



RECENT RESEARCHES in APPLIED COMPUTER and APPLIED COMPUTATIONAL SCIENCE

**10th WSEAS International Conference on APPLIED COMPUTER
and APPLIED COMPUTATIONAL SCIENCE (ACACOS '11)**

**Venice, Italy
March 8-10, 2011**

RECENT RESEARCHES in APPLIED COMPUTER and APPLIED COMPUTATIONAL SCIENCE

**10th WSEAS International Conference on APPLIED COMPUTER
and APPLIED COMPUTATIONAL SCIENCE (ACACOS '11)**

**Venice, Italy
March 8-10, 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>

ISSN: 1792-8559
ISBN: 978-960-474-281-3



World Scientific and Engineering Academy and Society

RECENT RESEARCHES in APPLIED COMPUTER and APPLIED COMPUTATIONAL SCIENCE

**10th WSEAS International Conference on APPLIED COMPUTER
and APPLIED COMPUTATIONAL SCIENCE (ACACOS '11)**

**Venice, Italy
March 8-10, 2011**

Editors:

Prof. S. Chen, Zhejiang University of Technology, China
Prof. Nikos Mastorakis, Technical University of Sofia, Bulgaria
Prof. Francklin Rivas-Echeverria, Universidad de Los Andes, Venezuela
Prof. Valeri Mladenov, Technical University of Sofia, Bulgaria

International Program Committee Members:

Gerardo Acosta, SPAIN
Ping An, CHINA
Yuejun An, CHINA
Kiyoshi Akama, JAPAN
Ali Al-dahoud, JORDAN
Yasar Amin, PAKISTAN
Mehrddad Ardebilipour, IRAN
Carlos Aviles-Cruz, MEXICO
Yun Bai AUSTRALIA
Shahid Ikramullah Butt, PAKISTAN
Ana Madureira, PORTUGAL
Alexander Zemliak, MEXICO
Petr Ekel, BRAZIL
Moh'd belal Al-Zoubi, JORDAN
Poorna Balakrishnan, INDIA
Sorin Borza, ROMANIA
Yue-shan Chang, TAIWAN
Alexander Grebennikov, MEXICO
Huay Chang, TAIWAN
Olga Martin, ROMANIA,
Chin-Chen Chang, TAIWAN
Chip Hong Chang, SINGAPORE
Sheng-Gwo Chen, TAIWAN
Min-Xiou Chen, TAIWAN
George Antoniou, USA
Tanglong Chen, CHINA
Lotfi Zadeh, USA
Whai-En Chen, TAIWAN
Yuehui Chen, CHINA
Toly Chen, TAIWAN
Michael Wasfy, USA
Ta-Cheng Chen, TAIWAN
C. Manikopoulos, USA
Yaoyu Cheng, CHINA
Chin-Mou Cheng, TAIWAN
Myeonggil Choi, KOREA
Yuk Ying Chung, AUSTRALIA
Ahmed Dalalah, JORDAN
Andris Buikis, LATVIA
Saeed Daneshmand, IRAN
Metin Demiralp, TURKEY
Chie Dou, TAIWAN
Guolin Duan, CHINA
Manuel Duarte-Mermoud ,CHILE
Odysseas Efremides, GREECE
Jose Carlos Quadrado, PORTUGAL
Toshio Eisaka, JAPAN
Odysseas Pyrovolakis, GREECE
Frank Ekpar, JAPAN
Eyas El-Qawasmeh, JORDAN
Alberto Escobar, MEXICO
Kwo-Jean Farn, TAIWAN
Alessandra Flammini, ITALY
Athina Lazakidou, GREECE
Jose-Job Flore-Godoy, MEXICO
Joseph Fong, HONG KONG S.A.R.
Kostas Siasiakos, GREECE
Donata Francescato, ITALY
Tapio Frantti, FINLAND
Georges Fried, FRANCE
Rocco Furferi, ITALY
James Gao, UNITED KINGDOM
Zong Geem, USA
Ahmad Ghanbari, IRAN
Gilson Giraldi, BRAZIL
Panos Pardalos, USA
Wanwu Guo, AUSTRALIA
Sungho Ha, KOREA
Amauri Caballero, USA
Aamir Hanif, PAKISTAN
Iraj Hassanzadeh, IRAN
Nualsawat Hiransakolwong, THAILAND
Rong-Lain Ho, TAIWAN
Seyed Ebrahim Hosseini, IRAN
Wen Hou, CHINA
Shih-Wen Hsiao, TAIWAN
Mingsheng Hu, CHINA
Shyh-Fang Huang, TAIWAN
A. Manikas, UK
Chenn-Jung Huang, TAIWAN
Yu-Jung Huang, TAIWAN
Guo-shing Huang, TAIWAN
Dil Hussain, DENMARK
Philippe Dondon, FRANCE,
Muhammad Ibrahimy, MALAYSIA
Apostolos Ifantis, GREECE
Shiming Ji, CHINA
Zhang Ju, CHINA
Liu Jun, CHINA
Michael Katchabaw, CANADA
Seong Baeg Kim, KOREA
Jin-tae Kim, KOREA
Young Jun Kim, KOREA
Mallikarjun Kodabagi, INDIA
Vicenzo Niola, ITALY
M. I. Garcia-Planas, SPAIN
Insoo Koo, KOREA
Young-doo Kwon, KOREA
Vincent Lee, AUSTRALIA
Hsien-da Lee, TAIWAN
Weimin Li, CHINA
Qin Li, CHINA

Daoliang Li, CHINA
Bo Li, CHINA
Vitaliy Kluev, JAPAN
Daoliang Li, CHINA
Xiaoyu Li, CHINA
Aydina Akan, TURKEY
Congqing Li, CHINA
Jie Li, CHINA
Zhu Liehuang, CHINA
S. S. Lin, TAIWAN
Pei-Huang Lin, TAIWAN
Chu-Hsing Lin, TAIWAN
S. S. Dlay, UK
Chia-Chen Lin, TAIWAN
Chih-Min Lin, TAIWAN
Whei-Min Lin, TAIWAN
Shengyou Lin, CHINA
YI Liu, UNITED KINGDOM
Jiang Liu, UNITED STATES
Shi-jeer Lou, TAIWAN
Shyue-Kung Lu, TAIWAN
Mingfeng Lu, TAIWAN
Addouche Mahmoud, FRANCE
Sunilkumar Manvi, INDIA
Drakoulis Martakos, GREECE
Aurelio Medina, MEXICO
Afif Mghawish, JORDAN
Tetsushi Miki, JAPAN
Zhong Ming, CHINA
Wang Mingquan, CHINA
Hu Mingsheng, CHINA
Guoliang Mo, CHINA
Bartolomeo Montrucchio, ITALY
K. Ioannou, GREECE
Francesco Muzi, ITALY
Mariko Nakano-Miyatake, MEXICO
Sang-Won Nam, KOREA
Hamidullah Khan Niazi, CHINA
Miguel Angel Gomez-Nieto, SPAIN
Yukio Ohsawa, JAPAN
Hasnaoui Othman, TUNISIA
Zeljko Panian, CROATIA (HRVATSKA)
PooGyeon Park, KOREA
Vidyasagar Potdar, AUSTRALIA
Carlos G. Puntonet, SPAIN
Maria Rizzi, ITALY
M. Bisiacco, ITALY
Chen Rong-chang, TAIWAN
Poornachandra Sanjeeva, INDIA
Mostafa Sedighzadeh, IRAN
J. N. Sheen, TAIWAN
Sangmun Shin, KOREA
Li Shuhong, CHINA
Yu Shunkun, CHINA
Andrzej Sluzek, SINGAPORE
Hokeun Song, KOREA
Paulo Sousa, PORTUGAL
Sarawut Sujitjorn, THAILAND
Yi Sun, CHINA
Guangzhong Sun, CHINA
Yoshihiro Tanada, JAPAN
Lixin Tao, USA
Nam Tran, AUSTRALIA
Argyrios Varonides, USA
Peter Trkman, SLOVENIA
Lamberto Tronchin, ITALY
Amritasu Sinha, INDIA
Ming-Jer Tsai, TAIWAN
Woei-Jiunn Tsaur, TAIWAN
Kuo-Hung Tseng, TAIWAN
Hiroshi Umeo, JAPAN
Ronald Yager, USA
Pragya Varshney, INDIA
Lusheng Wang, HONG KONG S.A.R.
Lei Wang, CHINA
Zhongfei Wang, CHINA
Hironori Washizaki, JAPAN
Wang Wen, CHINA
Kin Yeung Wong, MACAU S.A.R.
Jyh-Yang Wu, TAIWAN
Hsiaokuang Wu, TAIWAN
Yinshui Xia, CHINA
Yi Xie, CHINA
Yong Xu, CHINA
Yinlong Xu, CHINA
Xinli Xu, CHINA
Bin Xu, CHINA
Hongwen Yan, CHINA
Hung-Jen Yang, TAIWAN
Thomas Yang, USA
Houjun Yang, CHINA
Hsieh-Hua Yang, CHINA
Wenrong Yang, CHINA
Sumanth Yenduri, USA
Alimujiang Yiming, JAPAN
Jianfei Yin, CHINA
Liuguo Yin, CHINA
Ren Yong Feng, CHINA
Tetsuya Yoshida, JAPAN
Hsiang-fu Yu, TAIWAN
S.Y.Chen, GERMANY
Longjiang Yu, CHINA
Kiyun Yu, KOREA
Costin Cepisca, ROMANIA
Enzhe Yu, KOREA
Chang Nian Zhang, CANADA
Jianwei Zhang, GERMANY
Wendong Zhang, CHINA
Jianjun Zhang, CHINA
Camelia Ioana Ucenic, ROMANIA
Zhijin Zhao, CHINA
Ina Taralova, FRANCE
Zhige Zhou, CHINA
Yuanguo Zhu, CHINA

Preface

This year the 10th WSEAS International Conference on APPLIED COMPUTER and APPLIED COMPUTATIONAL SCIENCE (ACACOS '11) was held in Venice, Italy, March 8-10, 2011. The conference remains faithful to its original idea of providing a platform to discuss programming languages, software engineering, object-oriented analysis and design, internet based data bases, mobile and wireless computing, fault tolerance, multimedia, intelligent systems, wireless communications, broadband communications, blue-tooth technologies, satellite communications 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

Market-Leader ERPs and Cloud Computing: a Proposed Architecture for an Efficient and Effective Synergy	13
<i>Francesco De Maria, Chiara Briano, Matteo Brandolini, Enrico Briano, Roberto Revetria</i>	
Technical Aspects of the Online e-Management Control and Evaluation System for Universities	20
<i>Ashok B. Kulkarni, Valeri Pougatchev</i>	
Energy Awareness Tree-Based Routing Protocol for Wireless Sensor Networks	26
<i>Iman Almomani, Maha Saadeh, Hamzeh Al Jawawdeh, Mousa Al-Akhras</i>	
A Prediction of Electrocardiography Signals by Combining ARMA Model with Nonlinear Analysis Methods	31
<i>J. J. Aguila, E. Arias, M. M. Artigao, J. J. Miralles</i>	
A Prediction Method for Nonlinear Time Series Analysis of Air Temperature Data by Combining the False Nearest Neighbors and Subspace Identification Methods	38
<i>I. Marin Carrion, E. Arias Antunez, M. M. Artigao Castillo, J. J. Miralles Canals</i>	
Transient Analysis of Rectangular Laminated Plates Subjected to Dynamic Transverse Loading Using a Layerwise Theory	44
<i>Masoud Tahani, Iman Golmakani Torghabeh</i>	
Combining Complementary Neural Network and Error-Correcting Output Codes for Multiclass Classification Problems	49
<i>Jairaj Promrak, Pawalai Kraipeerapun, Somkid Amornsamankul</i>	
MPC-based Management of Computing and Wavelength Resources in Optical Grid Networks	55
<i>Genki Matsui, Kiminao Kogiso, Takuji Tachibana, Kenji Sugimoto</i>	
Design of a Route Guidance System with Shortest Driving Time Based on Genetic Algorithm	61
<i>Umit Atila, Ismail Rakip Karas, Cevdet Gologlu, Beyza Yaman, Ilhami Muharrem Orak</i>	
Spam Filtering using Signed and Trust Reputation Management	67
<i>G. Poonkuzhali, K. Thiagarajan, P. Sudhakar, R. Kishore Kumar, K. Sarukesi</i>	
Applying Falsity Input to Neural Networks to Solve Single Output Regression Problems	72
<i>Somkid Amornsamankul, Pawalai Kraipeerapun</i>	
Web Content Outlier Mining through Mathematical Approach and Trust Rating	77
<i>G. Poonkuzhali, K. Sarukesi, G. V. Uma</i>	
Fuzzy Logic for E-Mail Spam Deduction	83
<i>P. Sudhakar, G. Poonkuzhali, K. Thiagarajan, R. Kripa Keshav, K. Sarukesi</i>	
Statistical Approach for Improving the Quality of Search Engine Results	89
<i>G. Poonkuzhali, R. Kishore Kumar, R. Kripa Keshav, K. Thiagarajan, K. Sarukesi</i>	

An Idea of the Advanced Program Structure Formalized Method and Analysis Example of Sorting Programs <i>Kishimoto Yorinori</i>	94
Plaque Classification Using Sparse Features of IVUS RF Signal for the Diagnosis of Arteriosclerosis <i>Shota Furukawa, Eiji Uchino, Tadahiro Azetsu, Noriaki Suetake, Takafumi Hiro, Masunori Matsuzaki</i>	99
VCG Auction-based Bandwidth Allocation with Network Coding in Wireless Networks <i>Piriya Chaikijwatana, Takuji Tachibana</i>	104
Analysis of the Meanings of the Measurement, Assessment, and Evaluation in ISO/IEEE Software Engineering Standards <i>Rafa E. Al-Qutaish, Laila Cheikhi</i>	110
Learning Styles Applied within the Process of eLearning <i>Ivana Simonova</i>	116
Genetic Algorithm Approach for the Identification Problem of the Discrete Possibilistic Dynamic System <i>Mikheil Kapanadze, Gia Sirbiladze</i>	122
Evaluation of Climate Simulations using Linguistic Variables <i>Anna Sikharulidze, Gia Sirbiladze</i>	127
A Method for Automatically Generating the Emotional Vectors of Emoticons Using Weblog Articles <i>Sho Aoki, Osamu Uchida</i>	132
Extraction of Unsteadiness of Concept Attributes Using Weblog Articles <i>Yosuke Horiuchi, Osamu Uchida</i>	137
Application of Wrapper Methods for Feature Selection in Modelling Ripening Process of a Viticulture Crop <i>Roberto Fernandez-Martinez, Julio Fernandez-Ceniceros, Andres Sanz-Garcia, Ruben Lostado-Lorza, Francisco Javier Martinezdepison-Ascacibar</i>	142
Using Multi-Dimensional Scaling and Hierarchical Clustering to Improve the Process in a Hot-Dip Galvanizing Line <i>Andres Sanz Garcia, Francisco Javier Martinez De Pison Ascacibar, Ruben Lostado Lorza, Roberto Fernandez Martinez, Julio Fernandez Ceniceros</i>	148
Concept of Mobile Device Integration in Current Travel and Tourism Industry <i>Antonio Portolan, Mario Milicevic, Krunoslav Zubrinic</i>	154
Learning Styles within eLearning: Didactic Strategies <i>Ivana Simonova, Petra Poulova, Martin Bilek</i>	160
Characteristics and Retrieval Effectiveness of n-Gram String Similarity Matching on Malay Documents <i>Tengku Mohd T. Sembok, Zainab Abu Bakar</i>	165
Analysis for Optimal Cluster Number Selection and Forwarding Station <i>Tung-Jung Chan, Ching-Mu Chen, Tsair-Rong Chen</i>	171

Web Services Middleware Application: A Solution for SMEs towards B2B Framework Implementation <i>Adrian Besimi, Zamir Dika</i>	175
AmIHomCare: A Complex Ambient Intelligent System for Home Medical Assistance <i>Stefan Mocanu, Irina Mocanu, Silvia Anton, Calin Munteanu</i>	181
De-Noising 2D Gel Images using Wavelet Transform based on Genetic Algorithm <i>Muhammed Talaat Faheem, Shaheera Rashwan, Amany Sarhan, Bayummy A. Youssef</i>	187
Distributed Computing Platforms Like Clouds and Web Standards: What Could be the Solution in an Open Environment? <i>Serena Pastore</i>	195
Voice Maps - The System for Navigation of Blind in Urban Area? <i>Andrzej Stepnowski, Lukasz Kaminski, Jerzy Demkowicz</i>	201
Finding Optimal Solutions of Vaguely Defined Assignment Problems <i>Miha Moskon</i>	207
Software Design Patterns for Message Driven Service Oriented Integration of Stovepipe Applications in Healthcare Enterprise <i>Usha Batra, Saurabh Mukherjee</i>	211
Implementation of High Technologies in Romanian Public Administration <i>Rozalia Nistor, Costel Nistor, Mihaela-Carmen Muntean</i>	217
Metropolitan Fiber Optical Network Planning Model based on Self Organizing Neural Networks <i>Alexandru Smeureanu, Stefan Daniel Dumitrescu, Liviu Adrian Cotfas, Andreea Diosteanu</i>	223
Membrane Dissolution in Distributed Architectures of P-Systems <i>Miguel Angel Pena, Gines Bravo, Luis Fernando de Mingo</i>	229
Requirements elicitation using BPM notations: focusing on the strategic level representation <i>Carlos Monsalve, Alain April, Alain Abran</i>	235
Product Matching Algorithm for Cooperative Commerce Model <i>Sang Hyun Choi, Kwan Hee Han, Gun Hoon Lim</i>	242
Temporal Recommender Systems <i>Bozidar Klicek, Dijana Oreski, Nina Begicevic</i>	248
Context-Aware Lighting as an Immersive User Interface for Mediating Social Interactions <i>Milan Z. Bjelica, Nikola Teslic</i>	254
Natural Language Processing Applied in Itinerary Recommender Systems <i>Andreea Diosteanu, Liviu Adrian Cotfas, Alexandru Smeureanu, Stefan Daniel Dumitrescu</i>	260
Prevailing Issues Related to RFID Implementation in the Healthcare Sector <i>Elisabeth Lefebvre, Linda Castro, Louis Andre Lefebvre</i>	266
Automatic Computer Driven Optimization of Innovative Hull Forms for Marine Vehicles <i>Stefano Brizzolara, Giuliano Vernengo</i>	273

Syllabification Algorithm based on Syllable Rules Matching for Malay Language <i>Hafiz Musa, Rabiah A. Kadir, Azreen Azman, M. Taufik Abdullah</i>	279
Authors Index	287

Authors Index

Abdullah, M. T.	279	Dumitrescu, S. D.	223, 260	Nistor, R.	217
Abran, A.	235	Faheem, M. T.	187	Orak, I. M.	61
Abu Bakar, Z.	165	Fernandez-Ceniceros, J.	142, 148	Oreski, D.	248
Aguila, J. J.	31	Fernandez-Martinez, R.	142, 148	Pastore, S.	195
Al Jawawdeh, H.	26	Fernando de Mingo, L.	229	Pena, M. A.	229
Al-Akhras, M.	26	Furukawa, S.	99	Poonkuzhali, G.	67, 77
Almomani, I.	26	Gologlu, C.	61	Poonkuzhali, G.	83, 89
Al-Qutaish, R. E.	110	Han, K. H.	242	Portolan, A.	154
Amornsamankul, S.	49, 72	Hiro, T.	99	Pougatchev, V.	20
Anton, S.	181	Horiuchi, Y.	137	Poulova, P.	160
Aoki, S.	132	Kadir, R. A.	279	Promrak, J.	49
April, A.	235	Kaminski, L.	201	Rashwan, S.	187
Arias Antunez, E.	31, 38	Kapanadze, M.	122	Revetria, R.	13
Artigao Castillo, M. M.	31, 38	Karas, I. R.	61	Saadeh, M.	26
Atila, U.	61	Keshav, R. K.	83, 89	Sanz-Garcia, A.	142, 148
Azetsu, T.	99	Klicek, B.	248	Sarhan, A.	187
Azman, A.	279	Kogiso, K.	55	Sarukesi, K.	67, 77
Batra, U.	211	Kraipeerapun, P.	49, 72	Sarukesi, K.	83, 89
Begicevic, N.	248	Kulkarni, A. B.	20	Sembok, T. M. T.	165
Besimi, A.	175	Kumar, R. K.	67, 89	Sikharulidze, A.	127
Bilek, M.	160	Lefebvre, E.	266	Simonova, I.	116, 160
Bjelica, M. Z.	254	Lefebvre, L. A.	266	Sirbiladze, G.	122, 127
Brandolini, M.	13	Lim, G. H.	242	Smeureanu, A.	223, 260
Bravo, G.	229	Lostado-Lorza, R.	142, 148	Stepnowski, A.	201
Briano, C.	13	Marin Carrion, I.	38	Sudhakar, P.	67, 83
Briano, E.	13	Martinez De Pison, F. J.	142, 148	Suetake, N.	99
Brizzolara, S.	273	Matsui, G.	55	Sugimoto, K.	55
Castro, L.	266	Matsuzaki, M.	99	Tachibana, T.	55, 104
Chaikijwatana, P.	104	Milicevic, M.	154	Tahani, M.	44
Chan, T.-J.	171	Miralles Canals, J. J.	31, 38	Teslic, N.	254
Cheikhi, L.	110	Mocanu, I.	181	Thiagarajan, K.	67, 83, 89
Chen, C.-M.	171	Mocanu, S.	181	Torghabeh, I. G.	44
Chen, T.-R.	171	Monsalve, C.	235	Uchida, O.	132, 137
Choi, S. H.	242	Moskon, M.	207	Uchino, E.	99
Coffas, L. A.	223, 260	Mukherjee, S.	211	Uma, G. V.	77
De Maria, F.	13	Muntean, M.-C.	217	Vernengo, G.	273
Demkowicz, J.	201	Munteanu, C.	181	Yaman, B.	61
Dika, Z.	175	Musa, H.	279	Yorinori, K.	94
Diosteanu, A.	223, 260	Nistor, C.	217	Zubrinic, K.	154