

Hocine Cherifi Jasni Mohamad Zain
Eyas El-Qawasmeh (Eds.)

Digital Information and Communication Technology and Its Applications

International Conference, DICTAP 2011
Dijon, France, June 21-23, 2011
Proceedings, Part I

Volume Editors

Hocine Cherifi

LE2I, UMR, CNRS 5158, Faculté des Sciences Mirande

9, avenue Alain Savary, 21078 Dijon, France

E-mail: hocine.cherifi@u-bourgogne.fr

Jasni Mohamad Zain

Universiti Malaysia Pahang

Faculty of Computer Systems and Software Engineering

Lebuhraya Tun Razak, 26300 Gambang, Kuantan, Pahang, Malaysia

E-mail: jasni@ump.edu.my

Eyas El-Qawasmeh

King Saud University

Faculty of Computer and Information Science

Information Systems Department

Riyadh 11543, Saudi Arabia

E-mail: eyasa@usa.net

ISSN 1865-0929

e-ISSN 1865-0937

ISBN 978-3-642-21983-2

e-ISBN 978-3-642-21984-9

DOI 10.1007/978-3-642-21984-9

Springer Heidelberg Dordrecht London New York

Library of Congress Control Number: 2011930189

CR Subject Classification (1998): H, C.2, I.4, D.2

© Springer-Verlag Berlin Heidelberg 2011

This work is subject to copyright. All rights are reserved, whether the whole or part of the material is concerned, specifically the rights of translation, reprinting, re-use of illustrations, recitation, broadcasting, reproduction on microfilms or in any other way, and storage in data banks. Duplication of this publication or parts thereof is permitted only under the provisions of the German Copyright Law of September 9, 1965, in its current version, and permission for use must always be obtained from Springer. Violations are liable to prosecution under the German Copyright Law.

The use of general descriptive names, registered names, trademarks, etc. in this publication does not imply, even in the absence of a specific statement, that such names are exempt from the relevant protective laws and regulations and therefore free for general use.

Typesetting: Camera-ready by author, data conversion by Scientific Publishing Services, Chennai, India

Printed on acid-free paper

Springer is part of Springer Science+Business Media (www.springer.com)

Preface

On behalf of the Program Committee, we welcome you to the proceedings of participate in the International Conference on Digital Information and Communication Technology and Its Applications (DICTAP 2011) held at the Université de Bourgogne.

The DICTAP 2011 conference explored new advances in digital information and data communications technologies. It brought together researchers from various areas of computer, information sciences, and data communications who address both theoretical and applied aspects of digital communications and wireless technology. We do hope that the discussions and exchange of ideas will contribute to the advancements in the technology in the near future.

The conference received 330 papers, out of which 130 were accepted, resulting in an acceptance rate of 39%. These accepted papers are authored by researchers from 34 countries covering many significant areas of digital information and data communications. Each paper was evaluated by a minimum of two reviewers.

We express our thanks to the Université de Bourgogne in Dijon, Springer, the authors and the organizers of the conference.

Proceedings Chairs DICTAP2011

General Chair

Hocine Cherifi

Université de Bourgogne, France

Program Chairs

Yoshiro Imai

Kagawa University, Japan

Renata Wachowiak-Smolikova

Nipissing University, Canada

Norozzila Sulaiman

University of Malaysia Pahang, Malaysia

Program Co-chairs

Noraziah Ahmad

University of Malaysia Pahang, Malaysia

Jan Platos

VSB-Technical University of Ostrava,

Czech Republic

Eyas El-Qawasmeh

King Saud University, Saudi Arabia

Publicity Chairs

Ezendu Ariwa

London Metropolitan University, UK

Maytham Safar

Kuwait University, Kuwait

Zuqing Zhu

University of Science and Technology of
China, China

Message from the Chairs

The International Conference on Digital Information and Communication Technology and Its Applications (DICTAP 2011)—co-sponsored by Springer—was organized and hosted by the Université de Bourgogne in Dijon, France, during June 21–23, 2011 in association with the Society of Digital Information and Wireless Communications. DICTAP 2011 was planned as a major event in the computer and information sciences and served as a forum for scientists and engineers to meet and present their latest research results, ideas, and papers in the diverse areas of data communications, networks, mobile communications, and information technology.

The conference included guest lectures and 128 research papers for presentation in the technical session. This meeting was a great opportunity to exchange knowledge and experience for all the participants who joined us from around the world to discuss new ideas in the areas of data communications and its applications. We are grateful to the Université de Bourgogne in Dijon for hosting this conference. We use this occasion to express our thanks to the Technical Committee and to all the external reviewers. We are grateful to Springer for co-sponsoring the event. Finally, we would like to thank all the participants and sponsors.

Hocine Cherifi

Yoshiro Imai

Renata Wachowiak-Smolikova

Norozzila Sulaiman

Table of Contents – Part I

Web Applications

An Internet-Based Scientific Programming Environment	1
<i>Michael Weeks</i>	
Testing of Transmission Channels Quality for Different Types of Communication Technologies	13
<i>Robert Bestak, Zuzana Vranova, and Vojtech Ondryhal</i>	
Haptic Feedback for Passengers Using Public Transport	24
<i>Ricky Jacob, Bashir Shalaik, Adam C. Winstanley, and Peter Mooney</i>	
Toward a Web Search Personalization Approach Based on Temporal Context	33
<i>Djalila Boughareb and Nadir Farah</i>	
On Flexible Web Services Composition Networks	45
<i>Chantal Cherifi, Vincent Labatut, and Jean-François Santucci</i>	
Influence of Different Session Timeouts Thresholds on Results of Sequence Rule Analysis in Educational Data Mining	60
<i>Michal Munk and Martin Drlik</i>	
Analysis and Design of an Effective E-Accounting Information System (EEAIS)	75
<i>Sarmad Mohammad</i>	
DocFlow: A Document Workflow Management System for Small Office	83
<i>Boonsit Yimwadsana, Chalalai Chaihirunkarn, Apichaya Jaichoom, and Apichaya Thawornchak</i>	
Computing Resources and Multimedia QoS Controls for Mobile Appliances	93
<i>Ching-Ping Tsai, Hsu-Yung Kung, Mei-Hsien Lin, Wei-Kuang Lai, and Hsien-Chang Chen</i>	
Factors Influencing the EM Interaction between Mobile Phone Antennas and Human Head	106
<i>Salah I. Al-Mously</i>	

Image Processing

Measure a Subjective Video Quality via a Neural Network	121
<i>Hasnaa El Khattabi, Ahmed Tamtaoui, and Driss Aboutajdine</i>	
Image Quality Assessment Based on Intrinsic Mode Function Coefficients Modeling	131
<i>Abdelkaher Ait Abdelouahad, Mohammed El Hassouni, Hocine Cherifi, and Driss Aboutajdine</i>	
Vascular Structures Registration in 2D MRA Images	146
<i>Marwa Hermassi, Hejer Jelassi, and Kamel Hamrouni</i>	
Design and Implementation of Lifting Based Integer Wavelet Transform for Image Compression Applications	161
<i>Morteza Gholipour</i>	
Detection of Defects in Weld Radiographic Images by Using Chan-Vese Model and Level Set Formulation	173
<i>Yamina Boutiche</i>	
Adaptive and Statistical Polygonal Curve for Multiple Weld Defects Detection in Radiographic Images	184
<i>Aicha Baya Goumeidane, Mohammed Khamadja, and Nafaa Nacereddine</i>	
A Method for Plant Classification Based on Artificial Immune System and Wavelet Transform	199
<i>Esma Bendiab and Mohamed Kheirreddine Kholladi</i>	
Adaptive Local Contrast Enhancement Combined with 2D Discrete Wavelet Transform for Mammographic Mass Detection and Classification	209
<i>Daniela Giordano, Isaak Kavasidis, and Concetto Spampinato</i>	
Texture Image Retrieval Using Local Binary Edge Patterns	219
<i>Abdelhamid Abdesselam</i>	
Detection of Active Regions in Solar Images Using Visual Attention	231
<i>Flavio Cannavo, Concetto Spampinato, Daniela Giordano, Fatima Rubio da Costa, and Silvia Nunnari</i>	
A Comparison between Different Fingerprint Matching Techniques	242
<i>Saeed Mehmandoust and Asadollah Shahbahrami</i>	
Classification of Multispectral Images Using an Artificial Ant-Based Algorithm	254
<i>Radja Khedam and Aichouche Belhadj-Aissa</i>	

PSO-Based Multiple People Tracking	267
<i>Chen Ching-Han and Yan Miao-Chun</i>	
A Neuro-fuzzy Approach of Bubble Recognition in Cardiac Video Processing	277
<i>Ismail Burak Parlak, Salih Murat Egi, Ahmet Ademoglu, Costantino Balestra, Peter Germonpre, Alessandro Marroni, and Salih Aydin</i>	
Three-Dimensional Segmentation of Ventricular Heart Chambers from Multi-Slice Computerized Tomography: An Hybrid Approach	287
<i>Antonio Bravo, Miguel Vera, Mireille Garreau, and Rubén Medina</i>	
Fingerprint Matching Using an Onion Layer Algorithm of Computational Geometry Based on Level 3 Features	302
<i>Samaneh Mazaheri, Bahram Sadeghi Bigham, and Rohollah Moosavi Tayebi</i>	
Multiple Collaborative Cameras for Multi-Target Tracking Using Color-Based Particle Filter and Contour Information	315
<i>Victoria Rudakova, Sajib Kumar Saha, and Faouzi Alaya Cheikh</i>	
Automatic Adaptive Facial Feature Extraction Using CDF Analysis	327
<i>Sushil Kumar Paul, Saida Bouakaz, and Mohammad Shorif Uddin</i>	
Special Session (Visual Interfaces and User Experience (VIUE 2011))	
Digital Characters Machine	339
<i>Jaume Duran Castells and Sergi Villagrasa Falip</i>	
CREA: Defining Future Multiplatform Interaction on TV Shows through a User Experience Study	345
<i>Marc Pifarré, Eva Villegas, and David Fonseca</i>	
Visual Interfaces and User Experience: Augmented Reality for Architectural Education: One Study Case and Work in Progress	355
<i>Ernest Redondo, Isidro Navarro, Albert Sánchez, and David Fonseca</i>	
Communications in Computer and Information Science: Using Marker Augmented Reality Technology for Spatial Space Understanding in Computer Graphics	368
<i>Malinka Ivanova and Georgi Ivanov</i>	
User Interface Plasticity for Groupware	380
<i>Sonia Mendoza, Dominique Decouchant, Gabriela Sánchez, José Rodríguez, and Alfredo Piero Mateos Papis</i>	

Mobile Phones in a Retirement Home: Strategic Tools for Mediated Communication	395
<i>Mireia Fernández-Ardèvol</i>	
Mobile Visualization of Architectural Projects: Quality and Emotional Evaluation Based on User Experience	407
<i>David Fonseca, Ernest Redondo, Isidro Navarro, Marc Pifarré, and Eva Villegas</i>	
Semi-automatic Hand/Finger Tracker Initialization for Gesture-Based Human Computer Interaction	417
<i>Daniel Popa, Vasile Gui, and Marius Ottesteanu</i>	
Network Security	
Security Evaluation for Graphical Password	431
<i>Arash Habibi Lashkari, Azizah Abdul Manaf, Maslin Masrom, and Salwani Mohd Daud</i>	
A Wide Survey on Botnet	445
<i>Arash Habibi Lashkari, Seyedeh Ghazal Ghalebani, and Mohammad Reza Moradhaseli</i>	
Alternative DNA Security Using BioJava	455
<i>Mircea-Florin Vaida, Radu Terec, and Lenuta Alboaie</i>	
An Intelligent System for Decision Making in Firewall Forensics	470
<i>Hassina Bensefia and Nacira Ghoualmi</i>	
Static Parsing Steganography	485
<i>Hikmat Farhat, Khalil Challita, and Joseph Zalaket</i>	
Dealing with Stateful Firewall Checking	493
<i>Nihel Ben Youssef and Adel Bouhoula</i>	
A Novel Proof of Work Model Based on Pattern Matching to Prevent DoS Attack	508
<i>Ali Ordi, Hamid Mousavi, Bharanidharan Shanmugam, Mohammad Reza Abbasy, and Mohammad Reza Najaf Torkaman</i>	
A New Approach of the Cryptographic Attacks	521
<i>Otilia Cangea and Gabriela Moise</i>	
A Designated Verifier Proxy Signature Scheme with Fast Revocation without Random Oracles	535
<i>M. Beheshti-Atashgah, M. Gardeshi, and M. Bayat</i>	
Presentation of an Efficient and Secure Architecture for e-Health Services	551
<i>Mohamad Nejadeh and Shahriar Mohamadi</i>	

Risk Assessment of Information Technology Projects Using Fuzzy Expert System.....	563
<i>Sanaz Pourdarab, Hamid Eslami Nosratabadi, and Ahmad Nadali</i>	

Ad Hoc Network

Automatic Transmission Period Setting for Intermittent Periodic Transmission in Wireless Backhaul	577
<i>Guangri Jin, Li Gong, and Hiroshi Furukawa</i>	
Towards Fast and Reliable Communication in MANETs	593
<i>Khaled Day, Bassel Arafeh, Abderezak Touzene, and Nasser Alzeidi</i>	
Proactive Defense-Based Secure Localization Scheme in Wireless Sensor Networks	603
<i>Nabila Labraoui, Mourad Gueroui, and Makhoulf Aliouat</i>	
Decision Directed Channel Tracking for MIMO-Constant Envelope Modulation	619
<i>Ehab Mahmoud Mohamed, Osamu Muta, and Hiroshi Furukawa</i>	
A New Backoff Algorithm of MAC Protocol to Improve TCP Protocol Performance in MANET	634
<i>Sofiane Hamrioui and Mustapha Lalam</i>	
A Link-Disjoint Interference-Aware Multi-Path Routing Protocol for Mobile Ad Hoc Network	649
<i>Phu Hung Le and Guy Pujolle</i>	
Strategies to Carry and Forward Packets in VANET.....	662
<i>Gianni Fenu and Marco Nitti</i>	
Three Phase Technique for Intrusion Detection in Mobile Ad Hoc Network	675
<i>K.V. Arya, Prerna Vashistha, and Vaibhav Gupta</i>	
DFDM: Decentralized Fault Detection Mechanism to Improving Fault Management in Wireless Sensor Networks	685
<i>Shahram Babaie, Ali Ranjideh Rezaie, and Saeed Rasouli Heikalabad</i>	
RLMP: Reliable and Location Based Multi-Path Routing Algorithm for Wireless Sensor Networks	693
<i>Saeed Rasouli Heikalabad, Naeim Rahmani, Farhad Nematy, and Hosein Rasouli</i>	
Contention Window Optimization for Distributed Coordination Function (DCF) to Improve Quality of Service at MAC Layer	704
<i>Maamar Sedrati, Azeddine Bilami, Ramdane Maamri, and Mohamed Benmohammed</i>	

Cloud Computing

A Novel “Credit Union” Model of Cloud Computing.....	714
<i>Dunren Che and Wen-Chi Hou</i>	
A Trial Design of e-Healthcare Management Scheme with IC-Based Student ID Card, Automatic Health Examination System and Campus Information Network	728
<i>Yoshiro Imai, Yukio Hori, Hiroshi Kamano, Tomomi Mori, Eiichi Miyazaki, and Tadayoshi Takai</i>	
Survey of Security Challenges in Grid Environment	741
<i>Usman Ahmad Malik, Mureed Hussain, Mehnaz Hafeez, and Sajjad Asghar</i>	

Data Compression

Hybrid Wavelet-Fractal Image Coder Applied to Radiographic Images of Weld Defects	753
<i>Faiza Mekhalla and Daoud Berkani</i>	
New Prediction Structure for Stereoscopic Video Coding Based on the H.264/AVC Standard.....	762
<i>Sid Ahmed Fezza and Kamel Mohamed Faraoun</i>	
Histogram Shifting as a Data Hiding Technique: An Overview of Recent Developments	770
<i>Yasaman Zandi Mehran, Mona Nafari, Alireza Nafari, and Nazanin Zandi Mehran</i>	
New Data Hiding Method Based on Neighboring Correlation of Blocked Image	787
<i>Mona Nafari, Gholam Hossein Sheisi, and Mansour Nejati Jahromi</i>	
Author Index	803