NORTH ATLANTIC UNIVERSITY UNION

Editors

Maurice Margenstern

Kleanthis Psarris

Danimir Mandic

Recent Advances in Information Science

Proceedings of the 4th European Conference of Computer Science (ECCS '13)

Paris, France, October 29-31, 2013

Scientific Sponsors

Recent Advances in Information Science

RECENT ADVANCES in INFORMATION SCIENCE

Proceedings of the 4th European Conference of Computer Science (ECCS '13)

Paris, France
October 29-31, 2013

Scientific Sponsors:

University of Zagreb, Croatia

European Institute of Informatics and Educational Technology in Belgrade, Serbia

Music Academy "Studio Musica", Italy

Constanta Maritime University, Romania

Ain Shams University, Egypt

Recent Advances in Computer Engineering Series | 17

ISSN: 1790-5109
ISBN: 978-960-474-344-5

RECENT ADVANCES in INFORMATION SCIENCE

Proceedings of the 4th European Conference of Computer Science (ECCS '13)

Paris, France
October 29-31, 2013

Published by WSEAS Press
www.wseas.org

Copyright © 2013, 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 no less that two independent reviewers. Acceptance was granted when both reviewers' recommendations were positive.
See also: http://www.worldses.org/review/index.html

ISSN: 1790-5109
ISBN: 978-960-474-344-5

RECENT ADVANCES in INFORMATION SCIENCE

Proceedings of the 4th European Conference of Computer Science (ECCS '13)

Paris, France
October 29-31, 2013

Editors:
Prof. Maurice Margenstern, Université de Lorraine, France
Prof. Kleanthis Psarris, The City University of New York, USA
Prof. Danimir Mandic, University of Belgrade, Serbia

Committee Members-Reviewers:
Nenad Lalic
Dragan Martinovic
Perica Gojkovic
Josip Musić
Sarantos Kapidakis
Theodore B. Trafalis
Claudio Talarico
Zhuo Li
Charles Suffel
Shuliang Li
Dimitrios A. Karras
Kun Chang Lee
Aamir Saeed Malik
Abdel-Badeeh Salem
Agoujil said
Alejandro Fuentes-Penna
Alfredo Rodriguez-Sedano
Alina Adriana Minea
Andrea Piras
Badea Ana-Cornelia
Carlos E. Formigoni
Claudia-Georgeta Carstea
Daniela Litan
Dzenana Donko
Eugenia Iancu
Gheorghe Badea
Hamideh Eskandari
Hanmin Jung
Hime Aguiar
Inácio Fonseca
Jose Luis Vazquez-Burguete
Jui-Jen Chen
Jussi Koskinen
Kandarpa Kumar Sarma
Kieran Greer
Klimis Ntalianis
Luís Miguel Moreira Pinto
Maria Dobritoiu
Massimiliano Todisco
Mazdak Zamani
Mirela-Catrinel Voicu
Mohd Faizal Bin Abdollah
Nagaraj S.V.
Naveen G. Ramunigari
Nikos Loukeris
Panagiotis Gioannis
Pragati Chavan
Rathi S.
Robiah Ahmad
S.Prema Prema Selvaraj
Santhosh Kumar
Santoso Wibowo
Sathish Veeraraghavan
Sergey Stankevich
Shrishail T. Patil
Snezhana Georgieva Gocheva-Ilieva
Szenasi Sandor
Thaweesak Yingthawornsuk
Valery Vodovozov
Vehbi Neziri
vimala chinnaraj
Wu-Chen Su
Yixin Bao
Yuqing Zhou
Zakaria Zubi
Zulkefli Mansor

Table of Contents

Implementability Denotation of Distributed Actions with Respect to Communications 11
Susumu Yamasaki

Event-based State Characterization in Communicating Automata Models for System Verification 17
May Haydar, Hicham Hallal

Hybrid-Parallel Iterative Sparse Linear Solvers with the Communication Library GPI 25
Dimitar Stoyanov, Franz-Josef Pfreundt

The Impact of Compression in Breast Malignant Tumor Images and an Ad Hoc Compressor Proposal 32
Ander Larranaga-Cepeda, Jose Juan Garcia-Hernandez, Jose Gabriel Ramirez-Torres, Mario Diego Munoz-Hernandez

Pessimistic Prediction-Based Evolutionary Algorithm for Uncertain Optimization Problems 38
Kiyoharu Tagawa, Taiki Suenaga

Selection of the Multimedia Applications for Learning using FAHP and TOPSIS Methods 44
Tomislav Volarić, Emil Brajković, Tomo Sjekavica

Effect of Signal Analysis and Discretization on the Classification of EEG Signals 49
Sait Ali Uymaz, Gülay Tezel, Bariş Koçer

Modeling and Analysis of Equivalences in Behavior Ontology 56
Moonkun Lee, Youngbok Choe

Educational Software and Visualization Arithmetic's Concepts 62
Aleksandra Mandic, Danimir Mandic, Marijana Zeljic

Improving the Way of using Online Educational Sources 72
Maja Živko

Process Modeling in Testing and Evaluation of Cartographic Products Usability 77
Pavel Sedlak, Hana Kopackova, Miloslav Hub, Jitka Komarkova

AIS Inspired Approach for User Identification Based on EEG Signals 84
Wael H. Khalifa, Mohamed I. Roushdy, Abdel-Badeeh M. Salem, Kenneth Revett

Multi-Criteria Decision Making for Selecting the Most Suitable Strategy for the Development of Non-Formal Ways of Learning 90
Marko Odak, Ţeljko Marušić, Nikolaj Lazić

Tags/s - RFID Reader-Tag Communication Throughput Using Gen2 Q-Algorithm Frame Adaptation Scheme 100
Petar Solic, Matko Saric, Maja Stella

Simulation and Experimental Results of an Asynchronous Machine Fed by a PWM Three-Phase Three-Level Inverter Using DSP Controller 106
H. Denoun, N. Benyahia, M. Zaouia, N. Benamrouche, S. Haddad, S. Ait Mamar

An Enhanced Approach for Cases Indexing and Retrieval in Case-Based Reasoning 115
Kareem Mohamed Naguib, Khaled El-Bahnasy, Mostafa Aref

Ontologies for Multimedia Annotation: An Overview 123
Tomo Sjekavica, Ines Obradović, Gordan Gledec

Economic Data Classification by Means of Machine Learning Methods 130
Pavel Turcinek, Arnost Motycka, Andrea Kosova

Extraction of Scene Text in HSI Color Space Using K-means Clustering with Chromatic and Intensity Distance 136
Matko Saric, Maja Stella, Petar Solic

Testing ICT Literacy in ICT Environment 142
Andrea Ivanković, Sonja Špiranec, Dražan Miljko

Arabic Text Representation using Rich Semantic Graph: A Case Study 148
Sally S. Ismail, Ibrahim F. Moawad, Mostafa Aref

Evaluation in Public Relations – Sentiment and Social Media Analysis of Croatia Airlines 154
Hrvoje Jakopović, Nives Mikelić Preradović

Contents Access Control Technique for Lower Grades in Elementary School 161
Namje Park

Information System in Accounting in Function of Managerial Decision Making 165
Nenad Lalić, Srdjan M. Lalić, Srdjan N. Lalić, Mirko Novaković, Mirko Dejic

Automatic Word-Level Evaluation and Error Analysis of Formant Speech Synthesis for Croatian 172
Sanja Seljan, Ivan Dunđer

Measures of Objects Similarity 179
D. Klimešová, J. Konopásek, E. Ocelíková

Impact of Information Operations to Public Knowledge 185
Gordan Akrap, Đilda Pečarić

Vigilance Monitoring System Using Brain EEG Signal Processing 194
Howida A. Shedeed, Ahmed G. El-Deeb

A Hybrid Transfer Method for Transfer Learning 201
Bariş Koçer, Ahmet Arslan, Mehmet Hacibeyoğlu, Sait Ali Uymaz

Social Capital as a Factor of Motivation for Free/libre/open Source Software Development 208
Josip Kolarec, Milan Bajic, Petar Jandric

Comparison of Optimization Techniques for 3D Graph-based SLAM 216
Doaa M. A.-Latif, Mohammed A.-Megeed Salem, H. Ramadan, Mohamed I. Roushdy

Study on the Impact of Fingerprints on the Perceptual Transparency in Digital Documents 222
Mario Diego Munoz-Hernandez, Jose Juan Garcia-Hernandez, Miguel Morales-Sandoval, Ander Larranaga-Cepeda

The Importance of Teachers in Multimedia Literacy Education 231
Danijela Unić, Nives Mikelić Preradović, Damir Boras

FEM Stress Analysis for Molar Teeth 238
Dan Nitoi, Catalin Amza, Mihaiela Iliescu, Calin Ciufudean

An Approach to the Improvement of Software Development Process with use of Template Generator 242
Ivan Grbavac, Krešimir Fertalj, Vedran Batoš

Screencasts as Web-Based Learning Method for Math Students on Upper Primary School 246
Radim Špilka, Martina Maněnová

The Network Map of the Fields of Interest in Information Sciences in Croatia 251
Jadranka Lasić-Lazić, Đilda Pečarić, Nikolaj Lazić

Cognitive Learning Environment for Nanoinformatics 260
Vadim Shakhnov, Lyudmila Zinchenko, Elena Rezchikova

Software & Systems Engineerig Interplay and the Semat Kernel 267
Marcel Jacques Simonette, Edison Spina

Using Temporal Database as a Source for Web GIS 272
J. Konopásek, O. Gojda, D. Klimešová

Information Management in Quality Assurance System at Higher Education Institutions in Croatia 277
Tamara Čendo Metzinger, Damir Boras

Software Tools for the Bioelectrical Impedance Method of Children Selection in Sport 283
Dragan Martinovic, Vladan Pelemis, Dragan Brankovic, Vladimir Zivanovic, Momcilo Pelemis

Authors Index 288