



Editors

Nikos E. Mastorakis
Klimis Ntalianis
George J. Tsekouras
Janusz Brzdek



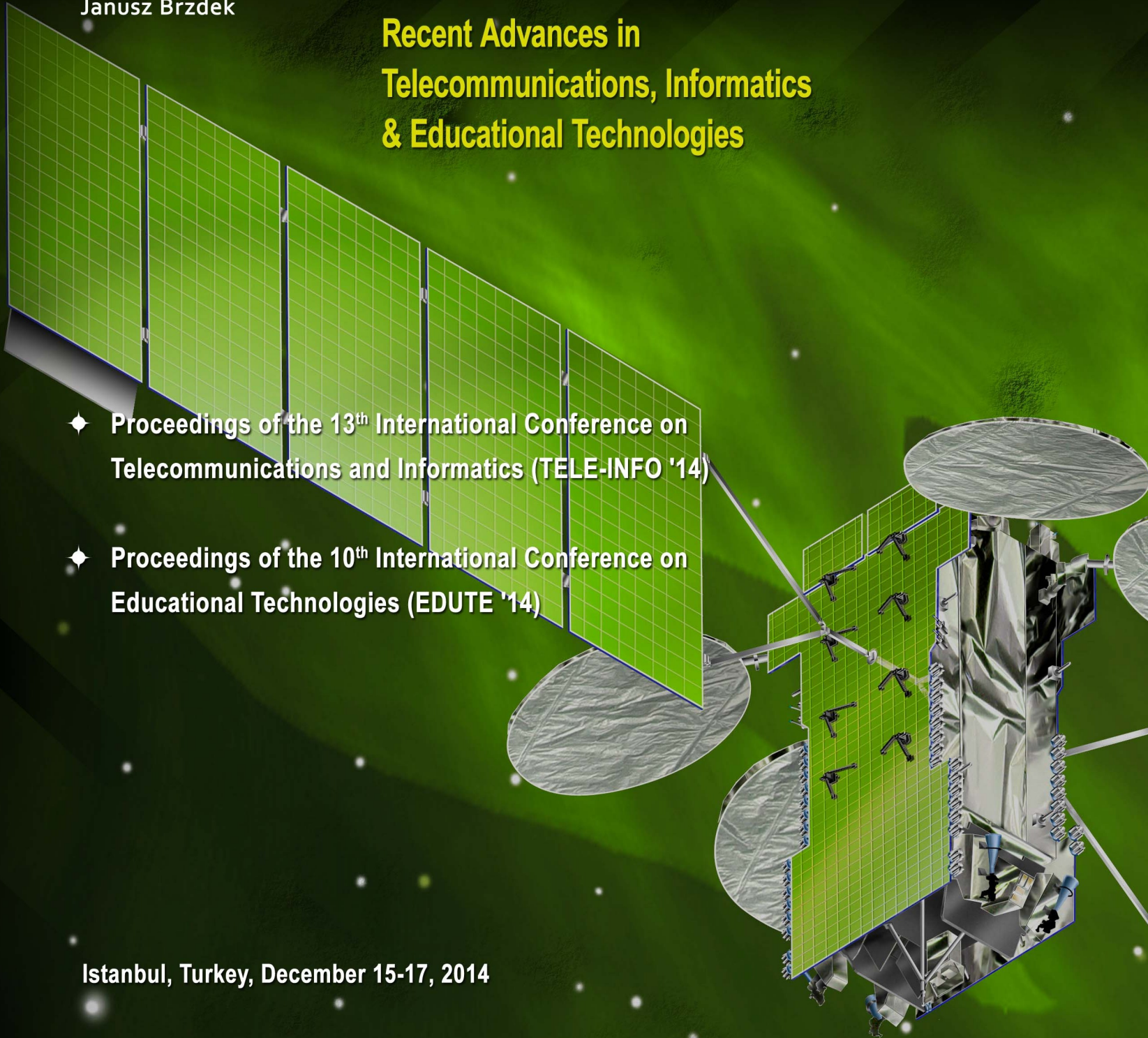
Recent Advances in Telecommunications, Informatics & Educational Technologies

Recent Advances in Telecommunications, Informatics & Educational Technologies

- ◆ Proceedings of the 13th International Conference on Telecommunications and Informatics (TELE-INFO '14)
- ◆ Proceedings of the 10th International Conference on Educational Technologies (EDUTE '14)

Istanbul, Turkey, December 15-17, 2014

ISBN: 978-1-61804-262-0





**RECENT ADVANCES in
TELECOMMUNICATIONS,
INFORMATICS and EDUCATIONAL
TECHNOLOGIES**

**Proceedings of the 13th International Conference on Telecommunications and
Informatics (TELE-INFO '14)**

**Proceedings of the 10th International Conference on Educational Technologies
(EDUTE '14)**

**Istanbul, Turkey
December 15-17, 2014**

ISBN: 978-1-61804-262-0

RECENT ADVANCES in TELECOMMUNICATIONS, INFORMATICS and EDUCATIONAL TECHNOLOGIES

Proceedings of the 13th International Conference on Telecommunications and Informatics (TELE-INFO '14)

Proceedings of the 10th International Conference on Educational Technologies (EDUTE '14)

**Istanbul, Turkey
December 15-17, 2014**

Published by WSEAS Press
www.wseas.org

Copyright © 2014, 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 than two independent reviewers. Acceptance was granted when both reviewers' recommendations were positive.

ISBN: 978-1-61804-262-0

RECENT ADVANCES in TELECOMMUNICATIONS, INFORMATICS and EDUCATIONAL TECHNOLOGIES

**Proceedings of the 13th International Conference on Telecommunications and
Informatics (TELE-INFO '14)**

**Proceedings of the 10th International Conference on Educational Technologies
(EDUTE '14)**

**Istanbul, Turkey
December 15-17, 2014**

Editors:

Prof. Nikos E. Mastorakis, Technical University of Sofia, Bulgaria

Prof. Klimis Ntalianis, Technological Educational Institute of Athens, Greece

Prof. George J. Tsekouras, Military Institutes of University Education (ASEI), Hellenic Naval Academy

Prof. Janusz Brzdek, Pedagogical University of Cracow, Poland

Committee Members-Reviewers:

A. Arul Lawrence Selvakumar

Hanmin Jung

Ashish Umre

Sudhir Dawra

Christian von Lucken

Ashish Seth

Carlos Manuel Travieso-Gonzalez

Bharat Bhushan Agarwal

Ala Hamarsheh

Mrityunjay Kumar Ray

Bagavathi Nagarajan

Carlos Pampulim Caldeira

Azlinah Mohamed

Anca Croitoru

Boja Catalin

Sanjeev Pippal

Mohammad Alanazi

Athina Lazakidou

Codrin-Florentin Nisioiu

Alireza Moghaddam Nia

Angel F Tenorio

Hsia Chih-Hsien

Tsvetanka Georgieva-Trifonova

Vasilis Christofilakis

Arianit Maraj

Amjad Daoud

Mohammad Al-Amri

Akash Punhani

Arash Habibi Lashkari

Babak Babak Bashari Rad

Brunonas Dekeris

Santosh Kalwar

Andreas Veglis

F. G. Lupianez

Marcela Padilla-Guerrero

David Nicoleta

Vasile Paul Bresfelean

Noraida Haji Ali

George Mavrommatis

Zamalia Mahmud

Ahadollah Azami

C. Girija Navaneethan

Mirela Stoican

Daniela Litan

Mihaela Dudita

Nor Fariza Mohd Nor

Mihaela-Carmen Muntean

Dario Assante

Eustache Muteba Ayumba

Wan Hussain Wan Ishak

Ana Maria Tavares Martins

Claudia-Georgeta Carstea

Catalin Ionut Silvestru

Martin Skutil

Menaka Sivakumar

Antoanela Luciana Naaji

Anabela Gomes

Valery Vodovozov

Antonios S. Andreatos

Rauno Pirinen

Masodi Saidfudin

Alejandro Fuentes-Penna

Chi, Chieh-Tsung Bruce

Chunwei Lu Wini

Daniel Hunyadi

Ed Wilson Tavares Ferreira

Eugenia Iancu

Gheorghe Badea

Ionel Botef

Jae Un Jung

Jui-Jen Chen

Lesley Farmer

Luigi Maxmilian Caligiuri

Mirela-Catrinel Voicu

Mohd Faizal Bin Abdollah

Nadir Bouchama

Panagiotis Gioannis

Pradeep Vukkadala

Sandor Szenasi

Santhosh Kumar. B B

Saravanan Saravanan Kumarasamy

Sergey Stankevich

Souhir Tounsi

Sumithra Devi

Tiberiu Socaciu

Tomasz Dlugosz

Wu-Chen Su

Zahéra Mekkioui

Zakaria Zubi

Ana Paula Ferreira Lopes

Badea Ana-Cornelia

Brandusa Prepelita-Raileanu

Claudiu Mereuta

Daniela Zirra

F.G. Lupianez

Helio Plapler

Ioana Adrian

Jayson Bingcang

Luís Miguel Moreira Pinto

Ricardo Bustillo

YuLung Wu

Preface

This year the 13th International Conference on Telecommunications and Informatics (TELE-INFO '14) and the 10th International Conference on Educational Technologies (EDUTE '14) were held in Istanbul, Turkey, December 15-17, 2014. The conferences provided a platform to discuss telecommunications, informatics, advanced educational software and hardware, corporate training, digital libraries and education, educational networks, human-computer interfaces, mobile education, post-university education and training etc. with participants from all over the world, both from academia and from industry.

Their 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 these conferences are published in this Book that will be sent to international indexes. They will be also available in the E-Library of the WSEAS. Extended versions of the best papers will be promoted to many Journals for further evaluation.

Conferences such as these 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

| | |
|--|----|
| <u>Time Modulation through Variable Pulse Amplitude in 4D Arrays</u> | 14 |
| <i>Ertugrul Aksoy</i> | |
| <u>Knowledge Management and Collaboration – Analysis of the Siemens Healthcare Consulting Group</u> | 22 |
| <i>Eva Gattnar, Jens Schneider, Brigitte Stroetmann, Okan Ekinci</i> | |
| <u>FPGA-Based Real-Time Implementation of AES Algorithm for Video Encryption</u> | 27 |
| <i>Sonia Kotel, Medien Zeghid, Adel Baganne, Taoufik Saidani, Yousef Ibrahim Daradkeh, Tourki Rached</i> | |
| <u>Using e-Activities in Pre University Education for Working Specific and Transversal Competences</u> | 37 |
| <i>Javier Bilbao, Concepción Varela, Eugenio Bravo, Miguel Rodríguez, Olatz García, Purificación González</i> | |
| <u>Attendance Monitoring as a Context-Aware Service</u> | 44 |
| <i>Alexander Samochadin, Dimitri Timofeev, Dmitry Raychuk, Igor Khmelkov</i> | |
| <u>Correlation Hamming Distance Power Analysis of 16-bit Integer Multiplier in FPGA</u> | 49 |
| <i>Marek Repka, Jozef Tomecek, Michal Varchola</i> | |
| <u>Students’ Views on the Use of e-Portfolios and Support Given to Promote Their Computer Learning for Educational Purposes</u> | 54 |
| <i>Fariza Khalid</i> | |
| <u>Uses of Linguistic Representation Model Info 2-tuples with Information Multigranular</u> | 60 |
| <i>Zapata C. Santiago, Fuentealba O. David, Valenzuela G. Gaspar</i> | |
| <u>System for Remote Complex Network Data Visualization Using Streaming Graphs and WebSockets</u> | 69 |
| <i>Jakub Janostik, Radomir Sohlich, Frantisek Spacek</i> | |
| <u>The Role of Information Culture in Common Culture</u> | 72 |
| <i>Rasim Alguliyev, Rasmiyya Mahmudova</i> | |
| <u>Academics Entrepreneurial Orientation and Research Commercialization: Role of Technology Transfer Office</u> | 81 |
| <i>Wirya Najm Rashid, Kamariah Ismail</i> | |
| <u>Cryptoprocessor with Native Resistance against Side Channel and Fault Injection Attacks</u> | 88 |
| <i>Lubos Gaspar, Marek Repka, Housseem Maghrebi, Jean-Luc Danger, Viktor Fischer</i> | |
| <u>Tunable Perfect Metamaterial Absorber Design Using the Golden Ratio and Energy Harvesting Application</u> | 98 |
| <i>Emin Unal, Furkan Dincer, Erkan Tetik, Muharrem Karaaslan, Cumali Sabah</i> | |

| | |
|--|-----|
| <u>Centralized Logging System Based on WebSockets Protocol</u> | 103 |
| <i>Radomir Sohlich, Jakub Janostik, Frantisek Spacek</i> | |
| <u>Model-Driven Software Configuration Management and Semantic Web in Applied Software Development</u> | 108 |
| <i>Arturs Bartusevics, Andrejs Lesovskis, Leonids Novickis</i> | |
| <u>Evaluation of Security Factors Effecting on Web-Based Service Adoption</u> | 117 |
| <i>Hamed Taherdoost, Shamsul Sahibuddin, Neda Jalaliyoon</i> | |
| <u>Leakage Measurement Tool of McEliece PKC Calculator</u> | 124 |
| <i>Marek Repka</i> | |
| <u>An efficient Encryption Scheme Based on Block Cipher Algorithms</u> | 133 |
| <i>Fatma Sbiaa, Medien Zeghid, Adel Baganne, Yousef Ibrahim Daradkeh, Rached Tourki</i> | |
| <u>Issues in Developing UML Diagrams from Natural Language Text</u> | 139 |
| <i>Nakul Sharma, Prasanth Yalla</i> | |
| <u>Policy Driven Initiator in Coordination Checkpointing Strategies</u> | 146 |
| <i>Bakhta Meroufel, Ghalem Belalem</i> | |
| <u>Knowledge Management in Higher Education</u> | 154 |
| <i>Elissaveta Gourova, Lilia Zografova</i> | |
| <u>Helper-Based Interactive Programming Education Model</u> | 160 |
| <i>Yongju Kim, Hyunwoo Jung</i> | |
| <u>An Effective Usage of Education and Learning as a Service (ELaaS) in Cloud Computing</u> | 165 |
| <i>K. Saravanan</i> | |
| <u>On the Performance of the Sum-of-Sinusoids Simulation Models for Rayleigh Fading Channels</u> | 172 |
| <i>Mohamed Ali Skima, Amira Boulaaba, Hamadi Ghariani</i> | |
| <u>Comparative Study on AES Hardware Implementations</u> | 179 |
| <i>Nicolcioiu Andreea, Patriciu Victor, Mărgărit Laurențiu, Kovacs Andrei</i> | |
| <u>Optimization Query Process of Mediators Using Data Mining Approach</u> | 184 |
| <i>Messaouda Fareh</i> | |
| <u>Preparation and Training of People to the Profession in Challenging Conditions</u> | 192 |
| <i>David Ullrich, Eva Ambrozová, Jiří Koleňák, Ladislav Sieger</i> | |
| <u>Swarm based Energy Aware Mitigation Mechanism for Root Node Attacks in MANETs</u> | 199 |
| <i>S. Parthiban, Paul Rodrigues</i> | |
| <u>Distributed Reversal Cache Technique to Improve Distributed Virtual Memory</u> | 208 |
| <i>Ahmad Al-Khasawneh, Sa'ed Abed</i> | |

| | |
|--|-----|
| <u>Structure of Email Discourse in a Selected Iranian Organization</u> | 215 |
| <i>Mitra Madanchian, Hamed Taherdoost</i> | |
| <u>Evaluation of Student Performance in a Collaborative Problem Solving Environment Using Social Network Media</u> | 223 |
| <i>Abdalla Radwan</i> | |
| <u>Geometric Feature Extraction from Urdu Ligatures</u> | 229 |
| <i>Naila Khan, Awais Adnan, Sadia Basar</i> | |
| <u>Creating an Effective Pathways for Mobile Advertising in Tertiary Education</u> | 237 |
| <i>Mohd Nazri Mohd Noor, Syed Mazlan Syed Mat Dom</i> | |
| <u>MAC Layer Protocols for Linear Wireless Sensor Networks: A Survey</u> | 247 |
| <i>Radosveta Sokullu, Eren Demir</i> | |
| <u>Color Image Segmentation Using K-Means Classification on RGB Histogram</u> | 257 |
| <i>Sadia Basar, Awais Adnan, Naila Habib Khan, Shahab Haider</i> | |
| <u>Joint Energy Efficient Routing Algorithm (JEER) to Reduce Link Break Issues, Load balancing and Improving Life Time of MANET Using Cross Layer System</u> | 263 |
| <i>R. Rajeshkanna, A. Saradha</i> | |
| <u>Image Encryption Using Development of Chaotic Logistic Map Based on Feedback Stream Cipher</u> | 274 |
| <i>Hossam Eldin H. Ahmed, Ayman H. Abd El-aziem</i> | |
| <u>Authors Index</u> | 284 |