



SELECTED TOPICS in APPLIED COMPUTING

APPLIED COMPUTING CONFERENCE 2010 (ACC '10)

**Politehnica University of Timisoara, Romania
October 21-23, 2010**

SELECTED TOPICS in APPLIED COMPUTING

APPLIED COMPUTING CONFERENCE 2010 (ACC '10)

**Politehnica University of Timisoara, Romania
October 21-23, 2010**

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: 1792-5908

ISBN: 978-960-474-236-3



World Scientific and Engineering Academy and Society

SELECTED TOPICS in APPLIED COMPUTING

APPLIED COMPUTING CONFERENCE 2010 (ACC '10)

**Politehnica University of Timisoara, Romania
October 21-23, 2010**

Editors:

Petru Andea
Stefan Kilyeni

International Program Committee Members:

Ronald Yager, USA (Honorary)
Amauri Caballero, USA
George Vachtsevanos, USA
Robert Finkel, USA
Demetrios Kazakos, USA
Theodore Trafalis, USA
Takis Kasparis, USA
Zhiqiang Gao, USA
Yan Wu, USA
Spyros Tragoudas, USA
Arkady Kholodenko, USA
Gregory Baker, USA
Galigekere Dattatreya, USA
Caroline Sweezy, USA
Asad Salem, USA
Dian Zhou, USA
Metin Demiralp, TURKEY
Olga Martin, ROMANIA
Panos Pardalos, USA
Constantin Udriste, ROMANIA
Kleanthis Psarris, USA
Andrew D. Jones, USA
Valeri Mladenov, BULGARIA
Neri F., ITALY
Chen S. Y., P. R. CHINA
Shyi-Ming Chen, R. O. C.
Yen K., USA
Rong-Jyue Fang, TAIWAN
Argyrios Varonides, USA
Nikolai Kobasko, USA
Xu Anping, P. R. CHINA
Zhu H., JAPAN

Preface

This year the APPLIED COMPUTING CONFERENCE 2010 (ACC '10) was held at the Politehnica University of Timisoara, Romania, October 21-23, 2010. The conference remains faithful to its original idea of providing a platform to discuss algorithms, automata, programming languages, software engineering, computer graphics, computer networks, artificial intelligence, wireless sensor networks, human computer interaction, machine learning and pattern recognition, image processing, quantum computing, mobile computing, power systems, automation, telecommunication systems, speech processing etc. with participants from all over the world, both from academia and from industry.

Its success is reflected in the papers received, with participants coming from several countries, allowing a real multinational multicultural exchange of experiences and ideas.

The accepted papers of this conference are published in this Book that will be indexed by ISI. Please, check it: www.worldses.org/indexes as well as in the CD-ROM Proceedings. They will be also available in the E-Library of the WSEAS. The best papers will be also promoted in many Journals for further evaluation.

A Conference such as this can only succeed as a team effort, so the Editors want to thank the International Scientific Committee and the Reviewers for their excellent work in reviewing the papers as well as their invaluable input and advice.

The Editors

Table of Contents

A Software Solution for Displacement and Angular Speed Measurement through Virtual Instrumentation	11
<i>Nicolae Patrascoiu, Aron Poanta, Adrian Tomus, Bogdan Sochirca</i>	
Cryptoanalysis as a Method of the System Approach in the Algorithm Development	16
<i>Michal Musilek, Stepan Hubalovsky</i>	
The System Approach to Teaching of Algorithm Development	22
<i>Stepan Hubalovsky</i>	
Estimation of Claim Size Distributions in Estonian Traffic Insurance	28
<i>Meelis Kaarik, Merili Umbleja</i>	
Interdisciplinary Relations in Teaching of Programming	33
<i>Vladimir Jehlicka</i>	
Automatic Synchronization for Gait Data using Matlab	39
<i>Mihai Voinescu, Arjana Davidescu, Cristina Florea, Karla Berdich</i>	
Basic Motion Model of Autonomous Ground Vehicle	44
<i>Petr Stodola</i>	
Striving After a Truly Citizen-Driven Society in the Age of Aging. Study Case: AgingNice, a Health Education Information System	49
<i>Marilena Ianculescu, Monica Parvan</i>	
A Method to Navigate Interview-Driven Software Requirements Elicitation Work: An Efficacy Evaluation of the Method from the Viewpoint of Efficiency	54
<i>Takatoshi Yamanaka, Seiichi Komiya</i>	
Improving Commercial RTOS Performance using a Custom Interrupt Management Scheduling Policy	61
<i>Eugen Dodi, Vasile Gheorghita Gaitan, Adrian Graur</i>	
Morphology and Structure by Fractal Analysis of Pt-Cu Nanoparticles	67
<i>Gianina Dobrescu, Florica Papa, Judith Fangli, Ioan Balint</i>	
LES Algorithm for Turbulent Reactive Flows Simulation	71
<i>Ionut Porumbel, Cristian Carlanescu, Florin Gabriel Florean, Constantin Eusebiu Hritcu</i>	
Design and Implementation of a VLAN	87
<i>Mario Ernesto Gomez-Romero, Mario Reyes-Ayala, Edgar Alejandro Andrade-Gonzalez, Jose Alfredo Tirado-Mendez</i>	
Increasing IT Audit Efficiency by using a New Audit Methodology	91
<i>Traian Surcel, Cristian Amaneci, Ana-Ramona Bologna, Alexandra Florea, Razvan Bologna</i>	

Ceramic Veneers Integrity Investigation by Opical Coherence Tomography and MicroComputer Tomography	97
<i>Cosmin Sinescu, Meda Negrutiu, Ciprian Ionita, Radu Negru, Liviu Marsavina, Forin Topala, Roxana Rominu, Emanuela Petrescu, Alexandru Ogodescu, Mihai Fabricky, Adrian Bradu, George Dobre, Mihai Rominu, Adrian Podoleanu</i>	
Decision Support Systems in Educational Technology	102
<i>Danimir Mandic, Nenad Lalic, Srdjan Lalic</i>	
A Set Theory Based Method to Derive Network Reliability Expressions of Complex System Topologies	108
<i>Padmanabhan Balasubramanian, Nikos E. Mastorakis</i>	
The Digital Decade in Interdisciplinary Orthodontics	115
<i>Alexandru Ogodescu, Cosmin Sinescu, Emilia Ogodescu, Meda Negrutiu, Elisabeta Bratu</i>	
Traffic Flow Speed Controller Design of Automated Freeway System	119
<i>Xu-Hua Yang, Yong-Zhen Zhang</i>	
A Transfer Method of Public Transport Networks by Adjacency Matrix	123
<i>Bo Wang, Xu-Hua Yang</i>	
Legal Protection of Copyright Works that Appear in Web Based Applications	128
<i>Danimir Mandic, Nina Planojevic, Mihajlo Tijanac</i>	
Authors Index	135

Authors Index

Amancei, C.	91	Mandic, D.	102, 128
Andrade-Gonzalez, E. A.	87	Mastorakis, N. E.	108
Balasubramanian, P.	108	Musilek, M.	16
Balint, I.	67	Negru, R.	97
Berdich, K.	39	Negrutiu, M.	97, 115
Bologa, A.-R.	91	Ogodescu, A.	97, 115
Bologa, R.	91	Ogodescu, E.	115
Bradu, A.	97	Papa, F.	67
Bratu, E.	115	Parvan, M.	49
Carlanescu, C.	71	Patrascoiu, N.	11
Ciprian, I.	97	Petrescu, E.	97
Davidescu, A.	39	Planojevic, N.	128
Dobre, G.	97	Poanta, A.	11
Dobrescu, G.	67	Podoleanu, A.	97
Dodiu, E.	61	Porumbel, I.	71
Fabricky, M.	97	Reyes-Ayala, M.	87
Fangli, I.	67	Rominu, M.	97
Florea, A.	91	Rominu, R.	97
Florea, C.	39	Sinescu, C.	97, 115
Florea, F. G.	71	Sochirca, B.	11
Gaitan, V. G.	61	Stodola, P.	44
Gomez-Romero, M. E.	87	Surcel, T.	91
Graur, A.	61	Tijanac, M.	128
Hritcu, C. E.	71	Tirado-Mendez, J. A.	87
Hubalovsky, S.	16, 22	Tomus, A.	11
Ianculescu, M.	49	Topala, F.	97
Jehlicka, V.	33	Umbleja, M.	28
Kaarik, M.	28	Voinescu, M.	39
Komiya, S.	54	Wang, B.	123
Lalic, N.	102	Yamanaka, T.	54
Lalic, S.	102	Yang, X.-H.	119, 123
Liviu, M.	97	Zhang, Y.-Z.	119