

2011 Fifth UKSim European Symposium on Computer Modeling and Simulation

(EMS 2011)

**Madrid, Spain
16-18 November 2011**



**IEEE Catalog Number: CFP1128I-PRT
ISBN: 978-1-4673-0060-5**

2011 UKSim 5th European Symposium on Computer Modeling and Simulation

EMS 2011

Table of Contents

Welcome Message from the Chairs.....	xiii
Conference Organization.....	xiv
International Program Committee.....	xv
International Reviewers.....	xvi
Keynote Addresses.....	xvii
Plenary Presentation.....	xxiii
Technical Sponsors.....	xxv

Track 01-A: Intelligent Systems

An Improved Artificial Weed Colony for Continuous Optimization	1
<i>Ali Rahimi, Milad Ahangaran, Pezhman Ramezani, and Tarlan Kashkooli</i>	
Use of Clustering and Interpolation Techniques for the Time-Efficient Simulation of Complex Models within Optimization Tasks	6
<i>Marco Vannucci, Giacomo Filippo Porzio, Valentina Colla, and Barbara Fornai</i>	
Genetic-Neuro-Fuzzy Controllers for Second Order Control Systems	12
<i>Daniilo Pelusi</i>	
An Intelligent Collaborative E-learning Strategy	18
<i>Gamal A. Ebrahim</i>	
Bimodal System for Emotion Recognition from Facial Expressions and Physiological Signals Using Feature-Level Fusion	24
<i>F. Abdat, C. Maaoui, and A. Pruski</i>	
A Memetic Algorithm for Program Verification	30
<i>Nassima Aleb and Zahia Tamen</i>	
Non-statistical Metrics for Estimating Redundancies in Forensic Investigations of Network Intrusions	36
<i>Joshua Ojo Nehinbe</i>	

A New Electrical Capacitance Tomography Method Using Online Pressure and Temperature Data Measurements	42
<i>Mahmoud Meribout and Samir Teniou</i>	
Effect of Learning and Database in Robustness of Security Tools: Based on Immune System Modeling	47
<i>Touraj Banirostam and Mehdi N. Fesharaki</i>	
Intelligent Composition of Dynamic-Cost Services in Service-Oriented Architectures	53
<i>Gamal A. Ebrahim</i>	
Estimation of Reference Evapotranspiration Using Limited Climatic Data and Bayesian Model Averaging	59
<i>Sergio Hernández, Luis Morales, and Philip Sallis</i>	
Track 02-B: Hybrid Intelligent Systems and Hybrid Soft Computing	
Investigation on Different Kernel Functions for Weighted Kernel Regression in Solving Small Sample Problems	64
<i>Mohd Ibrahim Shapiai, Shahdan Sudin, Zuwairie Ibrahim, and Marzuki Khalid</i>	
Hybrid Ant Colony Optimization and Simulated Annealing for Rule Induction	70
<i>Rizzauddin Saian and Ku Ruhana Ku-Mahamud</i>	
Particle Swarm Optimization Algorithm in Dynamic Environments: Adapting Inertia Weight and Clustering Particles	76
<i>Iman Rezazadeh, Mohammad Reza Meybodi, and Ahmad Naebi</i>	
A Hybrid Control Scheme for a Rotational Inverted Pendulum	83
<i>A.A. Shojaei, M.F. Othman, R. Rahmani, and M.R. Rani</i>	
Track 03-C: Methodologies, Tools and Operations Research	
A Case of Soft System Methodology (SSM): Interacting Aspect Modelling of Customer Satisfaction in Video Stream Service over Wireless and Mobile Network	88
<i>Herman, Azizah Abd. Rahman, and Yoanda Alim Syahbana</i>	
Confidence Limit Analysis of Water Distribution Systems Based on a Least Squares Loop Flows State Estimation Technique	94
<i>Corneliu T.C. Arsene, David Al-Dabass, and Joanna Hartley</i>	
A Methodology for Graphical Modeling of Business Rules	102
<i>Daniele Di Bona, Giuseppe Lo Re, Giovanni Aiello, Adriano Tamburo, and Marco Alessi</i>	
Fitness Landscape Analysis of a Simulation Optimisation Problems with HeuristicLab	107
<i>Vitaly Bolshakov, Erik Pitzer, and Michael Affenzeller</i>	

Tools and Methodologies for Business Processes Formalization: Application to Multi-agent Systems	113
--	-----

Konstantin Aksyonov, Eugene Bykov, Anna Antonova, Olga Aksyonova, Ekaterina Sufrygina, and Natalia Goncharova

Adaptive Pattern Matching Grammar Generation for Use in Deep Packet Inspection	119
--	-----

Govind Menon, Sanchit Katdare, Sagar Phatak, and Rahul Khengare

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

Design and Analysis of High Performance and Low Power Matrix Filling for DNA Sequence Alignment Accelerator Using ASIC Design Flow	123
--	-----

N. Khairudin, M.A. Haron, S.A.M. Al Junid, A.K. Abdul Halim, M.F. Md Idros, and N.F. Abdul Razak

Model Identification Using Correlation-Based Inference and Transfer Entropy Estimation	129
--	-----

Chiara Damiani and Paola Lecca

Analysis and Approach to Reduce Electrode Contact Artifacts in EIM	135
--	-----

Rabia Bilal, W. Wang, and Rupert Young

Simulation of a Mechanical Thrombectomy Device Based in the Use of Self-Expandable Stents for the Blood Clots Extraction	138
--	-----

G. Romero, I. Moreno, M.L. Martinez, and G. Pearce

Track 05-E: Discrete Event and Real Time Systems

Event Triggering Estimation for Cell-DEVS: Wildfire Spread Simulation Case	144
--	-----

Youcef Dahmani and Maamar El-Amine Hamri

Simulation-Based Optimization for the Design of Discrete Event Systems Modeled by Parametric Petri Nets	150
---	-----

Juan Ignacio Latorre Biel, Emilio Jiménez Macías, and Mercedes Pérez de la Parte

Design Issues in Developing a Real-Time Control Simulator	156
---	-----

Reggie Davidrajuh

Model Simplification in Petri Net Models	162
--	-----

Reggie Davidrajuh

Track 06-F: Image, Speech and Signal Processing

Facial Expression Recognition in Image Sequences Using Active Shape Model and SVM	168
---	-----

Rajesh A. Patil, Vineet Sahula, and A.S. Mandal

Determining the Geographical Attitude in Iran Using Global Model of Earth's Magnetic Field	174
--	-----

Kaveh Kianfar, Ehsan Darabi, Arefe Moridi, and Reza Amiri

Detection of Microcalcifications in Mammograms Using Support Vector Machine	179
<i>Maha Sharkas, Mohamed Al-Sharkawy, and Dina Ahmed Ragab</i>	
A Unique Parallel Processing Technique for Generating Digital Chirp Signals for the Applications of Synthetic Aperture Radar	185
<i>Ashraf Samarah, Alaa Albashar, and Otmar Loffeld</i>	
Color Image Encryption Using Novel Blackjack Based Scrambling Scheme	191
<i>Rohit Joshi, Sumit Joshi, and Harshal Chaudhari</i>	
Human-Computer Interaction Using Emotion Recognition from Facial Expression	196
<i>F. Abdat, C. Maaoui, and A. Pruski</i>	
Online Averaging Wavelet Denoising Method	202
<i>E. Khadem Olama and H. Jazayeri-Rad</i>	
Gender Classification with Voice Intensity	205
<i>Mansour Alsulaiman, Zulfiqar Ali, and Ghulam Muhammad</i>	
Modeling of a Robust and Fast Noise Cancellation System	210
<i>Hamed Yaghoobian, Ali Akbar Khazaei, Mojtaba Salmani Zarchi, and S. Javad Sayed Hosayni</i>	

Track 07-G: Industry, Business and Management

Data Envelopment Analysis Implementation in Producing the Projection of Inefficient IT Projects	214
<i>Ku Ruhana Ku Mahamud, Nor Farzana Abd Ghani, Faudziah Ahmad, Maznah Mat Kasim, and Fader Abdullah</i>	
Identifying the Optimum Warehouse Capacity Requirement: A System Dynamics Approach	220
<i>Lewlyn L.R. Rodrigues, Farahnaz Golrooy Motlagh, Srinivasa Rao, and Sunith Hebbar</i>	
Accessibility of Norwegian Municipalities Websites: A Decision Support Tool	225
<i>Ahmed A. Abdelgawad, Mikael H. Snaprud, and John Krogstie</i>	
Advanced Market Trends Analysis in Electronic Auction Systems	231
<i>Radoslav Fasuga, Galina Toporkova, and Michal Paluch</i>	
Fiesta: Parallelism for Data Collection and Intelligent Inference in a Distributed Heterogeneous Environment	237
<i>Purvi Desai, Akanksha Panse, Manali Jadhav, Ashwini Gavhane, and Aniruddha Patwardhan</i>	

Track 08-H: Human Factors, Social and Economic Sciences

Expert System for the Modelling of an Educational Profile for Life-Long Learners	241
<i>S. Mick Andic and Nick N. Cedic</i>	

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

Soft Starter Modeling for an Induction Drive Starting Study in an Industrial Plant	245
<i>Majid Ghadimi, Amin Ramezani, and Mohsen Mohammadimehro</i>	
Simulation and Optimization of Asynchronous AC Motor Control by Particle Swarm Optimization (PSO) and Emperor Algorithm	251
<i>Masoud Nabipour Afrozi, Masoud Hassanpour Aghdam, Ahmad Naebi, and Saeed Hassanpour Aghdam</i>	
Control Algorithm Development for Independent Wheel Torque Distribution with 4 In-wheel Electric Motors	257
<i>Javier Gutiérrez, Javier Romo, Manuel I. González, Esteban Cañibano, and Juan C. Merino</i>	
Evolutionary Fuzzy Function with Support Vector Regression for the Prediction of Concrete Compressive Strength	263
<i>Siamak Safarzadegan Gilan, Alireza Mashhadi Ali, and Ali Akbar Ramezaniyanpour</i>	
Solution Platform Independent Approaches to the Modelling of Coal Preparation Plants	269
<i>Bob Arnold and M. Reza Shadnam</i>	
Select the Appropriate Model for the Earth's Magnetic Field	275
<i>Kaveh Kianfar, Ahad Jafarpour Mahalleh, and Arefeh Moridi</i>	

Track 10-K: Energy, Power Generation and Distribution

User-Centric Energy Cost Analysis of Industrial Automation Systems	281
<i>Andreas Beck and Nasser Jazdi</i>	
Simulation of Lightning Flash in Time of Arrival (TOA) Method by Using Three Broadband Antennas	287
<i>Saeed Vahabi Mashak, Hadi Nabipour Afrouzi, and Zulkurnain Abdul-Malek</i>	
Voltage Regulation through Smart Utilization of Potential Reactive Power Resources	293
<i>H. Kazari, A. Abbaspour-Tehrani Fard, A.S. Dobakhshari, and A.M. Ranjbar</i>	
Scheduling Methods for Smart Charging of Electric Bikes from a Grid-Connected Photovoltaic-System	299
<i>Sidonia Mesentean, Wilhelm Feucht, Anton Mittnacht, and Heinz Frank</i>	

Tool for Calculation of Solar Radiation and Solar Systems Design	305
<i>Michal Paluch, Radoslav Fasuga, and Tomas Bilek</i>	

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

OPC UA Object Oriented Model for Public Transportation System	311
<i>Aldona Maka, Rafal Cupek, and Jakub Rosner</i>	

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

Tiled Projector Displays Correction for Dark Scenes in Railway Simulators	317
<i>C. Zoido, J. Maroto, G. Romero, and J. Felez</i>	

Track 13-N: Parallel and Distributed Architectures and Systems

A Numerical Solution for Throughput Improvement of On-chip Irregular Mesh Interconnection Network	323
<i>Samad Rostampour, Ladan Momeni, and Arshin Reza zadeh</i>	
Applying Formal Verification to a Cache Coherence Protocol in TLS	329
<i>Xin Lai, Cong Liu, and Zhiying Wang</i>	
A New Routing Algorithm for Irregular Mesh NoCs without Virtual Channel	335
<i>Mehdi Mohtashamzadeh, Ladan Momeni, Arshin Reza zadeh, Shaghayegh Baghbani, and Asma Mahdipoor</i>	
An Innovative Fault-Tolerant Method for 2-D Mesh-Based Network-on-Chip Routing	339
<i>Mehdi Mohtashamzadeh, Ladan Momeni, and Arshin Reza zadeh</i>	
Optimizing Cloud MapReduce for Processing Stream Data Using Pipelining	344
<i>Rutvik Karve, Devendra Dahiphale, and Amit Chhajer</i>	

Track 14-P: Internet Modelling, Semantic Web and Ontologies

Ontology-Based Data Instantiation Using Web Service	350
<i>Rashin Reza zadeh, Bit a Shadgar, Alireza Osareh, and Arshin Reza zadeh</i>	
Indexed Sequential Access Method (ISAM): A Review of the Processing Files	356
<i>Fahad Za qout, Merza Abbas, and Al-Samarraie Hosam</i>	
On the TCP Flow Inter-arrival Times Distribution	360
<i>Laleh Arshadi and Amir Hossein Jahangir</i>	
An Ontology-Based Approach to Natural Language Generation from Coded Data in Electronic Health Records	366
<i>M. Argüello, J. Des, M.J. Fernandez-Prieto, R. Perez, and S. Lekkas</i>	

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

An Optimised Algorithm to Detect Faulty Readings along the Substrate Access Wireless Long-Thin Sensor Networks	372
<i>Ali Barati, S. Jaleleddin Dastgheib, Ali Movaghar, and Iman Attarzadeh</i>	
Optimizing Rate Algorithms in Wireless Networks	378
<i>Kenneth S. Nwizege, Shedrack Mmeah, and Jianhue He</i>	
Distributed Regenerative DF SISO Wireless Mobile Networks under PCSI and ICSI	383
<i>Yazan Ibdah, Kanghee Lee, and Wenhao Xiong</i>	
A Regenerative Decode-and-Forward Wireless Network with Multihop Relays under Channel Uncertainty	389
<i>Wenhao Xiong, Yazan Ibdah, and Kanghee Lee</i>	
Security Issues in Sensor Networks and Gathering Admissible Evidence in Network Forensics	394
<i>Joshua Ojo Nehinbe and Peter Damuut</i>	
Adopting the LANDMARC Positioning System for 2.4 GHz Band	400
<i>Stephan Bergemann and Jürgen Sieck</i>	
Multisensor and Collaborative Localization for Diverse Environments	406
<i>Björn Bittins and Jürgen Sieck</i>	
Prevention of Dirty Data and the Role of MADAR Project	412
<i>Abdullah S. Al-Mudimigh and Zahid Ullah</i>	

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

Performance Modeling of Worldwide Distributed IT Support System at Siemens IT Solutions and Services	415
<i>Alexander Chudov, Yana Rebrova, and Alexander Pastyak</i>	
Evaluation of Quality of Service (QoS) Support for Real-Time or Mission Critical Services over IEEE 802.11e Wireless Networks	418
<i>Kenneth S. Nwizege</i>	
Performance Extrapolation for Load Testing Results of Mixture of Applications	424
<i>Subhasri Duttagupta and Manoj Nambiar</i>	
Impact of Vehicular Traffic on Information Capacity of Cellular Wireless Network at Carrier Frequencies Greater Than 3 GHz	430
<i>Kwashie A. Anang, Predrag B. Rapajic, Titus I. Eneh, Lawal Bello, and Grace Oletu</i>	
The Impact of ICT on Computer Applications	435
<i>Kenneth S. Nwizege, Franklyn Chukwunonso, Charity Kpabeb, and Shedrack Mmeah</i>	

Modelling and Performability Analysis of WLANs as a Queuing Model with Channel/Access Point Failures and Reconfiguration	440
<i>Y. Kirsal, E. Ever, O. Gemikonakli, and G. Mapp</i>	
Enhanced Equalization for Mobile Communication Systems	446
<i>Grace Oletu, Predrag Rapajic, Titus Eneh, and Kwashie Anang</i>	
A New Approach to Evaluate Performance of Component-Based Software Architecture	451
<i>Seyed Saber Jalali, Hassan Rashidi, and Eslam Nazemi</i>	
Track 17-T: Circuits, Sensors and Devices	
Investigation of the Effect of Operating Temperature on Electrical Characteristics of A-Si: H/a-SiGe: H Hetero-Structure Solar Cells	457
<i>Peyman Jelodarian and Abdolnabi Kosarian</i>	
Integrated 0.35 μm BiCMOS DC-DC Boost Converter	462
<i>Chan-Soo Lee, Nam-Soo Kim, and Hyoung-Ho Ko</i>	
Electron Distribution in Non-uniformly Doped NPN Transistors	468
<i>Nitu Syed, Rummana Bari, Tanjib Rubaiyat, Shahana Akter, and M. Asif-UI-Hoque</i>	
Author Index	472