

2009 Third UKSim European Symposium on Computer Modeling and Simulation

(EMS 2009)

**Athens, Greece
25-27 November 2009**



**IEEE Catalog Number: CFP0928I-PRT
ISBN: 978-1-4244-5345-0**

UKSim Third European Symposium on Computer Modeling and Simulation

EMS 2009

Table of Contents

Message from General Chairs
Conference Organization
International/Technical Program Committee
International Reviewers
Technical Sponsors
Plenary Abstracts

Intelligent Systems

Intelligent Fuzzy Chaotic Control of a Two-Link Rigid Robot Arm	1
<i>Shima Alizadeh Zanjani, Amir Homayoun Jafari, and Ali Motie Nasrabadi</i>	
SOA of Smart City Geospatial Management	6
<i>Mahmoud Al-Hader, Ahmad Rodzi, Abdul Rashid Sharif, and Noordin Ahmad</i>	
Misuse Detection via a Novel Hybrid System	11
<i>Ali Foroughifar, Mohammad S. Abadeh, Abdolhamid Momenzadeh, and Mazyar Baran Pouyan</i>	
CaDSS: A Framework for Enhancing Decision Making in Pervasive Computing Environment	17
<i>Amin Saremi</i>	
Implementation of a Prototype for a Traditional Solar Tracking System	23
<i>Nader Barsoum</i>	
Particle Swarm Modelling of a Flexible Beam Structure	31
<i>M. Mohamad, M.O. Tokhi, S.F. Toha, and I. Abd. Latiff</i>	
Active Vibration Control of a Flexible Plate Structure Using Ant System Algorithm	37
<i>Sabariah Julai, Mohd Osman Tokhi, and Salihatun Md Salleh</i>	
PSO-Based Parametric Modelling of a Thin Plate Structure	43
<i>Salihatun Md Salleh, Mohd Osman Tokhi, Sabariah Julai, Maziah Mohamad, and Idris Abd Latiff</i>	

Solving Job Shop Scheduling Problem Using Cellular Learning Automata	49
<i>Masoud Abdolzadeh and Hassan Rashidi</i>	
Multimedia Based Intelligent Content Networking for Future Internet	55
<i>Deepak Dasaratha Rao</i>	
Using Particle Swarm Optimization for Robot Path Planning in Dynamic Environments with Moving Obstacles and Target	60
<i>Amin Zargar Nasrollahy and Hamid Haj Seyyed Javadi</i>	
Adaptive Framework and User Preference Modeling for Economy Class Aircraft Passenger Seat	66
<i>CheeFai Tan, Wei Chen, Hao Liu, and Matthias Rauterberg</i>	
Perception Estimation of Vehicle Motion	70
<i>Syed Riaz un Nabi Jafri and Ahmed Zeeshan Pervaiz</i>	
Intelligent Insulin Infuser	74
<i>Nivethitha Jayaraj, C. Mathew Cherian, and S. Ganesh Vaidyanathan</i>	
Hybrid Intelligent Systems & Hybrid Soft Computing	
An Application of Bag Filter Control System Based on Techniques of OPC and Multibus	79
<i>Chao Pan, Wanlin Gao, Lina Yu, Jieru Li, Wei Liu, and Xiang Sun</i>	
Return Policy of Two Substitutable Products with Fuzzy Demands	82
<i>Ying Yu and Tongdan Jin</i>	
A Novel Fuzzy Genetic Annealing Classification Approach	87
<i>Maziyar Baran Pouyan, Hamid Mohamadi, Mohammad Saniee Abadeh, and Ali Foroughifar</i>	
A Memetic Evolutionary Approach to Radial Basis Function Networks	92
<i>R. El Hamdi, M. Njah, and M. Chtourou</i>	
Genetic Algorithm Optimisation for Fuzzy Control of Wheelchair Lifting and Balancing	97
<i>Salmiah Ahmad, M.O. Tokhi, and S.F. Toha</i>	
An Efficient Parallel Algorithm for Solving Cryptarithmic Problems: PGA	102
<i>Gholamali Rahnavard and Gholamhossein Dastghaibfyard</i>	
Dynamic Nonlinear Inverse-Model Based Control of a Twin Rotor System Using Adaptive Neuro-fuzzy Inference System	107
<i>S.F. Toha and M.O. Tokhi</i>	
Intelligent Arrhythmia Detection Using Genetic Algorithm and Emphatic SVM (ESVM)	112
<i>Jalal A. Nasiri, Mostafa Sabzekar, H. Sadoghi Yazdi, Mahmoud Naghibzadeh, and Bahram Naghibzadeh</i>	
Emphatic Constraints Support Vector Machines for Multi-class Classification	118
<i>Mostafa Sabzekar, Mahmoud Naghibzadeh, Hadi Sadoghi Yazdi, and Sohrab Effati</i>	

Methodologies, Tools and Operations Research

Translating Security Policy to Executable Code for Sandboxing Linux Kernel	124
<i>Hrushikesh Mohanty, M. VenkataSwamy, Srini Ramaswamy, and R.K. Shyamasundar</i>	
Applying Simulator-Defined Radar Countermeasure Systems Techniques to Computer Network Security Issues	130
<i>Theodoros G. Kostis, Athanasios K. Goudosis, Kanstantinos G. Galanis, and Sokratis K. Katsikas</i>	
Prioritizing Use Cases to Aid Ordering of Scenarios	136
<i>Sapna P.G. and Hrusikesh Mohanty</i>	
Simulating Secure Data Extraction in Extraction Transformation Loading (ETL) Processes	142
<i>M. Mrunalini, T.V. Suresh Kumar, and K. Rajani Kanth</i>	
Early Behaviour Modelling for Control Systems	148
<i>Jacob Palczynski and Stefan Kowalewski</i>	
Building Automation Simulator and Control Strategy for Intelligent and Energy Efficient Home	154
<i>Pavel Kordik, Martin Hasaj, Marek Tvrđý, and Miroslav Šnorek</i>	
Ameliorating Metaheuristic in Optimization Domains	160
<i>Sushila Madan and Mamta Madan</i>	

Bio-informatics and Bio-medical Simulation

Using Artificial Immune System on Implementation of Intrusion Detection Systems	164
<i>Aref EshghiShargh</i>	
Total Aberrations Measurement with Using the Mathematical Model of the Eye	169
<i>Fatemeh Davarinia, Zahra Akhyani, and Keyvan Maghooli</i>	
On the Parameter Inference in Chaotic Chemical Systems	175
<i>Paola Lecca and Alida Palmisano</i>	
Development of Novel Data Compression Technique for Accelerate DNA Sequence Alignment Based on Smith–Waterman Algorithm	181
<i>S.A.M. Al Junid, M.A. Haron, Z. Abd Majid, A.K. Halim, F.N. Osman, and H. Hashim</i>	
ECG Arrhythmia Classification with Support Vector Machines and Genetic Algorithm	187
<i>Jalal A. Nasiri, Mahmoud Naghibzadeh, H. Sadoghi Yazdi, and Bahram Naghibzadeh</i>	
Development of a 3D Model for Packed Bed Liquid Chromatography in Micro-columns	193
<i>Sebastian Schnittert, Remo Winz, and Eric von Lieres</i>	

Discrete Event and Real Time Systems

Inclusion of Real-Time Java Software in Event Driven Simulations	198
<i>George J. Foster and Annette Helm</i>	

Image, Speech and Signal Processing

Hexagon-Diamond Grid System for Motion Tracking	203
<i>Singh Sarban Singh Ranjit, Siva Kumar Subramaniam, Sani Irwan M.D. Salim, and Ridza Azri Ramlee</i>	
Determination of Ionospheric Total Electron Content (TEC): Phase Measurement Based on Leveling Technique	208
<i>Mohamad Huzaimy Jusoh, Noor Hafizah Abdul Aziz, Muhammad Adib Haron, Mohd Amirshaifulrazain Abu Zaini, and Ahmad Asari Sulaiman</i>	
Adaptive Neuro-fuzzy Inference System for Classification of EEG Signals Using Fractal Dimension	214
<i>Maryam Vatankhah and Mehdi Yaghubi</i>	
Blind Radial Basis Function Network Equalizer for Digital Communication Channels	219
<i>Deepak Ranjan Nayak</i>	
Restoration of Fingerprint Images Using Discrete Version of the Topological Derivative	225
<i>V. Sekar and Damodaran Nedumaran</i>	
FPGA Implementation of Feature Extraction and MLP Neural Network Classifier for Farsi Handwritten Digit Recognition	231
<i>Marzieh Moradi, Mohammad Ali Poormina, and Farbod Razzazi</i>	
A Framework to Design Novel SVD Based Color Image Compression	235
<i>Satish Kumar Singh and Shishir Kumar</i>	
Wavelet Based Robust Digital Watermarking Technique Using Reverse Additive Algorithm (RAA)	241
<i>Satish K. Singh, Shishir Kumar, Madhur Srivastava, A. Chandra, and S. Srivastava</i>	
High Dimensional Problem Optimization Using Distributed Multi-agent PSO	245
<i>Jalal A. Nasiri, Amin Milani Fard, Mahmoud Naghibzadeh, and Modjtaba Rouhani</i>	
Analysis of Breast Cancer Using Image Processing Techniques	251
<i>Ranjeet Singh Tomar, Tripty Singh, Sulochana Wadhvani, and Sarita Singh Bhadoria</i>	

Industry, Business and Management

Data Resampling Techniques and Specific Algorithms Applied to a Critical Industrial Classification Problem	257
<i>Marco Vannucci, Valentina Colla, Gianluca Nastasi, and Nicola Matarese</i>	
Positioning of Order Penetrating Point in Hybrid MTS/MTO Environments	263
<i>Samira Hemmati, Masoud Rabbani, and Mahmood Ebadian</i>	

CRM Scorecard Measurement: The Case for the Banking Sector in Saudi Arabia	269
<i>Zahid Ullah and Abdullah S. Al-Mudimigh</i>	
A Novel ITSM-Based Implementation Method to Maintain Software Assets in Order to Sustain Organizational Activities	274
<i>Mohammad Sharifi, Masarat Ayat, Suhaimi Ibrahim, and Shamsul Sahibuddin</i>	
The Effect of a Good HR in Promoting KM & Innovation in a Manufacturing Sector – A System Dynamics Approach	281
<i>Vasanth Kamath, Lewlyn Lester Raj Rodrigues, and Pradeep Vithoba Desai</i>	
Use of SOA 3.0 in Strategic Information System Planning	287
<i>Atif Farid Mohammad, Emanuel S. Grant, Sanchit Goyal, and Aashish Bhatia</i>	

Human Factors, Social & Economic Sciences

Evaluation of the Financial Derivative Risk from the Probability of Default Angle	293
<i>Ma Degong, Chen Yancun, and Yang Wei</i>	
Concentration and Aggregation of Small and Medium Enterprises Analyzed Through a Novel Paradigm	299
<i>Marco Remondino, Marco Pironti, and Roberto Schiesari</i>	

Engineering: Civil, Mechanical, Chemical, Industrial, Manufacturing and Control

Ambient User Interfaces to Building Data	304
<i>Artur Krukowski and Dusan Arsenijevic</i>	
A New Approach to Welders' Performance for Increasing Steel Structures' Safety via Talent Management	310
<i>Mohammad Hosesein Hajikaimi, Mohammad Amin Ghalambor, and Abbas Ali Hajikarimi</i>	
Comparison Between Single and Dual Laser Pointer Applications in Digital Scanning System	316
<i>Bagus Arthaya</i>	
Comparison of Input Shaping Techniques for Sway Suppression in a Double-Pendulum-Type Overhead Crane	321
<i>Mohd Ashraf Ahmad, Raja Mohd Taufika Raja Ismail, Mohd Syakirin Ramli, Ahmad Nor Kasruddin Nasir, Normaniha Abd Ghani, and Nurul Hazlina Noordin</i>	
A New Hybrid Electromagnetism Algorithm for Job Shop Scheduling	327
<i>Elham Gilak and Hasan Rashidi</i>	
Splitting Scheme for Eulerian-Lagrangian Technique in the Analysis of Particle Conformity to Fluid Flow	333
<i>Mohd Zamani Ngali and Kahar Osman</i>	
Accuracy and Efficiency Improvements of the Navier Stokes Equation Using Modified Splitting Method	339
<i>Kahar Osman, Muhamad Hasbullah Padzillah, and Mohd Zamani Ngali</i>	

Thermal Optimization of Electronic Equipment: Form Factor Improvement	345
<i>Kahar Osman, Massharudin Su, Mahmood Anwar, and Mohd Zamani Ngali</i>	
Nonlinear Dynamic Modelling and Analysis of a 3-D Overhead Gantry Crane System with Payload Variation	350
<i>Raja Mohd Taufika Raja Ismail, Mohd Ashraf Ahmad, Mohd Syakirin Ramli, and Fairuz Rizal Mohamad Rashidi</i>	
PID-Based Control of a Single-Link Flexible Manipulator in Vertical Motion with Genetic Optimisation	355
<i>Badrul Aisham Md Zain, Mohammad Osman Tokhi, and Siti Fauziah Toha</i>	
Advances in Medical Education on Surgical Techniques Using Satellite Communications	361
<i>Christos Papachristos, Vasilis N. Tsoulkas, and Athanasios A. Pantelous</i>	
On the Sensorial Integration for a Holonic Manufacturing System	367
<i>Doru Panescu and Gabriela Varvara</i>	
Dynamic Modelling of a Single-Link Flexible Manipulator Using Parametric Techniques with Genetic Algorithms	373
<i>Badrul Aisham Md Zain, Mohammed Osman Tokhi, and Salehatun Md Salleh</i>	
Energy, Power Generation and Distribution	
Recurrent Wavelet Network with New Initialization and its Application on Short-Term Load Forecasting	379
<i>Amir Baniamerian, Meysam Asadi, and Ehsan Yavari</i>	
Energy Efficiency and Power Quality Optimization Using a Modified Capacitor Bank: An Industrial Case Study	384
<i>Majid Ghadimi, Amin Ramezani, and Kamyar Bozorgi</i>	
A MOPSO Tri-loop Self Regulated Variable Structure Sliding Mode Self Regulating Coordinated Controller for Tidal Wave Energy Conversion	389
<i>Adel M. Sharaf and Adel A.A. El-Gammal</i>	
A Particle Swarm Optimization Technique (PSO) for Power Filter Design	395
<i>Adel M. Sharaf and Adel A.A. El-Gammal</i>	
Optimal Switched Dynamic Modulated Power Filter Compensator for Radial Distribution System	400
<i>Adel M. Sharaf and Adel A.A. El-Gammal</i>	
Optimal Multi-incremental Self Regulating Speed Controller for Industrial PMDC Motor Drive Systems	406
<i>Adel M. Sharaf and Adel A.A. El-Gammal</i>	
A MOPSO Self Regulating PID Dynamic Error Driven Controller for Tidal Wave Energy Conversion	412
<i>Adel M. Sharaf and Adel A.A. El-Gammal</i>	

Optimal Self Regulating PID Controller for Coordinated Wind-FC-Diesel Utilization Scheme	418
<i>Adel M. Sharaf and Adel A.A. El-Gammal</i>	
Simulation of a Smart Grid City with Software Agents	424
<i>Stamatis Karnouskos and Thiago Nass de Holanda</i>	
Transport, Logistics, Harbour, Shipping and Marine Simulation	
Material Flow Planning in Cellular Manufacturing Systems by Computer Simulation	430
<i>Fatmeh Ranaiefar, Ruzbeh Mohagheghzadeh, Masud Chitsaz, Mohsen Fattahi Ardakani, and Mohammad Javad Shahbazi</i>	
A System Dynamics Approach for Capacity Planning and Price Adjustment in a Closed-Loop Supply Chain	435
<i>Mir Saman Pishvae and Hamed Shakouri G.</i>	
ROV Based Acoustic Analysis Approach and Non-destructive Testing of Harbor Concrete Structure	440
<i>Mohammadreza Hedayati, Seyed Alireza Ghasempour Shirazi, Seyed Ataolah Sadr, and Ali Mirzaasgari</i>	
Virtual Reality, Visualization and Computer Games	
Study on Advanced Visualization Tools In Network Monitoring Platform	445
<i>Doris Wong Hooi Ten, Selvakumar Manickam, Sureswaran Ramadass, and Hussein A. Al Bazar</i>	
Parallel and Distributed Architectures and Systems	
Implementation of Linear Network Coding on Parallel Architecture	450
<i>Nitin Rakesh and Nitin Nitin</i>	
Internet Modelling, Semantic Web and Ontologies	
Web Services for Physics – Graphics Generator	455
<i>Eliza Consuela Isbasoiu and Madalin Preotesescu</i>	
An MDA-Based Subsurface Spatial Ontology Modeling for Semantic Sharing	460
<i>Lee Sang-Hoon and Chang Pyoung-Wuck</i>	
Relative Ontology Modeling for Relation Inference	466
<i>Myungwon Hwang, Dongjin Choi, and Pankoo Kim</i>	
A Web-Based Framework for Distributed Medical Image Processing Using Image Markup Language (IML)	470
<i>Majid Pourdadash Miri, Hamidreza Pooshfam, Mandava Rajeswari, and Dhanesh Ramachandram</i>	

Mobile/Ad Hoc Wireless Networks, Mobicast, Sensor Placement, Target Tracking

Accurate Timeliness Simulations for Real-Time Wireless Sensor Networks	476
<i>Jérôme Rousselot, Jean-Dominique Decotignie, Marc Aoun, Peter van der Stok, Ramon Serna Oliver, and Gerhard Fohler</i>	
Intelligent Agent Platform and Control Language for Wireless Sensor Networks	482
<i>Frantisek Zboril, Jan Horacek, and Pavel Spacil</i>	
Modeling Location Monitoring System Using Directional Antennas	488
<i>K. Kathiravan, P. Pradeep, G. Ronak, and S. Sai Roshan</i>	
The Simulation and Analysis of Algorithm RRE and TRRE for Redundant Reader Elimination in RFID System	494
<i>Zhi-Ying Yang and Jun-Liang Chen</i>	
Modelling Periodic Data Dissemination in Wireless Sensor Networks	499
<i>Graham Williamson, Davide Cellai, Simon Dobson, and Paddy Nixon</i>	
An Intra Wireless Communication and Remote Control Mechanism in Vehicular Ad-hoc Network (VANET)	505
<i>Helia Mamdouhi, Sabira Khatun, and Kian Ahmadi</i>	
IZM-DSR: A New Zone-Disjoint Multi-path Routing Algorithm for Mobile Ad-Hoc Networks	511
<i>Nastoo Taheri Javan, Amir Dareshoorzade, Saeed Soltanali, and Yasna Ghanbari Birgani</i>	

Performance Engineering of Computer & Communication Systems

A Survey of Handoff Performance in Mobile IP	517
<i>Mohamed Alnas, Irfan Awan, and R. Holton</i>	
Database Application for Mobile Phone Using BREW	523
<i>Ela Dongre, Deepak Dongre, and Arun Parakh</i>	
Performance Analysis of Multi-carrier DS-CDMA Wireless Communication System	529
<i>Saimoon Ara Amin, Mahbulul Alam, and S.P. Majumder</i>	
Modelling Finite Buffer Slotted Ring Network Using Matrix Geometric Method	535
<i>Syed Asif Ali Shah, Wajiha Shah, M. Faisal Hayat, and Gordhan Das Menghwar</i>	
Dynamic Policy-Based Routing Using Firewall Rules	540
<i>Kavin Tantipongsakul and Akharin Khunkitti</i>	
Rich Media Application Using MPEG-4 LAsER PMSI Technique	546
<i>SeungWon Song, InJae Lee, HanKyu Lee, JinWoo Hong, and Jihun Cha</i>	
A Game Theoretic Approach for Quantitative Evaluation of Strategic Interactions between Hacker's Motivations	552
<i>Behzad Zare Moayedi and Mohammad Abdollahi Azgomi</i>	
Performance Analysis of Hybrid CDMA Systems	558
<i>Hakimeh Purmehdi, Aydin Behnad, and Farshad Lahouti</i>	

Channel Sharing in Hybrid Sectorized Cellular Networks with Coverage-Limited Relays	564
--	-----

Hakimeh Purmehdi and Farshad Lahouti

A Transmitter Model for Performance Improvement and Interference Mitigation of Multi-user STBC-CDMA System in Correlated MISO Channels	569
---	-----

Mehdi Rahmati and Vahid Tabataba Vakili

Circuits, Sensors and Devices

Door Sensors for Automatic Light Switching System	574
---	-----

*Ranjit Singh Sarban Singh, Ahamed Fayeez Tuani Ibrahim, Sani Irwan MD Salim,
and Wong Yan Chiew*

An Ultra-Low Power Real Time Embedded System for Map Generation Using Ultrasound Sensors	579
---	-----

Prabhakar Mishra, H.N. Shankar, Pai Dipti G., and Mudit Mathur

Author Index