



**Editors: Nikos Mastorakis, Valeri Mladenov, Badea Lepadatescu,
Hamid Reza Karimi, Costas G. Helmis**



Recent Advances in Computers, Communications, Applied Social Science & Mathematics

-  **Proceedings of the International Conference on Applied, Numerical and Computational Mathematics (ICANCM '11)**
-  **Proceedings of the International Conference on Computers, Digital Communications and Computing (ICDCC '11)**
-  **Proceedings of the International Conference on Applied Social Science, Social Economy and Digital Convergence (IC-ASSE-DC '11)**



Barcelona, Spain, September 15-17, 2011

ISBN: 978-1-61804-030-5

Recent Advances in Computers, Communications, Applied Social Science & Mathematics



RECENT ADVANCES in COMPUTERS, COMMUNICATIONS, APPLIED SOCIAL SCIENCE and MATHEMATICS

**Proceedings of the International Conference on APPLIED,
NUMERICAL and COMPUTATIONAL MATHEMATICS
(ICANCM'11)**

**Proceedings of the International Conference on COMPUTERS,
DIGITAL COMMUNICATIONS and COMPUTING (ICDCC'11)
Proceedings of the International Conference on APPLIED SOCIAL
SCIENCE, SOCIAL ECONOMY and DIGITAL CONVERGENCE
(IC-ASSSE-DC'11)**

**Barcelona, Spain
September 15-17, 2011**

RECENT ADVANCES in COMPUTERS, COMMUNICATIONS, APPLIED SOCIAL SCIENCE and MATHEMATICS

**Proceedings of the International Conference on APPLIED,
NUMERICAL and COMPUTATIONAL MATHEMATICS
(ICANCM'11)**

**Proceedings of the International Conference on COMPUTERS,
DIGITAL COMMUNICATIONS and COMPUTING (ICDCC'11)**

**Proceedings of the International Conference on APPLIED SOCIAL
SCIENCE, SOCIAL ECONOMY and DIGITAL CONVERGENCE
(IC-ASSSE-DC'11)**

**Barcelona, Spain
September 15-17, 2011**

Published by WSEAS Press
www.wseas.org

Copyright © 2011, by WSEAS Press

All the copyright of the present book belongs to the World Scientific and Engineering Academy and Society Press. All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of the Editor of World Scientific and Engineering Academy and Society Press.

All papers of the present volume were peer reviewed by two independent reviewers. Acceptance was granted when both reviewers' recommendations were positive.
See also: <http://www.worldses.org/review/index.html>

ISBN: 978-1-61804-030-5



European Society for Environmental Research
and Sustainable Development

RECENT ADVANCES in COMPUTERS, COMMUNICATIONS, APPLIED SOCIAL SCIENCE and MATHEMATICS

**Proceedings of the International Conference on APPLIED,
NUMERICAL and COMPUTATIONAL MATHEMATICS
(ICANCM'11)**

**Proceedings of the International Conference on COMPUTERS,
DIGITAL COMMUNICATIONS and COMPUTING (ICDCC'11)
Proceedings of the International Conference on APPLIED SOCIAL
SCIENCE, SOCIAL ECONOMY and DIGITAL CONVERGENCE
(IC-ASSSE-DC'11)**

**Barcelona, Spain
September 15-17, 2011**

Editors:

Prof. Nikos Mastorakis, Technical University of Sofia, Bulgaria
Prof. Valeri Mladenov, Technical University of Sofia, Bulgaria
Prof. Badea Lepadatescu, Transilvania University of Brasov, Romania
Prof. Hamid Reza Karimi, University of Adger, Norway
Prof. Costas G. Helmis, National and Kapodistrian University of Athens, Greece

International Program Committee Members:

Joseph Sifakis, FRANCE
Lotfi A. Zadeh, USA
Leon O. Chua, USA
K. R. Rao, USA
Dimitri Bertsekas, USA
Biswa N. Datta, USA
Irwin Sandberg, USA
P. Pardalos, USA
A. Manikas, UK
T. Kaczorek, POLAND
Wlodzislaw Duch, POLAND
Sidney Burrus, USA
Leonid G. Kazovsky, USA
Georgios B. Giannakis, USA
Nikolaos G. Bourbakis, USA
Brian A. Barsky, USA
Ryszard S. Choras, POLAND
Wasfy B. Mikhael, USA
M. Kostic, USA
A. Venetsanopoulos, CANADA
K. Benra, GERMANY
S. Sohrab, USA
D. Perkins, USA
Marco Ceccarelli, ITALY
Dionysios (Dion) D. Dionysiou, USA
Leon Trilling, USA
D. L. Russell, USA
Leonid Perlovsky, USA
John W. Lund, USA
Kent Davey, USA
David Landgrebe, USA
Miguel A. Marino, USA
Hamido Fujita, JAPAN
Steven H. Collicott, USA
F. Akgun, TURKEY
Omar Badran, JORDAN
Y. Baudoin, BELGIUM
M. Versan Kok, TURKEY
A. Kurbatskiy, RUSSIA
S. Linderoth, DENMARK
P. Lunghi, ITALY
A. Midilli, CANADA
Vijayan Iyer Gurumurthy, INDIA
Helmut Jaberg, AUSTRIA
Ar. Zuhairuse Md Darus, MALAYSIA
Ioana Diaconescu, ROMANIA
J. Torres Farinha, PORTUGAL
Bogdan Zygmunt, POLAND
Lajos Barna, HUNGARY
J. Van Mierlo, BELGIUM
S. Ozdogan, TURKEY
R. Tamme, GERMANY
M. Teixeira, PORTUGAL
R. Vigotti, ITALY
G. Wolf, GERMANY
G. Wisniewski, POLAND
A. Van Zyl, BELGIUM
Z. A. Vale, PORTUGAL
Bimal K. Bose, USA
Paul E. Dimotakis, USA
Steven Collicott, USA
Olga Martin, ROMANIA
Periklis Papadopoulos, USA

Table of Contents

Study of Active Force Control in Biodynamic Hand Model	11
<i>Azizan As'arry, Mohd Zarhamdy Md. Zain, Musa Mailah, Mohamed Hussein, Zulkifli Mohd Yusop</i>	
Interference and Shortest Path Optimization on a ZigBee Sensors Network Application	16
<i>Fabio Jauregui, Ruben Guerrero, Darwin Rodriguez, Yezid Donoso</i>	
Coverage Problem Approach Using Multi-Objective Scheme	22
<i>German A. Sotelo, Steven J. Rigby, Yezid Donoso</i>	
Multi-Objective Evolutionary Algorithm for Efficient Coverage Problem of WSN Using a SPEA Approach	27
<i>German A. Montoya, Horacio Riveros Ardila, Sebastian Rivera Diaz, Yezid Donoso</i>	
Unavailability and Cost Minimization in a Parallel-Series System Using Multi-Objective Evolutionary Algorithms	33
<i>Ferney A. Maldonado-Lopez, Jorge Corchuelo, Yezid Donoso</i>	
A Multi-Objective Routing Protocol for a Wireless Sensor Network Using a SPEA2 Approach	39
<i>Carlos Lozano-Garzon, Yezid Donoso</i>	
Theoretical Analysis of Weighted Exponential Models	45
<i>M. Shuaib Khan, M. Aleem, Akbar Ali Shah</i>	
The $J_{e,n}$-invariant of $E^n_{A,B}$	54
<i>Abdelhakim Chillali</i>	
Approaches Method to Solve Ships Routing Problem with an Application to the Indonesian National Shipping Company	57
<i>Ismail Yusuf, Achmad Yani, Mohd. Safiyan Baba</i>	
A Comprehensive Survey of Instructional Technology Integration into Educational Technology	63
<i>Baharak Makki, Bahador Makki</i>	
An Intelligent Power System Stabilizer Based Hybrid Fuzzy Learning Algorithm	69
<i>Abdellatif Naceri, Ahmed Massoum, Mohamed Abid</i>	
Computer Networking and Sociotechnical Threats	75
<i>Vladimir Sobeslav</i>	
A NN-based Model for Time Series Forecasting in Function of Energy Associated of Series	80
<i>C. Rodriguez Rivero, J. Pucheta, J. Baumgartner, M. Herrera, D. Patino, B. Kuchen</i>	
What Does IT Service Management Look Like in the Cloud? An ITIL Based Approach	87
<i>Marc Jansen</i>	

QDI Decomposed DIMS Method Featuring Homogeneous/Heterogeneous Data Encoding <i>Padmanabhan Balasubramanian, Nikos E. Mastorakis</i>	93
Adaptive Generalization Backstepping Method to Synchronize T-System <i>A. R. Sahab, M. Taleb Ziabari</i>	102
A Neural Network Algorithm to Simplify 2D Meshes <i>Francisco-M. Martinez, Jose-L. Oliver, Leandro Tortosa, Jose-F. Vicent</i>	110
Impact of Mobility on Concurrent Transactions Mixture <i>Ahmad Alqerem</i>	116
A Study on the Use of Multiple Surrogate Models in Valve Design <i>Xue Guan Song, Jeong Ju Choi, Joon-Ho Lee, Young Chul Park</i>	124
Thermal-Structural Coupled Field Analysis for High Pressure and Temperature 3-Way Forged Ball Valve <i>Si Pom Kim, Joon Ho Lee, Joon Hong Park, Rock Won Jeon, Young Chul Park</i>	132
Open-Source System Based on the Ontopia Engine <i>Petr Do, Ladislav Burita</i>	138
Investigation on OLSR Routing Protocol Efficiency <i>Jiri Hosek, Karol Molnar</i>	147
Comparison of Linear Microwave Antenna Arrays for Fixed Communication Systems <i>Mario Reyes-Ayala, Javier Cruz-Puebla, Guillermo Perez-Lopez, Edgar Alejandro Andrade-Gonzalez, Jose Alfredo Tirado-Mendez</i>	154
Rule-based Genetic Algorithm for In-Service Training Curriculum Plan <i>Didem Abidin, Sen Cakir</i>	160
Data Level's Integrated Model for the National Grid Company's Decision Support System <i>Simona Vasilica Oprea, Adela Bara, Victor Vladucu, Anda Velicanu</i>	167
The Semantics of the Term 'Wisdom' in Biblical Writings <i>Raluca Felicia Toma</i>	173
Critical Discourse Analysis of the 'War on Terror' – Blairian Discourse and Philosophical Framework <i>Ioana Laura Raicu</i>	178
DNA Sequence Alignment: Hybrid Parallel Programming on a Multicore Cluster <i>Enzo Rucci, Armando De Giusti, Franco Chichizola, Marcelo Naiouf, Laura De Giusti</i>	183
Parallel Suboptimal Heuristic Search for Finding a W-Admissible Solution. Performance Analysis <i>Victoria Sanz, Marcelo Naiouf, Armando De Giusti</i>	191

Numerical Model for an IWRC Bending over Sheave Problem and its Finite Element Solution <i>Cengdz Erdonmez, Cevat Erdem Dmrak</i>	199
Enhancement of String Matching Queries on Albanian Names for Kosovo Civil Registry <i>Blerim Rexha, Valon Raca, Agni Dika</i>	206
A Class of 2D Recursive Filters with Two-Directional Selectivity <i>Radu Matei</i>	212
Communication Channel Identification in Frequency Domain Based on the Volterra Model <i>Vitaliy Pavlenko, Viktor Speransky</i>	218
Distributed Computing Environment for Community and Social Health Studies <i>Lucian Milea, Adrian Zafiu, Valentin Voiculescu, Mihail Teodorescu</i>	223
Counting Roots of Random Polynomial Equations in Small Intervals <i>Efraim Shmerling</i>	228
The Selective Transmission with Majority Even/Odd Subcarriers for Increasing the Data Transmission Throughput in OFDM Based Cognitive Radio Systems <i>Yihu Xu, Myong-Seob Lim</i>	233
Authors Index	239

Authors Index

Abid, M.	69	Jansen, M.	87	Raicu, I. L.	178
Abidin, D.	160	Jauregui, F.	16	Rexha, B.	206
Aleem, M.	45	Jeon, R. W.	132	Reyes-Ayala, M.	154
Alqerem, A.	116	Khan, M. S.	45	Rigby, S. J.	22
Andrade-Gonzalez, E. A.	154	Kim, S. P.	132	Rivero, C. R.	80
Ardila, H. R.	27	Kuchen, B.	80	Rodriguez, D.	16
As'arry, A.	11	Lee, J.-H.	124, 132	Rucci, E.	183
Baba, M. S.	57	Lim, M.-S.	233	Sahab, A. R.	102
Balasubramanian, P.	93	Lozano-Garzon, C.	39	Sanz, V.	191
Bara, A.	167	Mailah, M.	11	Shah, A. A.	45
Baumgartner, J.	80	Makki, Bahad.	63	Shmerling, E.	228
Burita, L.	138	Makki, Bahar.	63	Sobeslav, V.	75
Cakir, S.	160	Maldonado-Lopez, F. A.	33	Song, X. G.	124
Chichizola, F.	183	Martinez, F.-M.	110	Sotelo, G. A.	22
Chillali, A.	54	Massoum, A.	69	Speransky, V.	218
Choi, J. J.	124	Mastorakis, N. E.	93	Teodorescu, M.	223
Corchuelo, J.	33	Matei, R.	212	Tirado-Mendez, J. A.	154
Cruz-Puebla, J.	154	Milea, L.	223	Toma, R. F.	173
De Giusti, A.	183, 191	Molnar, K.	147	Tortosa, L.	110
De Giusti, L.	183	Montoya, G. A.	27	Velicanu, A.	167
Diaz, S. R.	27	Naceri, A.	69	Vicent, J.-F.	110
Dika, A.	206	Naiouf, M.	183, 191	Vladucu, V.	167
Dmrak, C. E.	199	Oliver, J.-L.	110	Voiculescu, V.	223
Do, P.	138	Oprea, S. V.	167	Xu, Y.	233
Donoso, Y.	16, 22, 27	Park, J. H.	132	Yani, A.	57
Donoso, Y.	33, 39	Park, Y. C.	124, 132	Yusop, Z. M.	11
Erdonmez, C.	199	Patino, D.	80	Yusuf, I.	57
Guerrero, R.	16	Pavlenko, V.	218	Zafiu, A.	223
Herrera, M.	80	Perez-Lopez, G.	154	Zain, M. Z. Md.	11
Hosek, J.	147	Pucheta, J.	80	Ziabari, M. T.	102
Hussein, M.	11	Raca, V.	206		