

Proceedings of the ITI 2011, 33rd International Conference on Information Technology Interfaces

(ITI 2011)

**Cavtat/Dubrovnik, Croatia
27-30 June 2011**



**IEEE Catalog Number: CFP11498-PRT
ISBN: 978-1-61284-897-6**

TABLE OF CONTENTS

ITI 2011 COMMITTEES	xiii
ITI 2011 REVIEWERS.....	xv
PREFACE	xix

PAPERS

KEYNOTE LECTURES

Program Committee Chair: Vesna Luzar-Stiffler

<i>De Veaux, R.</i>	
The Seven Deadly Sins of Data Mining - and How to Avoid Them	3

<i>Herschel, R.</i>	
Business Intelligence: Opportunities for Research	5

<i>Liu, X.</i>	
Intelligent Data Analysis for Complex Systems	7

<i>Vinze, A.</i>	
Preparedness and Response: New Roles and Responsibilities for IT	9

<i>Young, L. J., Lopiano, K. K., Gotway, C. A.</i>	
Relating Health Outcomes to Environmental Factors: Assessing Uncertainty in the Presence of Predicted Environmental Factors.....	19

Special Topic/Session:

“STATISTICS, COMPUTING AND IT IN THE COMING DECADE”

Program Committee Vice-Chair: Vesna Luzar-Stiffler

<i>Habus-Korbar, A., Tepic, N., Culig, B., Luzar-Stiffler, V.</i>	
Classification and Profiles of Students Based on Their Motivations Concerning Higher Education.....	23

<i>Pestana, D. D., Aleixo, S. M.</i>	
Stuttering Cantor-Like Random Sets	29

<i>Trad, A., Kalpic, D.</i>	
The “Selection, Training, Follow and Evaluation Framework” (STFEF) for Manager’s in Business Innovation Transformation Projects: A Holistic Overview.....	35

Minitrack:

“LEVERAGING IS FOR COMPETITIVENESS IN TRANSITION ECONOMIES”

Program Committee Vice-Chair: Mirjana Pejić Bach

<i>Bajgorić, N., Spremić, M., Turulja, L.</i>	
Implementation of the IT Governance Standards through Business Continuity Management: Cases from Croatia and Bosnia-Herzegovina	43
<i>Bosilj Vuksic, V., Pejic Bach, M., Marjanovic, O.</i>	
Business Process Orientation in Croatian Companies: a Multi-site Case Study	51
<i>Dumicic, K.</i>	
Use of the Internet in the Job Search Process in European Countries: Position of Croatia.....	59
<i>Hamiti, M., Dika, A.</i>	
Challenges of Computers and IT in the Coming Decade, Case Study: SEE-University in Macedonia.....	65
<i>Klačmer Čalopa, M., Kukec, S. K., Šestanj-Perić, T.</i>	
Impact of the Recent Economic Crisis on the ICT Industry: Research of Croatian Companies	71
<i>Schatten, M., Fabac, R., Duricin, T.</i>	
Modeling Organizational Integration Using Mixing Patterns.....	77
<i>Škrinjar, R., Bosilj-Vukšić, V., Indihar Štemberger, M.</i>	
Empirical Examination of the Dimensions of Business Process Orientation	83
<i>Zoroja, J.</i>	
Internet Usage in Developed and Post-Communist Europe: Trends and Differences	89

NETWORKING, GRIDS, MIDDLEWARE AND DISTRIBUTED PLATFORMS

Program Committee Vice-Chair: George S. Nezlek

<i>Danciu, V. A., Kranzlmüller, D., Metzker, M. G., Yampolskiy, M.</i>	
A Border-Friendly, Non-Overlay Mechanism for Inter-Domain QoS Support in the Internet	97
<i>Groš, S.</i>	
Security Risk Assessment of TeamViewer Application	103
<i>Maly, F., Kriz, P., Slaby, A.</i>	
Mobile Oriented Software Architecture M Client M Client Server	109
<i>Ocenasek, P.</i>	
Specification of Traces in the Security Protocols Analysis	115
<i>Pohorec, S., Zorman, M.</i>	
The Challenges of the Move from the Desktop to the Cloud.....	119
<i>Satoh, I.</i>	
Mobile Agent Middleware for Dependable Distributed Systems	125

<i>Schiffers, M., Kranzlmüller, D.</i>	
Folded Interaction Systems and Their Application to the Survivability Analysis of Unbounded Systems.....	131
<i>Voras, I., Mihaljević, B., Orlić, M.</i>	
Criteria for Evaluation of Open Source Cloud Computing Solutions.....	137
BUSINESS INTELLIGENCE, INFORMATION SYSTEMS AND DATABASES	
<i>Program Committee Vice-Chair: Olivera Marjanovic</i>	
<i>Dimovski, T., Mitrevski, P.</i>	
Connection Fault-Tolerant Model for Distributed Transaction Processing in Mobile Computing Environment	145
<i>Marjanovic, O.</i>	
Addressing the ICT-related Challenges of Business Intelligence Education.....	151
<i>Mólnar, B., Szabó, G.</i>	
Information Architecture of ERP Systems at Globalised Enterprises in a Small EU Member State.....	157
<i>Němec, R., Menčlová, E.</i>	
The Usage of Open-source Business Intelligence in the Czech Republic	163
<i>Orehovacki, T., Schatten, M., Lovrencic, A.</i>	
Implementing a Logic System for Testing Functional Independent Normal Form in Relational Databases	167
<i>Trattner, C.</i>	
Improving the Navigability of Tagging Systems with Hierarchically Constructed Resource Lists: A Comparative Study	173
<i>Velic, M.</i>	
Analysis of Correlation between CROBEX Index Value Change, Investment Fund Type, Investment Portfolio and Investment Funds Share Value Change Using Data Mining Techniques.....	179
KNOWLEDGE MANAGEMENT AND COLLABORATION SYSTEMS	
<i>Program Committee Vice-Chair: Thurasamy Ramayah</i>	
<i>Bradeško, L., Fortuna, B., Mladenić, D., Starc, J.</i>	
Semantic Technologies for Personal Information Management.....	187
<i>Hasani-Mavriqi, I., Leitner, H., Helic, D., Maurer, H.</i>	
Implementation of a Wiki-based Information and Communication System for Academia Europaea.....	193
<i>Moraru, A., Fortuna, C., Mladenic, D.</i>	
A System for Publishing Sensor Data on the Semantic Web.....	199
<i>Oliver, G. R.</i>	
The Pleasures and Perils of Sharing Information: A Pilot Case Study of a Male South African Bricklayer.....	205
<i>Verweij, H., Windhouwer, M., Wittenburg, P.</i>	
Knowledge Management for Small Languages	213

HUMAN COMPUTER INTERACTION

Program Committee Vice-Chair: Jasna Kuljis

De Paolis, L. T., Aloisio, G.

Advanced Interface for the Pre-Operative Planning in Pediatric Laparoscopy 221

Mekovec, R., Vrček, N.

Factors That Influence Internet Users' Privacy Perception 227

Solina, F., Ravnik, R.

Fixing Missing Eye-Contact in Video Conferencing Systems 233

Zoidi, O., Tefas, A., Pitas, I.

Object Tracking Based on Local Steering Kernels for Drinking Activity
Recognition 237

TECHNOLOGY ENHANCED EDUCATION

Program Committee Vice-Chair: Keiichi Kaneko

Apostolova Trpkovska, M.

A Study of Student Perceptions on Blended and Online Learning over
Traditional Classroom Instruction at South East European University 245

Balaban, I., Mu, E., Divjak, B.

Critical Success Factors for the Implementation of the New Generation
of Electronic Portfolio Systems 251

Dukić, D., Penny, K. I.

Analysis of Croatian and Scottish Students' Attitudes towards e-Learning 257

Fabac, R., Vidacek-Hains, V., Pazur, K.

Attitudes of Undergraduate Students with Regards to the Information
and Communication Aspects of Study 263

Fetaji, B., Fetaji, M., Kaneko, K.

Comparative Study of Efficiency among the Developed MLUAT Methodology
in Comparison with Qualitative User Testing Method and Heuristics Evaluation 269

Fetaji, M., Fetaji, B.

Devising M-learning Usability Framework 275

Horvat, J., Oreski, D., Markic, D.

Gender Differences in the Internet Usage among Postgraduate Students 281

Hosogai, E., Mukai, T., Jung, S., Kowase, Y., Bossard, A., Xu, Y.,

Ishikawa, M., Kaneko, K.

A Multilingual Chat System with Image Presentation for Detecting Mistranslation 287

Kacian, D., Filipović, A. M.

Assessing Learning Outcomes by Using State-of-the-art Technology 293

Komar, M., Grbic, D., Cupic, M.

Solving Exam Timetabling Using Distributed Evolutionary Computation 301

Lustigova, Z., Novotna, V., Kedzierska, E., Kawecka, E.

The Role of e-Labs in Promoting Conceptual Understanding of Science
Students (Reflection in ICT for IST Project Resource Pack) 307

<i>Papić, A.</i>	
Factors Influencing the Innovative Use of Information and Communication Technology in Education by High School Teachers	313
<i>Pilav-Velic, A., Habul, A.</i>	
Does Social Computing Provide Satisfaction for Modern Learner?	319
<i>Radosevic, D., Orehovacki, T.</i>	
An Analysis of Novice Compilation Behavior Using Verificator	325
<i>Smolyaninova, O. G, Shilina, N. G.</i>	
ePortfolio in Higher Educational Institutions of Russia.....	331
<i>Stolikj, M., Ristov, S., Ackovska, N.</i>	
Challenging Students Software Skills to Learn Hardware Based Courses	339
<i>Szabó, I.</i>	
Comparing the Competence Contents of Demand and Supply Sides on the Labour Market.....	345
INFORMATION TECHNOLOGY IN BUSINESS AND GOVERNMENT	
<i>Program Committee Vice-Chair: Diana Simic</i>	
<i>Achkoski, J., Trajkovik, V.</i>	
Intelligence Information System (IIS) with SOA-based Information Systems.....	353
<i>Androcec, D., Vrcek, N.</i>	
E-service Cost-Benefit Analysis in the Public Sector.....	359
<i>Cabral, I., Grilo, A., Leal, R. P., Machado, V. C.</i>	
Modelling Lean, Agile, Resilient, and Green Supply Chain Management.....	365
<i>Čovič, Z., Ivković, M., Boban, M., Čosić, Z.</i>	
Development of Integrated Model for Health Promotion in Medical Informatics	371
<i>Dagher, J., Kuzic, J.</i>	
ERP Implementation in Australia	379
<i>Dukić, B., Meler, M., Katić, M.</i>	
Relationship Improvement Model for Visitors of the Nature Park Kopački rit through Usage of Mobile Technology	385
<i>Dukić, D., Dukić, G., Kvesić, Lj.</i>	
A Credit Scoring Decision Support System.....	391
<i>Dukić, G., Turkalj, D., Bodražić, B.</i>	
The Purposes of Croatian Managers' Computer Usage.....	397
<i>Hodorogea, T., Szilard-Otto, I. I.</i>	
Security of Business to Business and Business to Customer Software Applications Based on the Central Dogma of Molecular Biology (CDMB) and Evolutionary Models	403
<i>Jolevski, I., Markoski, A., Pasic, R.</i>	
Smart Vehicle Sensing and Classification Node with Energy Aware Vehicle Classification Algorithm	409
<i>Markic, D., Horvat, J., Oreski, D.</i>	
Human Resource Information System in Croatian Companies	415

<i>Nikolovska, J., Trajkovik, V.</i>	
Communication Enabled Business Processes: Case Study on ATM Credit Card Limit Request Services	421
<i>Pattinson, C., Hajdarevic, K., Hadzic, A.</i>	
The Time Element in Proactive Network Defense Systems	427
<i>Pihir, I., Pihir, V., Vidačić, S.</i>	
Improvement of Warehouse Operations through Implementation of Mobile Barcode Systems Aimed at Advancing Sales Process	433
<i>Šen, H., Begičević, N., Gerić, S.</i>	
Decision Making on Customer Relationship Management Solution Using the Analytic Network Process	439
<i>Tomic Rotim, S., Dobsa, J.</i>	
Clustering of European Countries by Their Readiness for Effective Utilization of ICT	445
<i>Trad, A., Kalpic, D.</i>	
The “Selection, Training, Follow and Evaluation Framework” (STFEF) for Manager’s in Business Innovation Transformation Projects: The Human Factor.....	451
DATA MINING AND BIOMETRICS	
<i>Program Committee Vice-Chair: Nancy Flournoy</i>	
<i>Doğan, Y., Örütçü, F., Kut, A., Radevski, V.</i>	
Optimizing the Equation for a Dataset with Corresponding Attributes by Hybrid Genetic Algorithm	459
<i>Ion, A. L., Udristoiu, S.</i>	
An Experimental Framework for Learning the Medical Image Diagnosis	465
<i>Jakopec, T., Papić, A., Selthofer, J.</i>	
Inside Croatian National Top-Level Domain: Analysis of Technical Quality According to W3C Standards.....	471
<i>Karlović, M.</i>	
Information Extraction from Receipts Using Machine Learning.....	477
<i>Koruga, P., Baća, M., Schatten, M.</i>	
Analysis of Craniofacial Morphology Changes during Aging and Their Connection with Facial Age Estimation.....	481
<i>Kudelić, R., Konecki, M., Maleković, M.</i>	
Mind Map Generator Software Model with Text Mining Algorithm	487
<i>Marras, I., Nikolaidis, N., Pitas, I.</i>	
Frontal Facial Pose Recognition Using a Discriminant Splitting Feature Extraction Procedure	495
<i>Trojacanec, K., Madjarov, G., Loskovska, S., Gjorgjevikj, D.</i>	
Hierarchical Classification Architectures Applied to Magnetic Resonance Images	501

MODELING, SIMULATION AND OPTIMIZATION

Program Committee Vice-Chair: Zelimir Kurtanjek

<i>Atanasijević-Kunc, M., Drinovec, J.</i>	
Social and Economical Burden of Obesity – Multi-Model Analysis	509
<i>Djordjević, M., Brodnik, A.</i>	
Quantitative Analysis of Separate and Combined Performance of Local Searcher and Genetic Algorithm	515
<i>Grigorie, T. L., Edu, I. R., Corcau, J. I.</i>	
Fuzzy Logic Denoising of the Miniaturized Inertial Sensors in Redundant Configurations	521
<i>Hudec, J.</i>	
An Efficient Technique for Processor Automatic Functional Test Generation Based on Evolutionary Strategies	527
<i>Kotevski, Z., Mitrevski, P.</i>	
A Simple FSPN Model of P2P Live Video Streaming System.....	533
<i>Kotevski, Z., Mitrevski, P.</i>	
Level Aware Model for Peer to Peer Live Video Streaming	539
<i>Liopatakalidi, A., Konstantinidou-Doltsinis, S., Beligiannis, G. N.</i>	
Studies on the Efficacy of Extracts of <i>Reynoutria Sachalinensis</i> on Cucumber Growth Using the Richards Function and Evolutionary Modelling	545
<i>Markoč, Z., Hlupić, N., Basch, D.</i>	
Detection of Suspicious Patterns of Energy Consumption Using Neural Network Trained by Generated Samples	551
<i>Santos, R.</i>	
Simulation Analysis of Statistical Properties of Random Polygonal Lines Iteratively Generate on the Plane	557
<i>Sarajlić, As., Sarajlić, Am.</i>	
Definition, Analytical Derivation and Optimization of the Lower Credit Limit in Mobile User's Prepaid Account for IMS Services.....	563
<i>Strnad, D., Guid, N.</i>	
Parallel Alpha-Beta Algorithm on the GPU.....	571
<i>Tanković, N., Vukotić, D., Žagar, M.</i>	
Executable Graph Model for Building Data-Centric Applications.....	577

THEORY OF COMPUTING, COMPUTING METHODOLOGIES AND SOFTWARE ENGINEERING

Program Committee Vice-Chair: Robert Manger

<i>Brođanac, P., Budin, L., Jakobović, D.</i>	
Parallelized Rabin-Karp Method for Exact String Matching.....	585
<i>Glavas, G., Fertalj, K.</i>	
Metaheuristic Approach to Class Responsibility Assignment Problem.....	591
<i>Juričić, V.</i>	
Detecting Source Code Similarity Using Low-level Languages	597

<i>Kosar, T., Mernik, M., Carver, J. C.</i>	
The Impact of Tools Supported in Integrated-Development Environments on Program Comprehension.....	603
<i>Prstacic, S., Voras, I., Zagari, M.</i>	
Nested Componentization for Advanced Web Platform Solutions.....	609
<i>Yildirim, M., Tarhan, A., Kut, R. A.</i>	
Quantitative Analysis of the Software Change Process Applied for a Large-Scale Banking Application.....	615