25-27 January 2016
Bangkok, Thailand

Edited by:
David Al-Dabass
Tirane Achalakul
Santitham Prom-On
Rajchawit Sarochawikasit



Product Number E5788
ISBN 978-1-5090-0664-9
ISSN 2166-0670
BMS Number CFP1625J-CDR

Copyright © 2016 by The Institute of Electrical and Electronics Engineers, Inc. All rights reserved.

2016 7th International Conference on Intelligent Systems, Modelling and Simulation

ISMS 2016

Table of Contents

| | |
|--|------|
| Welcome Message from the Chairs..... | xii |
| Conference Organization..... | xiii |
| International/Technical Program Committee..... | xiv |
| International Reviewers..... | xv |
| Technical Sponsors..... | xvii |

Plenary Abstracts

| | |
|--|---|
| Modelling and Formalizing Emergence | 3 |
| <i>Yong Meng Teo</i> | |
| Deep Near Unsupervised Learning for Data Analysis in Metabolomics, Drug-Drug Interaction Discovery and Human Gait Recognition | 5 |
| <i>Saman K. Halgamuge</i> | |

Track: 01-A Intelligent Systems

| | |
|--|----|
| Deep Belief Networks with Feature Selection for Sentiment Classification | 9 |
| <i>Patrawut Ruangkanokmas, Tiranee Achalakul, and Khajonpong Akkarajitsakul</i> | |
| Design of Alcohol Detection System for Car Users thru Iris Recognition Pattern Using Wavelet Transform | 15 |
| <i>Lea Angelica Navarro, Mark Anthony Diño, Exechiel Joson, Rommel Anacan, and Roberto Dela Cruz</i> | |
| Cloud Computing and Robotics for Disaster Management | 20 |
| <i>Nitesh Jangid and Bindu Sharma</i> | |
| Intelligent Power Management System of Bangladesh Using Artificial Neural Network | 25 |
| <i>Md Mahfuzur Rahman, Joy Shaha, Navid Hossain, Arifur Rahman Sabuj, Shuvra Saha, and A. S. M. Bakibillah</i> | |
| Determining the Pressure Distribution on Water Pipeline Networks Using the Firefly Algorithm | 31 |
| <i>Lala Septem Riza, Jajang Kusnendar, Munir, Riyan Naufal Hays, and Kuntjoro Adji Sidarto</i> | |

| | |
|--|----|
| Modelling of Output Power Response for Switched Damping Electromagnetic Energy Harvester | 37 |
| <i>B. L. Ooi, A. Rashid, and A. Aziz</i> | |
| An Algorithmic Method of Calculating Neighborhood Radius for Clustering In-home Activities within Smart Home Environment | 42 |
| <i>Duy Nguyen, Tien Le, and Son Nguyen</i> | |
| Mobile Users' Context Awareness Model Based on a Novelty Contextual-Soundscape Information | 48 |
| <i>HoSung Lim, Jun Lee, and YongJin Kwon</i> | |
| A Novel Technique for Reduction of Harmonics in Multilevel Inverters: A Survey | 55 |
| <i>Gagandeep Kaur Cheema and Gagandeep Kaur</i> | |
| Recommending Learning Peers for Collaborative Learning through Social Network Sites | 60 |
| <i>Mohammed Hassan and Mohamed Hamada</i> | |
| Human Activities Recognition in Android Smartphone Using Support Vector Machine | 64 |
| <i>Duc Ngoc Tran and Duy Dinh Phan</i> | |
| Design of an Intelligent Home Assistant | 69 |
| <i>Md. Al-Amin and Syeda Zinath Aman</i> | |
| Chatbot Using a Knowledge in Database: Human-to-Machine Conversation Modeling | 72 |
| <i>Bayu Setiaji and Ferry Wahyu Wibowo</i> | |
| Sentiment Classification of Film Reviews Using IB1 | 78 |
| <i>Oswin Rahadiyan H, Gloria Virginia, and Antonius Rachmat C</i> | |
| Constrained Portfolio Optimization by Hybridized Bat Algorithm | 83 |
| <i>Ivana Strumberger, Nebojsa Bacanin, and Milan Tuba</i> | |
| Novel Contact Sensor Concept and Prototype Based on 2-DOF Vibration Absorber System | 89 |
| <i>Hussein F.M. Ali, Ahmed M. R. Fath El Bab, Zakarya Zyada, and Said M. Megahed</i> | |

Track: 02-B Hybrid Intelligent Systems and Hybrid Soft Computing

| | |
|--|-----|
| Data Analysis to Generate Models Based on Neural Network and Regression for Solar Power Generation Forecasting | 97 |
| <i>Tushar Verma, A. P. S. Tiwana, C. C. Reddy, Vikas Arora, and P. Devanand</i> | |
| Improving Soft Computing Performance with Ant Colony Optimization for Multiclass Classification: The Application for Learning Style Classification | 101 |
| <i>Worapat Paireekreng, Duangjai Jitkongchuen, Warattha Sukpongthai, and Rossukon Suwannakoot</i> | |

Track: 03-C Methodologies, Tools, and Operations Research

| | |
|---|-----|
| Revenue Efficiency Measurement with Undesirable Data in Fuzzy DEA | 109 |
| <i>Nazila Aghayi</i> | |
| Simulators as Drivers of Cutting Edge Research | 114 |
| <i>Muhammad Adil Raja, Sarmad Ali, and Aisha Mahmood</i> | |

| | |
|--|-----|
| Comparison of Sensitivity for Consumer Loan Data Using Gaussian Naïve Bayes (GNB) and Logistic Regression (LR) | 120 |
| <i>Rahul Pundlik</i> | |
| A Simulation-Based Reliability Analysis Approach of the Fault-Tolerant Web Services | 125 |
| <i>Yanjun Shu, Zhibo Wu, Hongwei Liu, and Yixiang Gao</i> | |

Track: 04-D Bio-informatics and Bio-Medical Simulation

| | |
|---|-----|
| Enhanced Viral Precursor MicroRNA Identification with Structural Robustness Features in Back-Propagation Neural Network | 133 |
| <i>Songtham Anuntakarun, Supawadee Ingsriswang, Warin Wattanapornprom, and Supatcha Lertampaiporn</i> | |
| Designing Machine-to-Machine (M2M) Prototype System for Weight Loss Program for Obesity and Overweight Patients | 138 |
| <i>Gunawan Wibisono and I Gusti Bagus Astawa</i> | |
| A Position Aware Mobile Application for E-Health Services | 144 |
| <i>Ismail Hababeh, Sahel Alouneh, and Ala' F. Khalifeh</i> | |

Track: 06-F Image, Speech, and Signal Processing

| | |
|---|-----|
| A Comparative Study of Object Recognition Techniques | 151 |
| <i>Ritu Rani, Ravinder Kumar, and Amit Prakash Singh</i> | |
| Automatic Segmentation of Fuzzy Laser Lines with Sub-Pixel Accuracy from the Uneven Background During Robotic Arc Welding | 157 |
| <i>Zhenzhou Wang</i> | |
| Rotation, Translation, and Scale Invariant Bag of Feature Based on Feature Density | 163 |
| <i>Shih-Min Chen and Chen-Kuo Chiang</i> | |
| Analysis and Dissection of Sanskrit Divine Sound “OM” Using Digital Signal Processing to Study the Science Behind “OM” Chanting | 169 |
| <i>Ajay Anil Gurjar and Siddharth A. Ladhake</i> | |
| An Analysis of the Regularization Between L2 and Dropout in Single Hidden Layer Neural Network | 174 |
| <i>Ekachai Phaisangittisagul</i> | |
| A Symbol Based Watermarking Approach for Spread Spectrum Audio Watermarking Methods | 180 |
| <i>Bala Mallikarjunarao Garlapati and Srinivasa Rao Chalamala</i> | |
| A Probabilistic Approach for Human Action Recognition Using Motion Trajectories | 185 |
| <i>Srinivasa Rao Chalamala and Prasanna Kumar</i> | |
| Radar Signal Classification Based on Cascade of STFT, PCA and Naïve Bayes | 191 |
| <i>Yuanyuan Guo and Xudong Zhang</i> | |
| Online Blind Complex Source Separation Algorithm with in-Phase and Quadrature Component Joint Processing | 197 |
| <i>Hua Yang, Hang Zhang, Jiong Li, and Liu Yang</i> | |

Track: 07-G Industry, Business, and Management

| | |
|--|-----|
| Innovative High Quality Aircraft Maintenance by Wisdom of Semantic Database Using Historical Data of Operation Staffs | 205 |
| <i>Dewan Abdullah and Hironao Takahashi</i> | |

Track: 09-J Engineering: Civil, Mechanical, Chemical, Industrial, Manufacturing, and Control

| | |
|--|-----|
| State Estimation of Thermal Systems with Multiple Operation Modes | 213 |
| <i>Shota Sasaki, Kentaro Hirata, Yoichiro Masui, Masahiro Samei, Akihiro Kawasaki, and Yasuharu Kawarasaki</i> | |
| Modified Model-Following Sliding Mode Control Based on the Active Disturbance Rejection Control | 219 |
| <i>Hiroki Shibasaki and Yoshihisa Ishida</i> | |
| Methodology of Intelligent Energy Management System Simulation for Electric Vehicle Applications with Asynchronous Logic Controller | 225 |
| <i>Ilya Kavalchuk, Huy Le Nguyen, Thanh Pham, and Alex Stojcevski</i> | |

Track: 10-K Energy, Power Generation, and Distribution

| | |
|--|-----|
| Development and Design of PIC Controlled Buoy Wave Energy Converter System | 233 |
| <i>Rommel Anacan and Ramon Garcia</i> | |
| A Nonlinear Adaptive State-Observer for Pressurized Water Reactors | 239 |
| <i>Zhe Dong</i> | |
| Average Current Feed-Forward Control for Multi-modular Single-Phase UPS Inverters System | 244 |
| <i>Santosh Singh and Sumit Ghatakchoudhuri</i> | |
| Modeling in Energy Sector: A Comparison Between Developing and Developed Countries | 250 |
| <i>V. Coyard, L. Darras, A. R. Ahmad, W. Hashim, and N.A.I Ibrahim</i> | |
| Steady-state Analysis of Three-Phase AC to DC Converter using Current Injection Hybrid Resonant Converter for Power Factor Correction | 256 |
| <i>Rahimi Baharom, Mohammad Nawawi Seroji, Mohd Khairul Mohd Salleh, and Ihsan Mohd Yassin</i> | |
| Trip Coil Signature Measurement and Analysis Techniques for Circuit Breaker | 261 |
| <i>Harriezan Ahmad and Tiong Sieh Kiong</i> | |
| Energy Harvesting from Vortex Induced Vibrations Using Vented Cylinders Mounted on Light Rail Locomotive | 268 |
| <i>Kishan Ramesh Kumar, Sumant Morab, Suhas Shekar, and Arun Mahalingam</i> | |

Track: 11-L Transport, Logistics, Harbour, Shipping, and Marine Simulation

| | |
|--|-----|
| Simulated Civil Airplane Visual Conspicuity Experiments During Approaching and Departure in the Airport Vicinity | 279 |
| <i>Z. Xie and Z. W. Zhong</i> | |
| A Novel Travel Adviser Based on Improved Back-Propagation Neural Network | 283 |
| <i>Min Yang and Xuedan Zhang</i> | |
| Prediction of Driver's Brake Pedal Operation in Vehicle Platoon System: Model Development and Proposal | 289 |
| <i>Hironori Suzuki</i> | |
| Development of a Personal Mobility Vehicle for Short-Range Transportation Support | 295 |
| <i>Yoshiyuki Takahaashi</i> | |

Track: 12-M Virtual Reality, Visualization, and Computer Games

| | |
|---|-----|
| Design of Eyegaze-Sensitive Virtual Reality Based Social Communication Platform for Individuals with Autism | 301 |
| <i>Pradeep Raj K B and Uttama Lahiri</i> | |
| Parametric 3D Hand Model | 307 |
| <i>Maria Isabel Saldares and Rowel Atienza</i> | |

Track 13-N Parallel and Distributed Architectures and Systems

| | |
|--|-----|
| Swarm Intelligence Algorithm for Job Scheduling in Computational Grid | 315 |
| <i>Mehdi Effatparvar, Somayeh Aghayi, Vahid Asadzadeh, and Yosef Dashti</i> | |
| Design of Library Data Warehouse Using SnowFlake Scheme Method: Case Study: Library Database of Campus XYZ | 318 |
| <i>Akhmad Dahlan and Ferry Wahyu Wibowo</i> | |

Track: 15-R Mobile/Ad hoc Wireless Networks, Mobicast, Sensor Placement, Target Tracking

| | |
|--|-----|
| Energy Consumption and Performance of Delay Tolerant Network Routing Protocols under Different Mobility Models | 325 |
| <i>Bhed Bahadur Bista and Danda B. Rawat</i> | |
| A Model Based Connectivity and Localization Strategy for Vehicular Ad Hoc Networks | 331 |
| <i>Devjeet Choudhary, Dushyant Yadav, Jetendra Joshi, Manash Deka, and Saurabh Jha</i> | |
| A Dynamic Load Balancing Algorithm in Heterogeneous Network | 337 |
| <i>Zhixiong Ding, Xingjun Wang, and Wenming Yang</i> | |
| Control Channel Load Balancing in Narrow Band Cellular IoT Systems Supporting Coverage Class | 343 |
| <i>Jung Wan Shin, Jun Suk Kim, Min Young Chung, and Sung Jin Lee</i> | |
| ReduxGO: Context-Aware Mobile Recommender Application for Reducing Stop-and-Go Scenario | 349 |
| <i>Nazleeni Haron</i> | |

| | |
|---|-----|
| A Study on Road Surface Condition Monitoring System Using Bicycle-Mounted Grid Laser Light | 356 |
| <i>Yoshiaki Taniguchi and Hiroyuki Hisamatsu</i> | |
| Average Counting via Approximate Histograms — Preliminary Report | 360 |
| <i>Jacek Cichoń and Karol Gotfryd</i> | |
| Fault Detection Prediction Analysis of Multi-sensor Data Fusion Architecture and Isolation Using Pseudo Sensor Enhancement Method (PSEM) | 366 |
| <i>Yasser M. Madany, El-Sayed A. El-Badawy, and Adel M. Soliman</i> | |

Track: 16-S Performance Engineering of Computer and Communication Systems

| | |
|---|-----|
| Performance Analysis of Half-Sweep Successive Over-Relaxation Iterative Method for Solving Four-Point Composite Closed Newton-Cotes System | 375 |
| <i>Mohana Sundaram Muthuvalu, Thaw Zin Htun, Elayaraja Aruchunan, Majid Khan Majahar Ali, and Jumat Sulaiman</i> | |
| Performance Analysis of Subcarrier Index Modulation-OFDM in Doppler Spread Environments | 380 |
| <i>Sung Yub Yu, Yongpan Feng, Min Ki Kim, and Suk Chan Kim</i> | |
| Noise Cancellation Using LMS Algorithm: An Interval Arithmetic Approach with Intlab | 383 |
| <i>R. B. Shettar and Vidya Mansur</i> | |
| Analysis of an IEC 61850 based Electric Substation Communication Architecture | 388 |
| <i>Rahul Gore, Hariram Satheesh, Mahesh Varier, and Simi Valsan</i> | |
| Simulation and Performance Evaluation of Vehicle-to-Vehicle (V2V) Propagation Model in Urban Environment | 394 |
| <i>Zeeshan Hameed Mir and Fethi Filali</i> | |

Track: 17-T Circuits, Sensors, and Devices

| | |
|--|-----|
| Quadrature Oscillator Using Operational Transresistance Amplifiers | 403 |
| <i>Usa Torteanchai, Punnavich Phatsornsiri, and Montree Kumngern</i> | |
| Design and Development of an Oil Spill detection and Transmission System Using Artificial Illumination Using LEDs | 407 |
| <i>Mark Nelson Pangilinan, Rommel Anacan, and Ramon Garcia</i> | |
| Design of a New External Signal Controlled Polymorphic Gates | 413 |
| <i>Arwenjay Suarez, Harvey Oro, Limuel Peñaredonda, Rommel Anacan, and Mark Nelson Pangilinan</i> | |
| Design and Implementation of PIC16F877A Microcontroller Based Data Acquisition System with Visual Basic Based GUI | 419 |
| <i>Mousam Ghosh, Suman Ghosh, Pradip Saha, and Goutam Panda</i> | |
| 4:2 and 5:2 Decimal Compressors | 424 |
| <i>P. Saha, P. Samanta, and D. Kumar</i> | |

| | |
|--|------------|
| A Study on Thermal and Electrical Characteristics of Thermoelectric Cooler TEC1-127 Series | 430 |
| <i>M. N. Akram, H. R. Nirmani, and N. D. Jayasundere</i> | |
| Efficiency Improvement of Differential Drive Rectifier for Wireless Power Transfer Applications | 435 |
| <i>Manal Mahmoud</i> | |
| Error Source Identification in Measuring Soft Tissue Stiffness and Self Compensating This Error Using Three Probes Configuration | 440 |
| <i>Ahmed Fouly, Ahmed M. R. Fath El Bab, A. A. Abouelsoud, and Mohamed N. A. Nasr</i> | |
| Enhancement of Heat Transfer in Heat Pipes Using TiO ₂ /Benzene Based Nano-coolants | 446 |
| <i>Abhijit Dayal Raj, Anakh Pal Anakhi, Deepak Kumar Yadav, Balakrishnan Pandian, Harsumeet Singh, Raja Sekhar Dondapati, Ankit Sharma, and Vishnu Saini</i> | |
| Author Index | 452 |