



COMPUTERS and SIMULATION in MODERN SCIENCE

Volume IV

Editors:

***Nikos Mastorakis,
Metin Demiralp,
Valeri M. Mladenov***

COMPUTERS and SIMULATION in MODERN SCIENCE - Volume IV



Selected papers from WSEAS Conferences

University of Cambridge (UK),
University of Harvard (USA),
Massachusetts Institute of Technology -- MIT (USA),
China Jiliang University (China),
Beijing Jiaotong University (China),
Univ. Politecnica of Bucharest (Romania),
Technical University of Sofia (Bulgaria),
Tianjin University of Technology and Education (China),
Zhejiang Univ. of Technology (China),
University of Alcalá, Madrid (Spain),
University of Cantabria, Santander (Spain),
Budapest Tech (Hungary),
University of La Laguna (Spain),
Politehnica University of Timisoara (Romania)

ISSN: 1792-6882

ISBN: 978-960-474-267-7



COMPUTERS and SIMULATION in MODERN SCIENCE Volume IV

"This book contains important selected papers from WSEAS Conferences organized in the University of Cambridge (UK), University of Harvard (USA), Massachusetts Institute of Technology -- MIT (USA), China Jiliang University (China), Beijing Jiaotong University (China), Univ. Politecnica of Bucharest (Romania), Technical University of Sofia (Bulgaria), Tianjin University of Technology and Education (China), Zhejiang Univ. of Technology (China), University of Alcala, Madrid (Spain), University of Cantabria, Santander (Spain), Budapest Tech (Hungary), University of La Laguna (Spain), Politehnica University of Timisoara (Romania)"

COMPUTERS and SIMULATION in MODERN SCIENCE

Volume IV

"This book contains important selected papers from WSEAS Conferences organized in the University of Cambridge (UK), University of Harvard (USA), Massachusetts Institute of Technology -- MIT (USA), China Jiliang University (China), Beijing Jiaotong University (China), Univ. Politecnica of Bucharest (Romania), Technical University of Sofia (Bulgaria), Tianjin University of Technology and Education (China), Zhejiang Univ. of Technology (China), University of Alcala, Madrid (Spain), University of Cantabria, Santander (Spain), Budapest Tech (Hungary), University of La Laguna (Spain), Politehnica University of Timisoara (Romania)"

Published by WSEAS Press
www.wseas.org

Copyright © 2010, 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>

ISSN: 1792-6882

ISBN: 978-960-474-267-7



World Scientific and Engineering Academy and Society

COMPUTERS and SIMULATION in MODERN SCIENCE Volume IV

"This book contains important selected papers from WSEAS Conferences organized in the University of Cambridge (UK), University of Harvard (USA), Massachusetts Institute of Technology -- MIT (USA), China Jiliang University (China), Beijing Jiaotong University (China), Univ. Politecnica of Bucharest (Romania), Technical University of Sofia (Bulgaria), Tianjin University of Technology and Education (China), Zhejiang Univ. of Technology (China), University of Alcalá, Madrid (Spain), University of Cantabria, Santander (Spain), Budapest Tech (Hungary), University of La Laguna (Spain), Politehnica University of Timisoara (Romania)"

Editors:

Prof. Nikos Mastorakis, Technical University of Sofia, BULGARIA / Hellenic Naval Academy, GREECE
Prof. Metin Demiralp, Istanbul Technical University, TURKEY
Prof. Valeri M. Mladenov, Technical University of Sofia, BULGARIA

Editor-in-Chief:

Prof. Nikos Mastorakis, Technical University of Sofia, BULGARIA / Hellenic Naval Academy, GREECE

Editorial Board:

Prof. Siavash H. Sohrab, Northwestern University, Evanston, Illinois, USA
Prof. Mikhael Wasfy, University of Central Florida, USA
Prof. Slobodan I. Babic, Ecole Polytechnique de Montreal, CANADA
Prof. Yiming Li, National Chiao Tung University, Hsinchu 300, TAIWAN
Prof. Petr Y. Ekel, Pontif. Cathol. Univ. of Minas Gerais, 30535-610, Belo Horizonte, BRAZIL
Prof. Tuan Pham, James Cook University, Townsville, QLD 4811, AUSTRALIA
Prof. M. Isabel Garcia-Planas, Univ. Polit. de Catalunya, C.Mineria 1, 08038, Barcelona, SPAIN
Prof. Demetrios Kazakos, Texas Southern University, 3100 Cleburne Str., Houston, Texas 77004, USA
Prof. Olga Martin, University Politehnica of Bucharest, ROMANIA
Prof. José M^a Zamanillo Sáinz de la Maza, University of Cantabria, SPAIN
Prof. Alexander Zemliak, Puebla Aut. Univ, Av. San Claudio s/n, Ciudad, Puebla, Pue, 72570, MEXICO
Prof. Jose Carlos Quadrado, Electrical Engineering Department, ISEL, Lisbon, PORTUGAL
Prof. Pablo Luis López Espí, Universidad de Alcalá, SPAIN

Preface

This book contains important selected papers from WSEAS Conferences organized in the University of Cambridge (UK), University of Harvard (USA), Massachusetts Institute of Technology -- MIT (USA), China Jiliang University (China), Beijing Jiaotong University (China), Univ. Politecnica of Bucharest (Romania), Technical University of Sofia (Bulgaria), Tianjin University of Technology and Education (China), Zhejiang Univ. of Technology (China), University of Alcalá, Madrid (Spain), University of Cantabria, Santander (Spain), Budapest Tech (Hungary), University of La Laguna (Spain), Politehnica University of Timisoara (Romania)

The contents of this Book will be sent to the WSEAS collaborating indices after the conference: **www.worldses.org/indexes**

The contents of this Book are also published in CD-ROM. Both will be sent to the WSEAS collaborating indices after the conference: **www.worldses.org/indexes**

The friendliness and openness of the WSEAS conferences, adds to their ability to grow by constantly attracting young researchers. The WSEAS Conferences attract a large number of well-established and leading researchers in various areas of Science and Engineering as you can see from **<http://www.wseas.org/reports>**. Your feedback encourages the society to go ahead as you can see in **<http://www.worldses.org/feedback.htm>**

Expanded and enhanced versions of papers published in this conference proceedings are also going to be considered for possible publication in one of the WSEAS journals that participate in the major International Scientific Indices (Elsevier, Scopus, EI, ACM, Compendex, INSPEC, CSA see: www.worldses.org/indexes) these papers must be of high-quality (break-through work) and a new round of a very strict review will follow. (No additional fee will be required for the publication of the extended version in a journal). WSEAS has also collaboration with several other international publishers and all these excellent papers of this volume could be further improved, could be extended and could be enhanced for possible additional evaluation in one of the editions of these international publishers.

Finally, we cordially thank all the people of WSEAS for their efforts to maintain the high scientific level of conferences, proceedings and journals.

Table of Contents

Chapter 1:

- The Simple Genetic Algorithm with Alpha-Selection, Uniform Crossover and Bitwise Mutation** 10
Andre Neubauer

Chapter 2:

- Safety of Masonry Arch Bridges: A Quick Scan Method** 24
A. Audenaert, G. Reniers, W. Dullaert, H. Peremans

Chapter 3:

- Moving Surface Reconstruction by Self Organization** 35
M. V. Bessmeltsev

Chapter 4:

- Highest Label Preflow Algorithm for the Parametric Minimum Flow Problem - A Linguistic Rule-Based Network Partitioning Approach** 45
L. Sangeorzan, M. N. Parpalea, M. M. Parpalea

Chapter 5:

- Information Process in the Biosensor of the Angular Motion of the Head** 56
V. V. Alexandrov, T. B. Alexandrova, G. Castillo-Quiroz, A. Ortega, R. Vega, N. Shulenina, G Sidorenko, E. Soto

Chapter 6:

- Numerical Analysis of Electromagnetic (EM) Absorption Reduction by using Material Attachment** 63
M. R. I. Faruque, M. T. Islam, N. Misran

Chapter 7:

- Comparison of a Pressure Correction based Solver VoF Method in Moving Floor Container** 73
R. Ghandriz, M. Goudarzi

Chapter 8:

- Possibilities of Air Quality Modelling based on IF-Sets Theory** 90
V. Olej, P. Hajek

Chapter 9:

- Reduction Method with Finite-Difference Approximation for the Model of Small Transverse Vibrations in Thin Elastic Plates and some Applications** 101
A. A. Kuleshov

Chapter 10:

- Principal Component Analysis for Pose Estimation using Range Data** 111
Galina Okouneva, Donald J. McTavish, Aradhana Choudhuri

Chapter 11:

- A Parametric Approach to Matrix Root Clustering** 124
V. G. Melnikov

Chapter 12:

- Towards a Deterministic Model for Course Timetabling** 134
P. Pozos-Parra, O. Chavez-Bosquez, J. L. Gomez Ramos

Chapter 13:

- Periodic Flows Associated with Solutions of Hill Equation** 145
G. Bogner, S. H. Sohrab

Chapter 14:

- Simulation Model of the JPEG Sub-Image Compression based on an Upgraded Petri Net** 155
P. Strbac, M. Tuba

Chapter 15:

- BIOSARP – Bio-Inspired Self-Optimized Routing Algorithm using Ant Colony Optimization for Wireless Sensor Network – Experimental Performance Evaluation** 165
Kashif Saleem, Norsheila Fisal, M. Ariff Baharudin, Adel Ali Ahmed, Sharifah Hafizah, Sharifah Kamilah

Chapter 16:

- Characterization of all Optimal Flows in Networks** 176
L. Ciupala, E. Ciurea

Chapter 17:

- Parameterization to avoid the Gibbs Phenomenon** 186
E. Chicurel-Uziel

Chapter 18:

- Multi Party Computation using Infinite Product Series over Distributed Data** 196
Abdolreza Rasouli, Mohd Aizaini Maarof, Mahboubeh Shamsi

Chapter 19:

- A Method of Extended Linearization for Polynomial Periodic and Autonomous Systems** 207
V. G. Melnikov

Chapter 20:

Power Transmission Line Magnetic Fields for different Phase Arrangements	216
<i>L. Neamt, L. E. Petrean, O. Chiver, Z. Erdei</i>	

Chapter 21:

An Ellipse Framework for Precise Iris Edge Detection	227
<i>Mahboubeh Shamsi, Puteh Bt Saad, Subariah BT Ibrahim, Abdolreza Rasouli</i>	

Chapter 22:

Adaptive, Model-Following Chaos Suppression and Synchronization	237
<i>J. Kabzinski</i>	

Author Index	249
---------------------	------------

Author Index

A

Alexandrov V. V., 53
Alexandrova T. B., 53
Ali Ahmed A., 163
Ariff Baharudin M., 163
Audenaert A., 21

B

Bessmeltsev M. V., 32
Bognar G., 143

C

Castillo-Quiroz G., 53
Chavez-Bosquez O., 132
Chicurel-Uziel E., 184
Chiver O., 214
Choudhuri A., 109
Ciupala L., 174
Ciurea E., 174

D

Dullaert W., 21

E

Erdei Z., 214

F

Fisal N., 163

G

Ghandriz R., 71
Gomez Ramos J. L., 132
Goudarzi M., 71

H

Hafizah S., 163
Hajek P., 88

I

Iqbal Faruque M. R., 61
Islam M. T., 61

K

Kabzinski J., 235
Kamilah S., 163
Kuleshov A., 99

M

Maarof M. A., 194
McTavish D. J., 109
Melnikov V. G., 122, 205
Misran N., 61

N

Neamt L., 214
Neubauer A., 10

O

Okouneva G., 109
Olej V., 88
Ortega A., 53

P

Parpalea M. M., 42
Parpalea M. N., 42
Peremans H., 21
Petrean L. E., 214
Pozos-Parra P., 132

R

Rasouli A., 194, 225
Reniers G., 21

S

Saad P. B., 225
Saleem K., 163
Sangeorzan L., 42

Shamsi M., 194, 225

Shulenina N., 53

Sidorenko G., 53

Sohrab S. H., 143

Soto E., 53

Strbac P., 153

Subariah I. B., 225

T.

Tuba M., 153

V.

Vega R., 53