

2013 Fifth International Conference on Computational Intelligence, Communication Systems and Networks

(CICSyN 2013)

**Madrid, Spain
5 – 7 June 2013**



**IEEE Catalog Number: CFP1381H-POD
ISBN: 978-1-4799-0587-4**

2013 Fifth International Conference on Computational Intelligence, Communication Systems and Networks

CICSyN 2013

Table of Contents

Welcome Message from the Chairs.....	xii
Conference Organization.....	xiii
International Program Committee	xiv
International Reviewers.....	xv
Keynote Speakers	xvii
Technical Sponsors, Promoters and Supporters.....	xxiv

Session 01-A Intelligent Systems

Gesture Recognition from Indian Classical Dance Using Kinect Sensor	3
<i>Sriparna Saha, Shreya Ghosh, Amit Konar, and Atulya K. Nagar</i>	
Intelligent Breast Cancer Diagnosis Using Hybrid GA-ANN	9
<i>Fadzil Ahmad, Nor Ashidi Mat Isa, Mohd Halim Mohd Noor, and Zakaria Hussain</i>	
RNN Modelling for Bi-Objective MPM Job Shop Scheduling Problem	13
<i>Dimitrios Tselios, Ilias Savvas, and M-Tahar Kechadi</i>	
Improved Backtracking Algorithm for Efficient Sensor-Based Random Tree Exploration	19
<i>Haitham El-Hussieny, Samy F. M. Assal, and Mohamed Abdellatif</i>	
Optimizing Neural Network for TV Idle Channel Prediction in Cognitive Radio Using Particle Swarm Optimization	25
<i>Ojenge Winston, Afullo Thomas, and William OkelloOdongo</i>	
Unsupervised Human Activity Detection with Skeleton Data from RGB-D Sensor	30
<i>Wee Hong Ong, Takafumi Koseki, and Leon Palafox</i>	
Premature Ventricular Contraction Arrhythmia Detection and Classification with Gaussian Process and S Transform	36
<i>Yacoub Bazi, Haikel Hichri, Naif Alajlan, and Nassim Ammour</i>	

A Recommender System Combining Social Networks for Tourist Attractions	42
<i>Chin-Chih Chang and Kuo-Hua Chu</i>	

Analysis of NNs Detectors for Targets with Unknown Correlation in Gaussian Interference	48
<i>J.L. Barcena Humanes, D. Mata Moya, M.P. Jarabo Amores, N. del Rey Maestre, and J. Martín de Nicolas Presa</i>	

Session 02-B Hybrid Intelligent Systems and Hybrid Soft Computing

SNS Search in Developing Countries: Linking the People to End Digital Division in Information Retrieval	57
<i>Hasan Shahid Ferdous, Saif Ahmed, Md. Tanvir Alam Anik, and Mashrura Tasnim</i>	

Smartphones for Payments and Withdrawals Utilizing Embedded LED Flashlight for High Speed Data Transmission	63
<i>Mariam M. Galal, Heba A. Fayed, Ahmed Abd El Aziz, and Moustafa H. Aly</i>	

Higher Compression Rates for Code Excited Linear Prediction Coding Using Lossless Compression	67
<i>Islam Amro</i>	

Session 03-C Sensor Nodes, Circuits, Devices, Wireless Sensor Networks

Actual Travel Path Based Room Connectivity Graph Generation	73
<i>Hyeong Gon Jo, Seol Young Jeong, and Soon Ju Kang</i>	

Simplified Secure Wireless Railway for Public Transport	77
<i>Jay Merja and Sunny Shah</i>	

Forest Fire Detection in Wireless Sensor Network Using Fuzzy Logic	83
<i>Pouya Bolourchi and Sener Uysal</i>	

Design of a Key Establishment Protocol for Smart Home Energy Management System	88
<i>Yue Li</i>	

A Mixed Genetic Algorithm Strategy to Sensor Selection Problem in WSNs	94
<i>Luhutyit Peter Damuut and Dongbing Gu</i>	

A Novel 6.72GHz Low Phase Noise Voltage-Controlled Oscillator Adopting Metal-Oxide-Metal Capacitors Using 130nm CMOS Technology	101
<i>Mohammed Aqeeli, Zhirun Hu, and Cahyo Muvianto</i>	

Evaluation of Energy-Efficient Cooperative Scheme for Wireless Sensor Nodes Used in Long Distance Water Pipeline Monitoring Systems	107
<i>Yasser M. Seddiq, Ahmed M. Alotaibi, Ahmed Y. Al-nasheri, Abdulaziz S. Almazyad, Mohammed S. BenSaleh, and Syed Manzoor Qasim</i>	

Session 06-F Modelling and Performance

Electrically Stimulated Quadriceps Muscle Model for Wheel-chaired Elliptical Stepping Exercise	115
<i>Saiful Zaimy Yahaya, Zakaria Hussain, and Rozan Boudville</i>	
Muscle Extension Model for FES-Assisted Knee Swinging Ergometer for Stroke Patient	120
<i>Zakaria Hussain, Rozan Boudville, Saiful Zaimy Yahaya, and Fadzil Ahmad</i>	
Modeling Electromagnetic Reflectivity of Agbabu Oil Sand from Hyperspectral Infrared Reflectance Spectra and Dielectric Properties at L-, C- and X-Band Frequencies	125
<i>Maurice Ezeoke and Kenneth Tong</i>	
Energy-Efficient Multicast in Wired and Wireless Networks: Analysis and Performance Measures	131
<i>Adeyemi Abel Ajibesin, Gregory M. Wajiga, Mathew R. Odekunle, and Olubola K. Egunsola</i>	
Markovian Model for Packet Loss in EUMEDConnect Network	137
<i>Islam Amro</i>	

Session 07-G Software Platforms and Middleware

A Lightweight Message-Based Inter-Component Communication Infrastructure	145
<i>Tobias Simon, André Puschmann, Shah Nawaz Khan, and Andreas Mitschele-Thiel</i>	

Session 08-H Tools and Techniques for Design, Deployment, Testing and Evaluation

Development of Microcontroller Based Potentiometric Indicator System for Piezoresistive MEMS Sensor	155
<i>M.F. Abdullah, M.A. Adnan, M.G.A. Aziz, and N.K. Madzhi</i>	
Time-Effective Lab Characterization on Voltage Regulators without Compromising the Evaluation Quality	160
<i>Sivanyanam Rajamanickam, Nadira Jamil, Mario Piccinelli, and Matteo Giarin</i>	
A Fuzzing Framework for the Security Evaluation of NDEF Message Format	165
<i>Pasquale Stirparo</i>	
The General Algorithm for the Design of the MDA Transformation Models	171
<i>Marek Tavač and Viliam Tavač</i>	

Session 09-I Security, Authentication, Wireless Security, Dependability

HA-CIDS: A Hierarchical and Autonomous IDS for Cloud Systems	179
<i>Hisham A. Kholidy, Abdelkarim Erradi, Sherif Abdelwahed, and Fabrizio Baiardi</i>	
Website Regional Rapid Security Detection Method	185
<i>Liang He, Yong Fang, and Liang Liu</i>	
Reliability of Soft Verification of Message Authentication Codes	191
<i>Natasa Zivic</i>	
Role-Based Access Control Model Supporting Regional Division in Smart Grid System	197
<i>Daniela Rosic, Ugljesa Novak, and Srdjan Vukmirovic</i>	

Session 11-K Image, Speech, and Signal Processing

Detection of Wavelengths for Hail Identification Using Satellite Imagery of Clouds	205
<i>Anisha Ravinder, Prudhvi Kumar Reddy, and Narasimha Prasad</i>	
Analysis of Walking and Running Based on Markerless Model	212
<i>Ahmad Puad Ismail and Nooritawati Md Tahir</i>	
Limitation of Super Resolution Image Reconstruction for Video	217
<i>Seiichi Gohshi</i>	
Soft Switching Technique for Impulsive Noise Removal in Color Images	222
<i>Bogdan Smolka</i>	
Lanes Detection Based on Unsupervised and Adaptive Classifier	228
<i>Andrés F. Cela, Luis M. Bergasa, Franklin L. Sánchez, and Marco A. Herrera</i>	
Speech Compression Exploiting Hamming Correction Code Compressor	234
<i>Islam Amro</i>	
Unique n-Phone Ranking Based Spoken Language Identification	239
<i>Amalia Zahra and Julie Carson-Berndsen</i>	
LVQ Based DOA Estimation	245
<i>Andre Faye, Andre Bernard Youm, and Joseph Diene Ndaw</i>	
A New Watermarking Algorithm for Color Satellite Images Using Color Logos and Hash Functions	251
<i>Alavi Kunhu and Hussain Al-Ahmad</i>	
Query Based Image Processing in the VANET	256
<i>Štefan Toth, Ján Janech, and Emil Kršák</i>	
The Recursive Segment 3D Reconstruction Algorithm	261
<i>Matej Meško, Emil Kršák, and Patrik Hrkút</i>	

Segmentation Techniques for Land Mask Estimation in SAR Imagery	265
<i>J. Martín de Nicolás, D. Mata Moya, P. Jarabo Amores, N. del Rey Maestre, and J.L. Bárcena Humanes</i>	

Session 12-L Transport, Logistics, Harbour, Shipping and Marine

Fusion of GPS, OSM and DEM Data for Estimating Road Network Elevation	273
<i>Christophe Boucher</i>	
Developing a New Application for Wind Generators in Highways	279
<i>Ali Zarkesh and Mohammad Heidari</i>	
Doppler Processors as Suboptimum Approaches for Detecting Targets with Unknown Doppler Shift	283
<i>N. del Rey Maestre, D. Mata Moya, M.P. Jarabo Amores, J. Martín de Nicolás, and J.L. Bárcena Humanes</i>	

Session 14-N Parallel and Distributed Architectures and Systems

Representing Guard Dependencies in Dataflow Execution Traces	291
<i>Simone Casale Brunet, Marco Mattavelli, Claudio Alberti, and Jorn W. Janneck</i>	
Low Cost Arduino/Android-Based Energy-Efficient Home Automation System with Smart Task Scheduling	296
<i>Kim Baraka, Marc Ghobril, Sami Malek, Rouwaida Kanj, and Ayman Kayssi</i>	
Styles of Service Composition—Analysis and Comparison Methods	302
<i>Festim Halili, Eip Rufati, and Ilia Ninka</i>	

Session 16-P Mobile Ad Hoc Networks

A Holistic Approach in Developing an Ensemble Mobile Peer-to-Peer Computing	311
<i>Suki Arif, Suhaidi Hassan, Kashif Nisar, Adib Habbal, Hasbullah Omar, and Mahamood Ismail</i>	
Routing in Mobile Phone Ad Hoc Networks	316
<i>Martha Kamkuemah and Hanh Le</i>	
A Queueing Analysis of Polling Based for Mobile Multihop Relay WiMAX Networks	322
<i>Mohd Daud Alang Hassan, Habibah Hashim, Darmawaty Mohd Ali, and NurHidayat Ahmad</i>	
Adaptive Course for Mobile Learning	328
<i>Mohammed A. Razek and Hisham Jameel A. Bardesi</i>	
Simulation of 802.11 Physical Layer Attacks in MANET	334
<i>Arif Sari and Behnam Rahnama</i>	

Assessment of Throughput Performance under NS2 in Mobile Ad Hoc Networks (MANETs)	338
<i>Liliana Enciso Quispe and Luis Mengual Galan</i>	

Session 17-Q Vehicular Technology and Networks

Developing and Evaluating Routing Protocols for Rural Areas that Communicates via Data Mules	347
<i>Xoluqobo Mkhwanazi, Hanh Le, and Edwin Blake</i>	
Using Ethernet Technology for In-Vehicle's Network Analysis	353
<i>Héla Lajmi, Adel M. Alimi, and Sabeur Ajili</i>	
Performance Evaluation of Propagation Model on Rate Algorithms in Vehicular Networks	359
<i>Kenneth S. Nwizege, Michael MacMammah, Mmearh Shedrack, Godson I. Ikhazuangbe, and Friday M. Good</i>	
Geo-Based IPv6 Multicast in LTE for Dynamic Addressing of Road Users	365
<i>Markus Mäder, Clemens Dannheim, and Christian Icking</i>	
TEAM—CO2 Reduction through Online Weather Assistant for Cooperative ACC Driving	369
<i>Clemens Dannheim, Markus Mäder, Christian Icking, Jan Loewenau, and Kay Massow</i>	

Session 19-S QoS for Voice and Video in Wireless Networks

In-segment Content Server Adaptation for Dual Adaptation Mechanism in DASH	377
<i>Jordi Mongay Batalla and Stanisław Janikowski</i>	

Session 20-T Cooperative Autonomous Systems (UAVs/UGVs)

Experimental Research on Cooperative vSLAM for UAVs	385
<i>Xiaodong Li and Nabil Aouf</i>	

Session 21-U Bio-informatics and Bio-Medical Simulation

Gel Electrophoresis Image Segmentation with Kapur Method Based on Particle Swarm Optimization	393
<i>Abdul Rahim Ahmad, Zakaria Hussain, Fadzil Ahmad, Mohd Halim Mohd Noor, and Saiful Zaimy Yahaya</i>	
New Applications of Sequential ICA Mixtures Models Compared with Dynamic Bayesian Networks for EEG Signal Processing	397
<i>Gonzalo Safont, Addisson Salazar, Luis Vergara, and Alberto Rodriguez</i>	

Session 22-V Circuits, Sensors and Devices

On-Screen-Display (OSD) and SPI Interface on CMOS Image Sensor for Automobile Application	405
<i>Sheng Zhang, Hao Zhang, Bill Chen, Danny Shao, and Chen Xu</i>	
Validation of Finite Element Model (FEM) of Coplanar Electrodes Capacitive Sensing Using Microfluidic-based Sensor Device	409
<i>Mohamad Faizal Abd Rahman, Mohd Norzaidi Mat Naw, Asrulnizam Abd Manaf, Mohd Rizal Arshad, and Othman Sidek</i>	
First-Order Digital Phase Lock Loop with Continuous Locking	414
<i>Saleh R. Al-Araji, Kahtan A. Mezher, and Qassim Nasir</i>	
Unified Pading Design Flow	418
<i>Ang Boon Chong and Ho Kah Chun</i>	
Author Index	425