

# **2010 2nd International Conference on Computational Intelligence, Communication Systems and Networks**

**(CICSyN 2010)**

**Liverpool, United Kingdom  
28 – 30 July 2010**



**IEEE Catalog Number: CFP1081H-PRT**  
**ISBN: 978-1-4244-7837-8**

# 2010 Second International Conference on Computational Intelligence, Communication Systems and Networks

## *CICSyN 2010*

# Table of Contents

<b>Message from General Chairs</b> .....	xii
<b>Conference Organization</b> .....	xiii
<b>International Program Committee</b> .....	xiv
<b>International Reviewers</b> .....	xv
<b>Technical Sponsors</b> .....	xvi
<b>Keynote Speakers</b> .....	xvii
<b>Tutorial</b> .....	xxi

---

### **Intelligent Systems**

Nonlinear Neural Network Congestion Control Based on Genetic Algorithm for TCP/IP Networks .....	1
<i>Modjtaba Rouhani, Mohammad Rasoul Tanhatalab, and Ali Shokohi-Rostami</i>	
A Multi-objective Gravitational Search Algorithm .....	7
<i>Hamid Reza Hassanzadeh and Modjtaba Rouhani</i>	
An Intelligent Framework for the Classification of Premium and Regular Gasoline for Arson and Fuel Spill Investigation Based on Extreme Learning Machines .....	13
<i>Sunday O. Olatunji and Imran A. Adeleke</i>	
AntNet with Reward-Penalty Reinforcement Learning .....	17
<i>Pooia Lalbakhsh, Bahram Zaeri, Ali Lalbakhsh, and Mehdi N. Fesharaki</i>	
Some Recent Major Events and Considerations for Modelling and Simulation .....	22
<i>Richard Zobel</i>	
A Non-linear Function Approximation from Small Samples Based on Nadaraya-Watson Kernel Regression .....	28
<i>Mohd Ibrahim Shapiai, Zuwairie Ibrahim, Marzuki Khalid, Lee Wen Jau, and Vladimir Pavlovich</i>	

Key-Word Based Query Recognition in a Speech Corpus by Using Artificial Neural Networks .....	33
<i>Raji Sukumar A., Sarin Sukumar A., Firoz Shah A., and Babu Anto P.</i>	
Lane Detection for Intelligent Vehicles in Challenging Scenarios .....	37
<i>Yasemin Timar and Fatih Alagöz</i>	
A Modified Artificial Neural Network Learning Algorithm for Imbalanced Data Set Problem .....	44
<i>Asrul Adam, Ibrahim Shapiai, Zuwairie Ibrahim, Marzuki Khalid, Lim Chun Chew, Lee Wen Jau, and Junzo Watada</i>	
A Particle Swarm Optimization Approach for Routing in VLSI .....	49
<i>M. Nasir Ayob, Zulkifli Md Yusof, Asrul Adam, Amar Faiz Zainal Abidin, Ismail Ibrahim, Zuwairie Ibrahim, Shahdan Sudin, N. Shaikh-Husin, and M. Khalil Hani</i>	
Context-Aware News Recommender in Mobile Hybrid P2P Network .....	54
<i>Kam Fung Yeung, Yanyan Yang, and David Ndzi</i>	
A Learning Rule-Based Robotics Hand Optimal Force Closure .....	60
<i>E. Mattar Al-Gallaf</i>	
<b>Hybrid Intelligent Systems</b>	
A Straight Moving Path Planner for Mobile Robots in Static Environments Using Cellular Automata .....	67
<i>Faranak Rahimi Soofiyani, Amir Masoud Rahmani, and Mehran Mohsenzadeh</i>	
Bacterial Foraging Algorithm with Adaptable Chemotactic Step Size .....	72
<i>H. Supriyono and M.O. Tokhi</i>	
Genetic Algorithm-Artificial Neural Network (GA-ANN) Hybrid Intelligence for Cancer Diagnosis .....	78
<i>Fadzil Ahmad, Nor Ashidi Mat-Isa, Zakaria Hussain, Rozan Boudville, and Muhammad Khusairi Osman</i>	
Data Mining Techniques for Modelling Seasonal Climate Effects on Grapevine Yield and Wine Quality .....	84
<i>Subana Shanmuganathan, Philip Sallis, and Ajit Narayanan</i>	
Data Mining Techniques for Modelling the Influence of Daily Extreme Weather Conditions on Grapevine, Wine Quality and Perennial Crop Yield .....	90
<i>Subana Shanmuganathan, Philip Sallis, and Ajit Narayanan</i>	
Weather Forecasting Using Photovoltaic System and Neural Network .....	96
<i>Iza Sazanita Isa, Saodah Omar, Zuraidi Saad, Norhayati Mohamad Noor, and Muhammad Khusairi Osman</i>	
Hybrid OCR Techniques for Cursive Script Languages - A Review and Applications .....	101
<i>Azam Beg, Faheem Ahmed, and Piers Campbell</i>	

Simulation Model of the Scanner Servocontrols for the Orientation of a Fighter Aircraft by Using the Bond Graph Technique .....	106
<i>M.L. Martinez, G. Romero, J. Maroto, and J. Felez</i>	

## **Sensor Nodes, Circuits, Devices, Wireless Sensor Networks**

Multimode WSN: Improving Robustness, Fault Tolerance and Performance of Randomly Deployed Wireless Sensor Network .....	112
<i>Salvatore F. Pileggi, Carlos E. Palau, and Manuel Esteve</i>	
An Energy Model of the Ultra-Low-Power Transceiver nRF24L01 for Wireless Body Sensor Networks .....	118
<i>Andreas Weder</i>	
Energy-Efficient Gradient Time Synchronization for Wireless Sensor Networks .....	124
<i>Kittipat Apichartrisorn, Supasate Choochaisri, and Chalermek Intanagonwiwat</i>	
Relay Selection Techniques in Cooperative Communication Using Game Theory .....	130
<i>Mohsin Nazir and Nandana Rajatheva</i>	
Micro SOA Model for Managing and Integrating Wireless Sensor Network into IP-Based Networks .....	137
<i>A. Sleman and R. Moeller</i>	
Password Renewal Enhancement for Dynamic Authentication in Wireless Sensor Networks .....	143
<i>Farzad Kiani and Gokhan Dalkilic</i>	
Architecture for Faster RAM Controller Design with Inbuilt Memory .....	147
<i>Mohd Wajid and Shashank SB</i>	

## **RFIDs and Their Applications**

Study on Performance of Some Typical Tag Collision Avoidance Algorithms .....	152
<i>Jiang-Jie Gu and Zhi-Ying Yang</i>	

## **Protocols and Standards**

Cluster Based Peers Configuration Using HCNP in Peer-to-Peer Overlay Networks .....	158
<i>Irum Kazmi, Saira Aslam, and M.Y. Javed</i>	

## **Modeling and Performance**

Microstrip Rectangular 4x1 Patch Array Antenna at 2.5GHz for WiMax Application .....	164
<i>Norfisshah Ab Wahab, Zulkifli Bin Maslan, Wan Norsyafizan W. Muhamad, and Norhayati Hamzah</i>	

EF-AQM: Efficient and Fair Bandwidth Allocation AQM Scheme for Wireless Networks .....	169
<i>Rafe Alasem and Hussein Abu-Mansour</i>	
Fuzzy Set-Based Analysis and Design of AQM Controller for Access Router in Heterogeneous Networks .....	173
<i>Rahim Rahmani, Theo Kanter, and Christer Åhlund</i>	
Spectral Analysis of Speech Quality in VoIP for G.729A and AMR-WB Speech Coders .....	182
<i>Sarabjeet Singh, Harjit Pal Singh, and Jasvir Singh</i>	
Simulation Study of Buffering in Manhattan Street Network in NS2 .....	188
<i>Ravinder Bahl and Rakesh Kumar</i>	
<b>Software Platforms and Middleware</b>	
Risk Identification, Mitigation and Avoidance Model for Handling Software Risk .....	191
<i>Basit Shahzad and Abdullah S. Al-Mudimigh</i>	
Maximum Matching in a Partially Matched Bipartite Graph and Its Applications .....	197
<i>Saran Krishnaswamy</i>	
<b>Security, Authentication, Wireless Security, Dependability</b>	
An Intrusion Detection Architecture for Clustered Wireless Ad Hoc Networks .....	202
<i>Jaydip Sen</i>	
Applying Systems Engineering in Tactical Wireless Network Analysis with Bayesian Networks .....	208
<i>Philip Chan, Mo Mansuri, and Hong Man</i>	
Evaluation of SQL Injection Detection and Prevention Techniques .....	216
<i>Atefeh Tajpour and Mohammad JorJor zade Shooshtari</i>	
H.264 Compressed Domain Watermarking in Content Delivery Network (CDN) Environment .....	222
<i>T. Chattopadhyay, Aniruddha Sinha, and Asmita Hardikar</i>	
Expert-Aware Approach: A New Approach to Improve Network Security Visualization Tool .....	227
<i>Doris Hooi-Ten Wong, Kok-Soon Chai, Sureswaran Ramadass, and Nicolas Vavasour</i>	
<b>Discrete Event and Real Time Systems</b>	
A Discrete-Event Solver for Repairable Flow Networks with Complex Topology .....	232
<i>Michael Todinov</i>	
Discrete Time Linear Optimal Repetitive Control - A Low Order Controller Scheme .....	238
<i>Youde Han, David H. Owens, and Bing Chu</i>	

## Image, Speech and Signal Processing

Artificial Neural Networks Based Algorithm for Identifying Engine Oil Parameters .....	244
<i>H. Hashim, M.A. Haron, F.N. Osman, S.A.M. Al Junid, M.F. Md. Idros, and W.N. Wan Nawang</i>	
A Novel Approach to Noise Reduction and Real-Time Enhancement of Speech Synthesis .....	250
<i>M. Saadeq Rafiee and Ali Akbar Khazaei</i>	
Non-linear Image Enhancement Using Opportunity Costs .....	256
<i>Lung-Jen Wang and Ya-Chun Huang</i>	
The Contourlet Transform with the Principal Component Analysis for Palmprint Recognition .....	262
<i>Maha Sharkas, Ibrahim El-Rube, and Mennat Allah Mostafa</i>	
Analysis of Interpolated FIR Filter for VoIP in Noisy Environment .....	268
<i>Harjit Pal Singh, Sarabjeet Singh, R.K. Sarin, and Jasvir Singh</i>	
Human Authentication Using Face and Fingerprint Biometrics .....	274
<i>Ashraf A. Darwish, Walaa M. Zaki, Omar M. Saad, Nadia M. Nassar, and Gerald Schaefer</i>	
An Evolutionary Approach to Image Noise Cancellation Using Adaptive Particle Swarm Optimization (APSO) .....	279
<i>Syamala Jaya Sree P., Ravi Kant Verma, Pradeep Kumar, Rajesh Siddavatam, and S.P. Ghreera</i>	
Enhancements of H.264 Encoder Performance Using Platform Specific Optimizations in Low Cost Dsp Platforms .....	285
<i>T. Chattopadhyay</i>	
Implementation of FIR Interpolation Filter on TMS320C6713 for VoIP Analysis .....	289
<i>Jasvir Singh, Harjit Pal Singh, and Sarabjeet Singh</i>	
Digital Imaging in Pathology towards Detection and Analysis of Human Breast Cancer .....	295
<i>Samir Kumar Bandyopadhyay, Indra Kanta Maitra, and Souvik Banerjee</i>	
Spectral Entropy for Epileptic Seizures Detection .....	301
<i>Ahmad Mirzaei, Ahmad Ayatollahi, Parisa Gifani, and Leili Salehi</i>	
Woods Recognition System Based on Local Binary Pattern .....	308
<i>M. Nasirzadeh, A. Arab Khazael, and Marzuki bin Khalid</i>	
DTBSVMs: A New Approach for Road Sign Recognition .....	314
<i>Hossein Pazhoumand-Dar and Mehdi Yaghobi</i>	

## **Virtual Reality, Visualization and Computer Games**

Visualisation of Earth Deformation in 2D .....	320
<i>Nor Anita Fairos bt. Ismail, Sheikh Nasir Kamarudin, Mohd Sharfy bin Mohd Rahim, J.G. Liu, and P. Mason</i>	

## **Parallel and Distributed Architectures and Systems**

A Binomial Heap Algorithm for Self-Recognition in Exclusive Management on Autonomic Grid Networks .....	326
<i>Mehdi Bahrami and Peyman Arebi</i>	
An Implementation of Cellular Automata on Systolic Array .....	330
<i>Ali Yarahmadi and Saeed Setayeshi</i>	
Tree Based Structured Management of Delivery Path for the Multi-path Streaming .....	334
<i>Guochao Jing, Takeshi Tsuchiya, Katsuhiko Sebayashi, Kenji Shimizu, Mitsuru Maruyama, and Keiichi Koyanagi</i>	

## **Internet Modeling, Semantic Web and Ontologies**

A Web Service for Practical Physics Solutions Using Simulation .....	340
<i>Eliza Consuela Isbasoiu and Madalin Preotesescu</i>	
Ontology Driven Approach Enhancing Business Services Orchestration .....	344
<i>Asta Krupaviciute and Jocelyne Fayn</i>	
Unsupervised Artificial Neural Nets for Modeling Movie Sentiment .....	349
<i>William B. Claster, Dinh Quoc Hung, and Subana Shanmuganathan</i>	

## **Mobile Ad Hoc Networks**

SaLAM: Scalable @ Location Advertisement Management in MANET .....	355
<i>Amjad Osmani and Abolfazl T. Haghighat</i>	
Performance Analysis of TFRC and UDP over Mobile-IP Network with Computing Flows .....	361
<i>Al-Samarraie Hosam, Hussein Qasim, Merza Abbas, Talal Jameel, Irfan Naufal, and Mahmoud Nofal</i>	
Implementation of GPRS-Based Positioning System Using PIC Microcontroller .....	365
<i>Wael M. El-Medany, Alauddin Alomary, Reyadh Al-Hakim, Sufyan Al-Irhayim, and Mustafa Nousif</i>	

## **Vehicular Technology and Networks**

Performance of Dynamic MIMO Systems in Presence of Nakagami Fading Channel .....	369
<i>Ravi Kumar, Rajiv Saxena, Abhay Sah, Saroj Gupta, and Tapesh Chandgothia</i>	

## **Air Interfaces**

PAPR Reduction in OFDM Systems: Zadoff-Chu Matrix Transform Based Pre/Post-Coding Techniques .....	373
<i>Imran Baig and Varun Jeoti</i>	

## **QoS for Voice and Video in Wireless Networks**

Fair Hierarchical Scheduling with Capability of Handling Channel Failures in a Wireless LAN .....	378
<i>Moutaz Saleh Mustafa and Basima Hani Hasan</i>	
Call Admission Control Policy for Integration of Voice/Data Traffic in Cellular Mobile Networks .....	384
<i>Aytül Bozkurt, Erdem Uçar, and Rafet Akdeniz</i>	

## **Bio-informatics and Bio-medical Simulation**

EEG Analysis for Brainwave Balancing Index (BBI) .....	389
<i>Zunairah Hj Murat, Mohd Nasir Taib, Sahrim Lias, Ros Shilawani S. Abdul Kadir, Norizam Sulaiman, and Mahfuzah Mustafa</i>	
PAL: A Path Selection Algorithm for Life Critical Data .....	394
<i>Sadik Armagan, Enda Fallon, and Yuansong Qiao</i>	

<b>Author Index</b> .....	400
---------------------------	-----