2013 36th International Convention on Information and Communication Technology, Electronics and Microelectronics (MIPRO)

Microelectronics, Electronics and Electronic Technology

Min-Max Circuits as a Problem Solving Tool(s) – *Invited Paper* 1
D. Kovacevic

Tuning Electronic Properties of Molybdenum Disulfide by a Substitution in Metal Sublattice 11
V. Fedorov, N. Naumov, A. Lavrov, M. Tarasenko, S. Artemkina, A. Romanenko, M. Medvedev

Alternating Current Electrochemical Anodisation of Silicon on Insulator Layers 15
M. Ivanda, V. Djerek, M. Balarin, O. Gamulin, M. Kosovic, S. Music, M. Ristic, Z. Crnjak Orel

Porous Silicon Prepared from p^- and p^{++} Bulk Silicon 18
V. Djerek, R. Baltic, M. Marcijus, M. Ristic, Z. Crnjak Orel, M. Ivanda

Some Physical Problems in the Preparation and Analysis of the Heavily Boron and Phosphorous Doped Polysilicon Thin Films 22
M. Ocko, S. Zonja, M. Ivanda

Luminescence, Raman and Synchrotron XPS Study of Amorphous Ge_2S_3 Based Films 28
V. Mitsa, M. Ivanda, O. Gamulin, R. Holomb, O. Kondrat, N. Popovych, G. Lovas, S. Petreckiy, N. Tsud, V. Matolín, K. Prince

Light Coupling Between the Whispering Gallery Modes of a Coated Microsphere and a Tapered Fiber 34
D. Ristic, M. Mazzola, A. Chiappini, P. Féron, A. Rasoloniaina, G. Cibiel, M. Ivanda, G. Righini, M. Ferrari

Eu^{3+}/ Yb^{3+} - Activated Nanocrystals of Lanthanide Phosphates 38
A. Lukowiak, A. Bednarkiewicz, R. Wiglusz, W. Strek, L. Kepinski, L. Krajczyk, D. Ristic, A. Chiasera, M. Ferrari

Numerical Study and Performance Analysis of Carbone Nanotube Field Effect Transistors 43
R. Djamil, B. Salima, L. Kheireddine

New Silicon Reach-Through Avalanche Photodiodes with Enhanced Sensitivity in the DUV/UV Wavelength Range 48
D. Grubisic, A. Shah

175,000 Device-Hours Operation of AlGaN/GaN HEMTs on Diamond at 200°C Channel Temperature 55
D. Babic, Q. Diduck, C. Khandavalli, D. Francis, F. Faili, F. Ejeckam

Low Power CMOS Sub-threshold Circuits 60
B. Dokic, A. Pajkanovic

Low-Power and High-Speed 4-2 Compressor 66
A. Najafi, B. Mazloom-Nezhad, A. Najafi

High-Order Inductorless Elliptic Filter with Reduced Number of Capacitors Using Signal-Flow Graphs 70
D. Glavinic, D. Jurisic

Engineering Education: Where We Are and Where We Go from Here 76
B. Pejcinovic

Concept for a SIL3 Middleware Encapsulating Safety-related Aspects of Applications for an 8051-based SIL3 Multi-Core System-on-Chip 81
M. Schreiber, E. Delic, A. Hayek, J. Börcsök

Validation of a SIL3 Middleware for Safety-related System-on-Chips 85
E. Delic, M. Schreiber, A. Hayek, J. Börcsök

Weighted Least-Squares Design of Sharpened CIC Filters 91
G. Molnar, M. Glavinic Pecotic, M. Vucic

Some Improvements of the Gaussian Elimination Method for Solving Simultaneous Linear Equations 96
S. Delic, Z. Juric

LED Powered Identification Tag - Energy Harvesting and Power Consumption Optimization 102
G. Horvat, D. Vinko, T. Svedek

Self Powered Current Acquisition System with Wireless Data Transfer 108
V. Valchev, A. Marinov, E. Dimitrova

Investigation of an Intelligent Power Supply System for an Electric Heater Furnace with Silicon Carbide Heaters 113
G. Nikolov, B. Dimitrov, V. Valchev

Koncar Smart Metering - Innovative Solutions for Well Known Problems 119
D. Cmuk, D. Cihlar, M. Simunovic

Micropositioning Mechatronics System Based on FPGA Architecture 125
E. Kamenar, S. Zelenika

On-water Measurement and Analysis System for Estimating Kayak Paddlers' Performance 131
G. Vadai, G. Makan, Z. Gingl, R. Mingesz, J. Mellár, T. Szépe, A. Csamangó

Random Interleaver Design in Turbo Coding for Digital Magnetic Recording Channel 137
S. Stancescu, C. Sandu

Interpretation of Pulmonary Function Test Results in Relation to Asthma Classification Using Integrated Software Suite 140
A. Badnjevic, D. Koruga, M. Cifrek, H. Smith, T. Bego

Distributed Computing and Visualization

High Productivity Processing - Engaging in Big Data around Distributed Computing 145
M. Riedel, M. Memon, A. Memon, G. Fiameni, C. Cacciari, T. Lippert

Scaling the Performance and Cost While Scaling the Load and Resources in the Cloud 151
M. Simjanoska, S. Ristov, G. Velkoski, M. Gusev

Semidefinite optimization of High Performance Linpack on Heterogeneous Cluster 157
D. Tomic, L. Gjenero, E. Imamagic

Distributed Virtual Test Bed: an Approach to Intergation of CAE Systems in UNICORE Grid Environment 163
G. Radchenko, E. Hudyakova

Message Oriented Framework with Low Overhead for Efficient High-Performance Monte Carlo Simulations 169
E. Atanassov, T. Gurov, A. Karaivanova

WRF4SG: A Scientific Gateway for the Weather Research and Forecasting Model 172
C. Blanco, A. Cofiño, V. Fernández-Quiruelas

Generation of the Scrambled Halton Sequence Using Accelerators 177
E. Atanassov, M. Durchova

Intel vs AMD: Matrix Multiplication Performance 182
N. Anchev, M. Gusev, S. Ristov, B. Atanasovski

Web Service for Separating Components in the Exponential Decay Process 188
A. Martinovic, D. Arbula, Z. Jericevic

Performance Drawbacks for Matrix Multiplication Using Set Associative Cache in GPU Devices 193
L. Djinevski, S. Arsenovski, S. Ristov, M. Gusev

Defending the Need for a New Global Software Approach: a Literature Review 199
M. Trkman, S. Vrhovec, D. Vavpotic, M. Krisper

Parallelization of NAPOM Implementation 203
M. Depolli, G. Kosec, J. Ugovsek, V. Malacic

Faster Solution of Large, Over-Determined, Dense Linear Systems 208
Z. Jericevic, I. Kozar

Virtual Computers and Virtual Data Storage 212
A. Simec, O. Stanicic

AdriaScience Gateway: Application Specific Gateway for Advanced Meteorological Predictions on Croatian Distributed Computing Infrastructures 217
D. Davidovic, T. Lipic, K. Skala

Handling Web Service Interfaces 222
J. Matkovic, K. Fertalj

Loosely or Tightly Coupled Affinity for Matrix - Vector Multiplication 228
G. Velkoski, S. Ristov, M. Gusev

Computation and Analysis of Sobol Coefficients for Air Pollution Concentrations over the Territory of Bulgaria 234
E. Atanassov, S. Ivanovska

Algorithms for Computational Procedure Acceleration for Systems Differential Equations in Matlab 238
H. Nenov, B. Dimitrov, A. Marinov

Support for Data-intensive Computing with CloudMan 243
Y. Kowsar, E. Afgan

IaaS Type Cloud Infrastructure Assessment and Monitoring 249
M. Kozlovszky, M. Törőcsik, T. Schubert, V. Póserné

Energy Efficiency in Large-Scale Distributed Computing Systems 253
R. Trobec, M. Depolli, K. Skala, T. Lipic

3D Visual Analytics for Quality Control in Engineering 258
M. Klemencic, K. Skala

Remote Visualization of 3D Graphical Models 263
D. Gorgan, O. Capatana

Fast Network Communities Visualization on Massively Parallel GPU Architecture 269
M. Mrzek, J. Blazic

Realization of Natural Interaction over the Micro Soot Device Model 275
P. Mrazovic, M. Pilipovic, M. Volarevic, Z. Mihajlovic

Accelerating Mean Shift Image Segmentation with IFGT on Massively Parallel GPU 279
J. Sirotkovic, H. Dujmic, V. Papic

ARIS MashZone KPI Visualisation of Simulated Routing Protocol Operations for Smart Dust Environments 286
K. Hajdarevic, A. Civa

Physical Simulation of 3D Dynamical Surfaces on Graphic Clusters 292
A. Sabou, D. Gorgan

Road Line Detection based on Optical Correlator 298
T. Harasthy, J. Turán, Ľ. Ovseník

The Specific Approach for Establishment of Innovation Hospitals in Gorenjska Region 301
U. Stanic, S. Dolinsek, A. Cerkvenik Skafar, I. Grmek-Kosnik, J. Stanic, G. Cerinsek

Multifunctional Protective Clothing System: Development vs. Functionality 307
D. Zavec Pavlinic, A. Oder, V. Grm, U. Stanic

Functional Textiles Have Important Role on the Field of Human Life 312
D. Zavec Pavlinic

I-TEHMED Biomedical Technology Platform - Structure and Results 317
J. Stanic, J. Jelenc, U. Stanic

Multi-Functional Wireless Body Sensor - Analysis of Autonomy 322
K. Bregar, V. Avbelj

Personal Health Monitoring with Android Based Mobile Devices 326
M. Kozlovszky, L. Bartalis, B. Jókai, J. Ferenczi, P. Bogdanov, Z. Meixner, L. Németh, K. Karóczkai

Signal Processing Methods for ST Variability Assessment in ECG 331
A. Rashkovska, V.Avbelj

Coarse Grain Molecular Dynamics Study of Voids Present in the Membrane of a Lipid Vesicle 335
J. Pavlic

Low-Frequency Ultrasound *in vitro*: Experimental System and Ultrasound-Induced Changes of Cell Morphology 340
J. Jelenc, J. Jelenc, D. Miklavcic, A. Macek Lebar

Using Hadoop MapReduce in a Multicluster Environment 345
I. Tomasic, A. Rashkovska, M. Depolli

Approaches to DNA *de novo* Assembly 351
I. Sovic, K.Skala, M.Sikic

Ski Injury Triggers of Tibial Plateau Compression Fracture 360
R. Trobec, I. Belehar, J. Polajnar, M. Veselko

A Model of Selective Stimulation and ENG Recording in the Human Left Vagus Nerve 365
P. Peclin, J. Rozman

Telecommunications and Information

New Challenges and Perspectives on Understanding and Managing the End User Experience: Presenting European Research Efforts on the Quality of Experience of Multimedia Systems – *Invited Paper* 369
L. Skorin-Kapov

PSQM - Platform for Service Quality Management 371
O. Jukic, I. Hedji

A Possibility of Estimation of IPTV QoS Parameters by Using DSL Transceivers Physical Layer Parameters 376
N. Skaljo, A. Begovic, N. Behlilovic

An Impact of Access Network Physical Impairments on IPTV QoE in DSL Enviroment 380
N. Goran, M. Hadzialic, A. Begovic

A Blend of Semi-Open Innovation & Open Sourceness: Accelerating Innovation within a Large Telecommunications Company 384
M. Bervanakis, S. Desic

SEO in e-Commerce: Balancing between White and Black Hat Methods 390
S. Duk, D. Bjelobrk, M. Carapina

Web Application Functional Size Estimation Based on COSMIC Method and UWE Approach 396
D. Ceke, M. Djurek, S. Kasapovic

Abstraction and Semantics Support in M2M Communications 404
V. Cackovic, Z. Popovic

Machine-to-Machine Communication as Key Enabler in Smart Metering Systems 409
M. Dujak, V. Parac, M. Djurasevic, A. Heric

Improved Distributed Band-Preference Dynamic Spectrum Management for Upstream VDSL2 415
Y. Gao, Y. Li, G. Wang, M. Jin

Dictionary Based Optimization for Adaptive Compression Techniques 421
A. Mokhtar Mansour, M. Fouad

Adoption of Agile Methodology in Software Development 426
D. Duka

Developments and Current Trends in Ethernet Technology 431
D. Valencic, V. Lebinac, A. Skendzic

Terastream Implementation of All IP New Architecture 437
B. Zaluski, B. Rajtar, H. Habjanic, M. Baranek, N. Slibar, R. Petracic, T. Sukser

Merging Dynamic Address Autoconfiguration and Security Key Protocols in Mobile Ad Hoc Networks 441
M. Shurman, M. Al-Mistarihi, K. Darabkh

MAC Layer Back-off Algorithm for Ad hoc Networks 446
M. Shurman, M. Al-Mistarihi, Z. Alomari

Heterogeneous Networks in Theory and Practice 452
T. Ivankovic

Information Systems Infrastructure Planning Based on Collected Data from Monitoring Tools 456
I. Golub, B. Radojevic

Regulatory Aspects of Mobile Broadband Technologies 461
A. Dzebo, H. Mutapcic

Role of Infrastructure Atlas in NGA Deployment 466
S. Hadzovic, S. Kovacevic

Effective Energy Consumption on Wireless Sensor Networks: Survey and Challenges 469
A. Boonsongsrikul, S. Kocijancic, S. Suppharangsan

An Optimal Algorithm Based on Gridding and Clustering for Decrease Energy Consumption in WSN 474
A. Firuzbakht, A. Bouyer

Hierarchical Clustering Using Genetic Algorithm in Wireless Sensor Networks 479
M. Shurman, M. Al-Mistarihi, A. Mohammad, K. Darabkh, A. Ababnah

Efficient Wireless Signal Emitting Sensor Distribution within an Environment Modified for the Needs of the Aging Population 484
V. Prcic, M. Djurek, D. Simunic

TeleAssistant - Assisted Living Platform Applied to Fall Detection 490
M. Cavka, R. Krpetic, D. Vasic, V. Bilas

Properties of Hybrid FSO/RF Link with 60 GHz RF Backup Link 495
M. Tatarko, Ľ. Ovsénik, J. Turán

Comparison of New Technologies for Data Exchange in the Maritime HF Frequency Band 498
S. Valcic, Z. Mrak, D. Kezic

A Modular Simulation Framework for Analyzing Coexistence Issues in Wireless Radio Networks in Close Spatial Proximity 503
R. Neumeier, G. Ostermayer

On the Performance of DoA Estimation Algorithms in Cognitive Radio Networks:- A New Approach in Spectrum Sensing 507
T. Dhope, D. Simunic

Design and Implementation of SDR Based QPSK Modulator on FPGA 513
T. Kazaz, M. Kulin, M. Hadzialic

Analysis Methodologies of Assessment of Impact Teleworking on the Decrease Carbon Emissions of Physical Mobility 519
M. Berkovic, A. Kosovac, A. Dzebo

Computers in Education

Tablet Learning Environment in iSchool Vezica – *Invited Paper* 526
V. Nikolic, L. Zima Krnelic, D. Kolaric, M. Nikolic

Are We Trendy? 529
H. Jaakkola, B. Brumen, J. Henno, J. Mäkelä

Concept Maps in Computer-Assisted Knowledge Assessment 538
J. Petrovic, B. Jeren, P. Pale

Tracking the Roots of Plagiarism - Results of the Initial International Survey 543
D. Lukac, M. Cicin-Sain

Considerations on the Evolution of Attention Paid to Education in Romania Compared to EU, in the 1998-2010 Period 547
M. Zaharia, D. Enachescu

Synergy of e-Science and Libraries as a Support to Higher Education Institutions in Croatia 553
R. Vrana

Modes of Use and Preservation of Digital Information Resources as a Support to the Learning Process at the Faculty of Humanities and Social Sciences in Zagreb 559
R. Vrana

Towards a Framework for Usability Evaluation of Educational Artifacts Created with Web 2.0 Applications: A Pilot Study 565
T. Orehovacki, N. Zajdela Hrustek

Parameter Identification of Transfer Functions Using MATLAB 571
M. Fruk, G. Vujisic, T. Spoljaric

Web Interactive Learning - Case Study: Faculty of Economics of Josip Juraj Strossmayer University in Osijek 577
M. Lamza-Maronic, J. Glavas

The Role of Computerisation and Automation of School Libraries Management in Teaching Information Literacy on the Example of Curriculum Unit Online Library Catalogues 581
D. Vincek

Design and Development of School Assets Management System 587
A. Vladimirou, A. Kokkinaki

Data Mining in Hybrid Learning: Possibility to Predict the Final Exam Result 591
J. Gamulin, O. Gamulin, D.Kermek

Students' Attitudes to the Use of Open Source Technology in Education 597
K. Pavlina, B. Petrovic

More Efficient Training of Teachers of Informatics Using Modern Information-Communication Technology in Croatian Education and Teacher Training Agency 600
E. Ban, T. Bronzin

Student's Level of ICT Literacy by Study Groups on Faculty of Philosophy, University of Mostar 605
A. Ivankovic, S. Spiranec, D. Miljko

E_Learning vs. Multimedia (Ivica & Marica - Hansel & Gretel) 610
K. Bedi, N. Zajdela Hrustek, T. Vrbanec

ICT Learning Experience in the Multilingual and Multicultural Environment of ERASMUS IP TAARLoG Project 616
J. Zufic, H. Cvilinder

Incorporating Social Network Workshops in Elementary School Curriculum 622
M. Drazenovic

Mathematical Modelling, Computers and GeoGebra in University and College Mathematics Education 625
T. Sekulic, D. Takaci

Application of Gantt Charts in the Educational Process 631
A. Bednjanec, M. Filipovic Tretinjak

PC and Microcontrollers Applications in the Laboratory Exercises of the Electrical Engineering 636
O. Tasic, V. Tasic, D. Brodic, V. Despotovic, M. Pavlov, D. Milivojevic

On-line e-Learning Platform Supporting Education and Practice of Accountants in EU Space 641
D. Paľová, M. Vejacka

Choosing Free Library Software: Experiences of the Faculty of Humanities and Social Studies in Zagreb 647
T. Conc

Development of Information Competencies via Process Modelling and ICT Integration 654
L. Révészová

Research Assistance Library Service - In between Formal and Informal Learning 660
B. Marijanovic, S. Simara, J. Lisek

Gaming in the Adolescent's Population - Pilot Research 665
J. Zufic, D. Kiralj

Compact Flexible Router Based Remote Experimenting System 671
T. Szepe, S. Toth, Z. Gingl

Web 2.0 Tools in Croatian Higher Education: an Overview 676
M. Carapina, D. Bjelobrk, S. Duk

Using Microsoft Project for Project Management in Non-Governmental Organisations 681
D. Kazovic, D. Valencic

Heuristic Evaluation in the Human Computer Interaction Course 685
D. Boskovic, N. Borovina

Motherboard and User Experience 689
J. Tomljanovic, T. Turina, E. Krelja-Kurelovic

QR Codes in Library - Does Anyone Use Them? 695
I. Jelic, D. Vrkic

Systems of Suport for Persons with Complex Communication Needs 700
Z. Stancic, J. Skrinjar, Z. Car, I. Lovrek, V. Vlahovic Stetic, J. Pibernik

Framework for Web Application Domain Knowledge Extraction 705
I. Rozanc

The Influence of Social Networks on Student's Evaluation and Results 711
A. Skendzic, B. Kovacic, D. Valencic

Will Universities and University Teachers Become Extinct in Our Bright Online Future? 716
J. Henno, H. Jaakkola, J. Mäkelä, B. Brumen

Cloud Computing in Education and Student's Needs 726
E. Krelja Kurelovic, S. Rako, J. Tomljanovic

Mobile Phone in the Classroom 732
Z. Pozgaj, V. Bosilj Vuksic

Future-Oriented Education with a Modern Flexible Production Unit 737
C. Ungermanns, W. Werth

An Approach to the Evaluation of Embedded Engineering Study Programs 742
I. Kastelan, M. Barak, V. Sruk, M. Anastassova, M. Temerinac

BYOD: a Challenge for the Future Digital Generation 748
I. Pogarcic, M. Gligora Markovic, V. Davidovic

ICT Didactics: The New Study Discipline is Needed 753
M. Krasna, B. Bedrac

Computer Science Curriculum 2013 - An Example 759
V. Jovanovic

Determination of the Torque-Speed Characteristic of Induction Motor in Electric Machinery Education 765
R. Buinac, V. Tomljenovic

Relevance and Realization of Communication between Information and Communication Technology Employers and Educational Sector 770
M. Rotim

The Influence of Situational Factors on Accepting e-Learning Technology by University Teachers 776
S. Babic

The Next Generation of University Information Systems - TTI Version for XXI Century 782
B. Misnevs, N. Fila

Preparedness of Teachers and Learning Materials for e-Learning 787
N. Lazic, J. Klindzic, M. Odak

The Strategic Oriented Information Science Education in the Function of Gaining Strategic Knowledge 792
M. Cicin-Sain, S. Vukmirovic, M. Cicin-Sain

E-learning Controversy in Practical Application 798
T. Bratina, M. Duh, M. Krasna

COB: Online Educational Tool for Collaborative Ontology Building 804
M. Jovanov, M. Gusev, D. Martinovikj

Object-oriented Programming for Graphical Modeling on the Example of Logistics Network Design 810
S. Vukmirovic, D. Kovac, I. Meznaric

Calculating Duration and Convexity of Bonds Using Excel 816
Z. Prohaska, B. Olgic Drazenovic, V. Saric

PaintArt - An Interactive Computer Software for Education of Visual Arts 820
Z. Prohaska, I. Uroda

Research on the Frequency of Use of Computers and the Internet in Center Elementary School in Pula 824
B. Kontosic, A. Kontosic

Exploring the Inpact of Work on the Computer on the Helth of Pupils of Center Elementary School in Pula 830
B. Kontosic, A. Kontosic

Information Literacy Instruction: Self-Education through e-Tutorials 835
A. Papic

Computers in Technical Systems

New Wave of FPGA Prototyping for System-on-Chip Designs – *Invited Paper* 839
H. Mlinaric

Model-based Verification of the SIP Invite Scenario 841
S. Matetic, M. Bagic Babac

Improved Automatic DTV/STB Menu Navigation for Functional Verification 847
V. Marinkovic, B. Kordic, M. Popovic, V. Pekovic

Reliability Sensitivity Analysis for Yahoo! Pipes Mashups 851
G. Delac, M. Silic, K. Vladimir

Requirement Bottlenecks in a Cloud Based SCADA System 857
D. Sutic, B. Atlagic

Impact of Control Flow Blocks Granularity on Custom Processor Design Time 863
D. Ivosevic, V.Sruk

Numerical Relay Protection Coordination Using Simulation Software 869
S. Nikolovski, M. Havranek, P. Maric

Engine Fault Detection for Piston Engine Aircraft 874
D. Miljkovic

Active Noise Reduction for General Aviation Aircraft Using Conventional Headsets 880
D. Miljkovic

Reducing Off-road Vehicle Seat Vibrations Using Pneumatic Active Suspension and Fuzzy Logic Based Controller 886
A. Salihbegovic, A. Salihbegovic, M. Hadziselimovic, Z. Avdagic

Comparative Analysis Between Methodologies and Their Software Realizations Applied to Modeling and Simulation of Industrial Thermal Processes 891
B. Dimitrov, H. Nenov, A. Marinov

Twenty Years of Monitoring and Control of Electricity Consumption in RTB Bor, Serbia 896
V. Tasic, V. Despotovic, D. Brodic, M. Pavlov, D. Milivojevic

Remote Control of Model Vehicles Using Android Mobile Devices 901
B. Vunderl, M. Zagar, D. Basch

Optimal Control of a Family House Heating System 907
M. Vasak, A. Martincevic

Model Predictive Control of a Heating, Ventilation and Air Conditioning System 913
M. Vasak, A. Starcic

Tuning of Model Predictive Controller for Wind Turbine Load Reduction 919
G. Banjac, V. Spudic, M. Baotic

Control of the Grid Side Converter in a Wind Turbine 925
T. Hadjina, M. Baotic, N. Peric

A Leader-Follower Approach to Formation Control of Multiple Non-Holonomic Mobile Robots 931
T. Petrinic, I. Petrovic

One Variant of Self-tuning DC Motor Adaptive Controller 936
Z. Juric, H. Siljak

An Experience on Manufacturing Execution System in the Field of Metals Industry 942
J. Novak

Intelligent Systems

Let the Machines Do. How Intelligent is Artificial Intelligence? – *Invited Paper* 947
H.-D. Burkhard

Some Security Considerations on Crowd-Sourcing an Ontology 953
M. Migliardi, E. Riccomagno

Bayesian Posterior Probability Classification of Colorectal Cancer Probed with Affymetrix Microarray Technology 959
M. Simjanoska, A. Madevska Bogdanova, Z. Popeska

Feature Extraction From Electroencephalographic Records Using EEGFrame Framework 965
A. Jovic, L. Suc, N. Bogunovic

Technique for Indirect Analysis of Domestic Power Consumers Based on Power Pattern Recognition for Smart Energy Metering 971
N. Nikolaev, Y. Rangelov, V. Valchev, A. Marinov

Testing of Several Overlapping Optimization Methods for Bin-Packing Problem 975
T. Rolich, D. Domovic, D. Grundler

Investigation of Coevolutionary Approach in Gene Regulatory Network Inference 981
D. Komlen, D. Jakobovic

Evolution of Vehicle Routing Problem Heuristics with Genetic Programming 988
M. Gulic, D. Jakobovic

Multimedia Stimuli Databases Usage Patterns: A Survey Report 993
M. Horvat, S. Popovic, K. Cosic

Navigational Evaluation of Breadth First Search Spanning Trees 998
D. Helic, M. Strohmaier, W. Wójcik

Comparison of the Nodes of Knowledge Method with Other Graphical Methods for Knowledge Representation 1004
A. Jakupovic, M. Pavlic, A. Mestrovic, V. Jovanovic

Identification of the Global Text Skew Based on the Convex Hulls 1009
D. Brodic, D. Milivojevic, V. Tasic, Z. Milivojevic

Indexing Positively Constructed Formulas 1015
A. Larionov, I. Terekhin

On a Method of Solution the Equality Problem for Positively Constructed Formulas 1019
I. Terekhin, A. Larionov

The Calculus of Positively Constructed Formulas, its Features, Strategies and Implementation 1023
A. Larionov, A. Davydov, E. Cherkashin

Logical Programming and Data Mining as Engine for MDA Model Transformation Implementation 1029
A. Sokolov, I. Terekhin, E. Cherkashin, S. Butakov, A. Larionov

Building Process of SCT Generators 1037
D. Radosevic, I. Magdalenic, T. Orehovacki

A Proportional Distribution of AUVs under Decentralized Control 1043
N. Nagul

A P300-Based Brain-Computer Interface: Towards a Simpler Approach 1049
F. Melinscak, A.B. Jerbic, M. Cifrek

From Digitisation Process to Terminological Digital Resources 1053
S. Seljan, I. Dundjer, A. Gaspar

Comparative Study of Color Histograms as Global Feature for Image Retrieval 1059
V. Ljubovic, H. Supic

Intelligent Traffic Recommender System 1064
L. Seric, M. Jukic, M. Braovic

Cloning Fuzzy Inference System Component Behavior with an Artificial Neural Network Component 1069
D. Boskovic, Z. Avdagic

Principal Component Analysis of Fatigue Strength 1073
L. Seric, K. Korun Curic, M. Susnjar

Agile Methods for Cloud Computing 1079
S. Kalem, D. Djonko, D. Boskovic

Generation Technique for Django MVC Web Framework Using the Stratego Transformation Language 1084
D. Annenkov, E. Cherkashin

Information Systems Security

Security Evaluation in Cloud 1088
O. Mirkovic

Security Assessment of Virtual Machines in Open Source Clouds 1094
A. Donevski, S. Ristov, M. Gusev

Security Analysis of Croatia's Receipt Registration and Verification System 1100
S. Gros

Conceptual Information Modelling within the Contemporary Information Security Policies 1105
A. Klaic, M. Golub

Influence of Established Information Security Governance and Infrastructure on Future Security Certifications 1111
I. Sedinic, Z. Lovric

Knowledge Based Authentication Requirements 1116
K. Skracic, P. Pale, B. Jeren

A New Method for the Identification of Proactive Information Security Management System Metrics 1121
K. Hajdarevic, P. Allen

Cyber Crime and Violation of Copyright 1127
B. Vukelic, K. Skaron

Business Intelligence Systems

The Generalized Physical Design Problem in Data Warehousing Environment: Towards a Generic Cost Model – *Invited Paper* 1131
L. Bellatreche, S. Breß, A. Kerkad, A. Boukorca, C. Salmi

Analysis of World Bank Indicators for Countries with Banking Crises by Subgroup Discovery Induction 1138
D. Gamberger, D. Lucanin, T. Smuc

Transformation of OWL Ontology Sources into Data Warehouse 1143
M. Gulic

Using Big Data and Sentiment Analysis in Product Evaluation 1149
L. Banic, A. Mihanovic, M. Brakus

Model of the Business Intelligence System for Credit Risk Analysis 1155
T. Gazdic, Lj. Kascelan

The Integral OLAP-Model of the Emergency Risk Estimation in the Case of Krasnoyarsk Region 1161
A. Korobko, T. Penkova, V. Nicheporchuk, A. Mihalev

Digital Economy – 10th Alpe Adria Danube Universities Initiative (ALADIN)

Business Valuation in Oil & Gas Industry: New Challenges 1167
S. Brlecic Valcic, B. Crnkovic-Stumpf, J. Katunar

ePrivacy Rules and Data Processing in Users' Terminal Equipment: a Croatian Experience 1173
N. Gumzej, S. Grgic

The Cost of Information Security Management in Offshore SMB ICT Companies 1180
S. Aksentijevic, E. Tijan, D. Cisic

ICT Contribution to the Economic Development of Some SEE Countries in Transition 1185
M. Vidas-Bubanja

Electronic Commerce in Romania Features and Dynamics 1191
D. Enachescu, M. Zaharia

Web 2.0 Tools Support for SME Start-up Projects 1196
I. Ogrizek Biskupic, I. Vrecko, K. Jurina

e-Maintenance for Ship Electrical Propulsion Plants 1202
J. Celic, A. Cuculic

Implementing Responsive Web Design for Enhanced Web Presence 1206
S. Mohorovicic

Government, Local Government, Public Services

Measuring Success of Implementation County Development Strategy by Using Balanced Scorecard Method 1211
R. Zdjelar

Effects of e-Government in Croatia 1217
J. Klasinc

Regulating IT Projects and Information Systems Audit in Public and State Administration of the Republic of Croatia 1220
B. Cerin, G. Vojkovic

MIPRO Junior – Student Papers

The Development of Charging Stations for Electric Vehicles: A Solution or a Problem? 1226
I. Grdic, V. Kirincic, S. Skok

Monitoring of Low Voltage Facilities Using Synchronized Phasor Measurements 1231
D. Bulic, R. Jancic, V. Kirincic, S. Skok

The Educational Model of the System Integrity Protection Scheme 1235
I. Sterpin, V. Kirincic, S. Skok

Stochastic Simulation of the Smart Grid and Demand Response Implementations on a City-wide Scale 1241
B. Morvaj, B. Jurisic, N. Holjevac

Framework for Designing a Smart Grid Testbed 1247
B. Jurisic, N. Holjevac, B. Morvaj

Optimal Scheduling of a CHP System with Energy Storage 1253
L. Majic, I. Krzelj, M. Delimar

Integration of Advanced Additional Capabilites to a Modern IPTV Platform: a Technical Study 1258
G. Macut, N. Drljevic

Benchmarking of Parallel Ray Tracing Using Different Load Granularity 1264
E. Mujagic, A. Demir, N. Omerbegovic, E. Mujalo, M. Kozar, N.Nosovic

A HTTP-Enabled Cryptographically Secure Hardware Random Number Generator 1268
M. Bozicevic, A. Radovan

Parallelization of the Ant Colony Optimization for the Shortest Path Problem using OpenMP and CUDA 1273
M. Arnautovic, M. Curic, E. Dolamic, N. Nosovic

Protein Database Search Optimization Based on CUDA and MPI 1278
D. Pavlovic, R. Vaser, M. Korpar, M. Sikic

Parallel Implementation of the Ant Colony System Algorithm for Automated Combinational Logic Circuits Design Using CUDA Architecture 1281
D. Bajgoric, A. Porovic, T. Handanovic, N. Nosovic

Performance Analysis of the Parallelized Matrix Multiplication Using C# Threading 1285
M. Delic, E. Omerovic, A. Sokolovic, N. Nosovic

Comparison of a Sequential and a MapReduce Approach to Joining Large Datasets 1289
M. Lalic, E. Memic, F. Kesan, E. Gondzic, N. Smajic, N. Nosovic

Acceleration of DCT Transformation in JPEG Image Conversion 1292
N. Frid, H. Mlinaric, J. Knezovic

A Preliminary Study of Croatian Language Syllable Networks 1296
K. Ban, I. Ivakic, A. Mestrovic

Performance Comparison of Sequential and Parallel Execution of the Ant Colony Optimization Algorithm for Solving the Traveling Salesman Problem 1301
E. Fejzagic, A. Oputic

Parallelization and Performance Analysis of the Simulated Annealing Algorithm for Graph Coloring Problem 1306
L. Becirspahic, A. Djulovic, N. Nosovic

Performance Analysis of the Traveling Salesman Problem Optimization Using Ant Colony Algorithm and OpenMP 1310
A. Milanovic, M. Duranovic, N. Nosovic

Closed-Loop System for Assisted Strength Exercising 1314
T. Pozaic, M. Varga, D. Dzaja, S. Zulj