# 2010 Developments in E-systems Engineering

## DeSE 2010

## Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preface</td>
<td>ix</td>
</tr>
<tr>
<td>Conference Committees</td>
<td>xi</td>
</tr>
<tr>
<td>Reviewers</td>
<td>xiv</td>
</tr>
</tbody>
</table>

## eHealth and eMedicine

### Telemedicine and Smart Phones as Medical Peripheral Devices (Computational Approaches)

Ivan Evg. Ivanov, Vesselin Gueorguiev, Velizar Bodurski, and Vencislav Trifonov

Page 3

### Information Technology Governance, Risk and Compliance in Health Care - A Management Approach

Mike Krey

Page 7

### An Automated Method for Segmentation of Coronary Arteries in Coronary CT Imaging

Yin Wang and Panos Liatsis

Page 12

### Evaluating Remote Mobile Technology in a Clinical Environment

F. Arshad, P. Fergus, and S. Appleton

Page 17

### Vessel Extraction in Fluorescein Angiograms of the Human Retina Using a Supervised Classifier

Rubiel Vargas and Panos Liatsis

Page 23

### Where’s the Evidence for Evidence-based Knowledge in Ehealth Systems?

Raphael Bahati, Stacey Guy, Michael Bauer, and Femida Gwadry-Sridhar

Page 29

### Healthcare Data Access Control Using XACML for Handheld Devices

Saritha Arunkumar and Muttukrishnan Rajarajan

Page 35

### A Multi-Agent Approach for Self-Diagnosis of a Hydrocephalus Shunting System

Abdel Rahman Alkharabsheh, Lina Momani, Nayel Al-Zubi, and Waleed Al-Nuaimy

Page 39
Wireless Sensor Networks and the Internet of Things

Implementing a Trust-Aware Routing Protocol in Wireless Sensor Nodes .................................................................47
  Theodore Zahariadis, Panagiotis Trakadas, Helen Leligou, Panagiotis Karkazis, and S. Voliotis

Paradigms, Frameworks and Prototypes Towards the Realization of the Internet of Things .......................................................................................................................................................................53
  C. Tselikis, A. Alexopoulou, C. Vangelatos, A. Leventis, and E.G. Ladis

Reconfiguration in Wireless Sensor Networks ...........................................................................................................59

Service Oriented Tasking System for WSN ....................................................................................................................64
  Benjamin Le Corre, Jérémie Leguay, Mario Lopez-Ramos, Vincent Gay, and Vania Conan

A Web Services-oriented Architecture for Integrating Small Programmable Objects in the Web of Things ..........................................................70
  Orestis Akribopoulos, Ioannis Chatziigiannakis, Christos Koninis, and Evangelos Theodoridis

A Self-Configurable Architecture for Wireless Sensor Networks ....................................................................................76
  M. Asim, M. Yu, H. Mokhtar, and M. Merabi

eCulture

Associate Model of Methods Used for Restoration / Conservation Resources .............................................................85
  Dragoș Ene and Roxana Radvan

A Theoretical Approach Based on the Correlation of Unified Data for Different Analyzing Techniques Used in the Modern Investigation of Artworks ..........................................................................................................................89
  Angheluta Laurentiu-Marian and Rigas Alexandros

eLearning

A Model-Driven Framework to Support Development of Serious Games for Game-based Learning .................................................................................................................95
  Stephen Tang and Martin Hanneghan

An Analytical Model for Teaching Architectural Building Design .........................................................................................101
  Ahmed M. Azmy

Leveraging e-Learning for Enhancing Employability of Students .................................................................................................107
  Srinagesh Chatarajupalli, Gopa Venkatswamy, and A.R. Aryasri

Creating Complex Interactive 3D Visualisations of Naval Battles from Natural Language Narratives ..........................................................................................................................113
  Steve Presland, Brian Farrimond, Paul Hazlewood, and Amanda Oddie

Implementation of an E-Learning Module in Virtual Centre for Entrepreneurship: The Development of Cultural Awareness in Students ..........................................................................................................................119
  Tatjana Welzer, Marjan Družovec, Metka Zorič Venuti, Anthony E. Ward, and Hamed Yahoui
International Curricula Networks for Recognition of Life Long Learning Programs: A Case Study of a Bit Sized e-Learning Module in Internet Security ................................................................. 123
  J.C. Burguillo, A. Peleteiro, J.M. Thiriet, and H. Yahoui
Key Issues Concerning the Simultaneous Development of Technical and Linguistic Competences in a Single E-module .................................................................................................... 127
  Matka Zorič Venuti, Tatjana Welzer, and Anthony E. Ward
Can We Truly Learn from A Cloud Or Is It Just A Lot of Thunder? ........................................................ 131
  D. Al-Jumeily, D. Williams, A.J. Hussain, and Paul Griffiths

eEntertainment and Creative Technologies
Framework for Distributed Network Simulation and State Propagation..................................................... 143
  Chris Dennett, Abdennour El Rhalibi, and Madjid Merabti
Development and Deployment of Cross-Platform 3D Web-based Games .............................................................. 149
  Chris Carter, Abdennour El Rhalibi, and Madjid Merabti
Situation Calculus for HCI Design ..................................................................................................................... 155
  David England, Martin Randles, and A. Taleb-Bendiab
eScience and eCollabration
Jinv: A Parallel Method for Distributed Matrix Inversion ...................................................................................... 163
  Vijay Sahota and Richard Bayford
Information Enrichment for Decision Support in Virtual Collaboration .............................................................. 168
  Obinna Anya, Hissam Tawfik, and Atulya Nagar
Supporting Cloud Computing Management through an Object Mapping Declarative Language ......... 175
  G. Hughes, D. Al-Jumeily, and A. Hussain
Significance of Healthy Organizational Culture for Superior Risk Management During Software Development ......................................................................................................................... 182
  Charu Verma and Saad Ali Amin
eBuilt Environment
A Computer-based LCA Tool for Sustainable Building Design ........................................................................ 193
  Ahmed M. Azmy
Face Recognition Based on Mixed between Selected Feature by Multiwavelet and Particle Swarm Optimization ............................................................................................................................... 199
  Adil Abdulwahhab Ghidan Azzawi and Muneera Abed Hmdi Al-Saedi
eSystems and AI
A Proactive Personalized Mobile News Recommendation System ................................................................ 207
  Kam Fung Yeung and Yanyan Yang
The Prediction of Non-Stationary Physical Time Series Using the Application of Regularization Technique in Self-organised Multilayer Perceptrons Inspired by the Immune Algorithm ........................................................................................................... 213
  Asmaa Abdullhussein Mahdi, Abir Jaafar Hussain, and Dhiya Al-Jumeily