# 2015 12th International Conference on Information Technology - New Generations

**ITNG 2015**

## Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Welcome Message from the ITNG 2015 General Chair</td>
<td>xv</td>
</tr>
<tr>
<td>Conference Organization</td>
<td>xvi</td>
</tr>
<tr>
<td><strong>Session: Information Systems and Internet Technology</strong></td>
<td></td>
</tr>
<tr>
<td>A Context-Aware Paratransit System</td>
<td>3</td>
</tr>
<tr>
<td>Chyi-Ren Dow, Zhen-He Ye, and Po-Yu Lai</td>
<td></td>
</tr>
<tr>
<td>Mobile Agent-Based Service Migration</td>
<td>8</td>
</tr>
<tr>
<td>Yanjun Zuo and Jigang Liu</td>
<td></td>
</tr>
<tr>
<td>A Prototype Spatio-temporal Database Built on Top of Relational Database</td>
<td>14</td>
</tr>
<tr>
<td>Yun Tian, Yanqing Ji, and Jesse Scholer</td>
<td></td>
</tr>
<tr>
<td>Bitmap-Based On-line Analytical Processing of Time Interval Data</td>
<td>20</td>
</tr>
<tr>
<td>Philipp Meisen, Diane Keng, Tobias Meisen, Marco Recchioni, and Sabina Jeschke</td>
<td></td>
</tr>
<tr>
<td>Accuracy Improvement for Spatial Composition-Based End-to-End Network</td>
<td>27</td>
</tr>
<tr>
<td>Measurement</td>
<td></td>
</tr>
<tr>
<td>Go Hasegawa, Yusuke Iijima, and Masayuki Murata</td>
<td></td>
</tr>
<tr>
<td>Financial Measuring of Incremental Deliveries in Software Projects—Finding a Model That Can Answer: How Much is Worth to Split a Project into Iterations?</td>
<td>33</td>
</tr>
<tr>
<td>Sandro Magalhaes Manteiga, Andre Gomes Lamas Otero, Adilson Marques da Cunha, and Luiz Alberto Vieira Dias</td>
<td></td>
</tr>
<tr>
<td>An Empirical Study on Performance Measures for Online Advertising</td>
<td>38</td>
</tr>
<tr>
<td>Ben McInroy, Wenying Feng, and Yuanyi Pan</td>
<td></td>
</tr>
<tr>
<td>A Fault Tolerant Election Protocol in Asynchronous Distributed Systems with Fail-Stop Model</td>
<td>44</td>
</tr>
<tr>
<td>Sung-Hoon Park, Sang-Gwon Lee, and Su-Chang Yu</td>
<td></td>
</tr>
<tr>
<td>An Analysis on the Factors Related to the Adoption of KS Tools</td>
<td>49</td>
</tr>
<tr>
<td>Angela Siew-Hoong Lee, Tong-Ming Lim, and Lip-Sam Thi</td>
<td></td>
</tr>
<tr>
<td>Storage Optimization for Non Interactive Dining Cryptographers (NIDC)</td>
<td>55</td>
</tr>
<tr>
<td>Pablo Garcia, Jeroen Van de Graaf, Germán Montejano, Daniel Riesco, Narayan Debnath, and Silvia Bast</td>
<td></td>
</tr>
</tbody>
</table>
Investigate SPRON Convergence Time Using Aggressive Chord and Aggressive AP-Chord

Chin Teck Min and Lim Tong Ming

Applying Scrum in an Interdisciplinary Project Using Big Data, Internet of Things, and Credit Cards


Particle Swarm Optimization for the Minimization of Power Losses in Distribution Networks

Joseph B. Abugri and Marc Karam

Session: Model Driven Data Science

On the Generation of Full-Fledged Code from UML Profiles and ALF for Complex Systems

Federico Ciccozzi, Antonio Cicchetti, and Mikael Sjödin

SMARTCore: Boosting Model-Driven Engineering of Embedded Systems for Multicore

Federico Ciccozzi, Diarmuid Corcoran, Tiberiu Seceleanu, and Deflef Scholle

IFA2S—In-flight Awareness Augmentation Systems


Nanosatellite Event Simulator Development Using Scrum Agile Method and Safety-Critical Application Development Environment


Internet of Things and the Credit Card Market: How Companies Can Deal with the Exponential Increase of Transactions with Connected Devices and Can Also be Efficient to Prevent Frauds


A Fuzzy Decision Support Approach for Model-Based Tradeoff Analysis of Non-functional Requirements

Mehrdad Saadatmand and Sahar Tahvili

Cluster Analysis and Artificial Neural Networks: A Case Study in Credit Card Fraud Detection

Emanuel Minada Carneiro, Luiz Alberto Vieira Dias, Adilson Marques da Cunha, and Lineu Fernando Stege Mialaret
On Bias Corrected Estimators of the Two Parameter Gamma Distribution ......................................................... 127
Ashok K. Singh, Anita Singh, and Dennis J. Murphy

Session: Security and Privacy in Next Generation Networks
Implementation Vulnerability Associated with OAuth 2.0—A Case Study on Dropbox ........................................ 135
Bruce Wu, Tung Nguyen, and Mohammad Husain
A Generic Framework for EEG-Based Biometric Authentication ................................................................. 139
Aditya Sundararajan, Alexander Pons, and Arif I. Sarwat
Vectorization of Poly1305 Message Authentication Code ........................................................................... 145
Martin Goll and Shay Gueron
Using Unrestricted Mobile Sensors to Infer Tapped and Traced User Inputs .................................................... 151
Trang Nguyen
Safeguarding Web Surfing with URL Blacklisting .......................................................................................... 157
Tara Baniya, Dipesh Gautam, and Yoohwan Kim
Data Warehousing Based Computer Forensics Investigation Framework ..................................................... 163
Waleed Halboob, Ramlan Mahmod, Muhammad Abulaish, Haider Abbas, and Kashif Saleem
A Lightweight Key Freshness Scheme for Wireless Sensor Networks ............................................................ 169
Ataullah Ghafoor, Muhammad Sher, Muhammad Imran, and Kashif Saleem
LPSSE: Lightweight Phrase Search with Symmetric Searchable Encryption in Cloud Storage ................................................. 174
Mingchu Li, Wei Jia, Cheng Guo, Weifeng Sun, and Xing Tan
Access Control Model Based on Trust and Risk Evaluation in IDMaaS ....................................................... 179
Fei Liu, Jing Wang, Hongtao Bai, and Huiping Sun
Secure Layered Architecture for Session Initiation Protocol Based on SIPSSO:
Formally Proved by Scyther .............................................................................................................................. 185
Ubaid Ur Rehman and Abdul Ghafoor Abbasi
Privacy-Preserving Mechanism for Monitoring Sensitive Data ........................................................................ 191
Rafael Tomé de Souza and Sergio D. Zorzo
A Novel Approach to Detect Tampered Wireless Network Applications ....................................................... 197
Victor Clincy and Hossain Shahriar
Security and Design Challenges in Cyber-Physical Systems ............................................................................. 200
Yenumula B. Reddy
Analysis of Security Vulnerabilities of Cloud Computing Environment Service Models and Its Main Characteristics .......................................................................................................................... 206
Anteneh Girma, Moses Garuba, and Jiang Li
Analysis of DDoS Attacks and an Introduction of a Hybrid Statistical Model to Detect DDoS Attacks on Cloud Computing Environment ......................................................................................... 212
Anteneh Girma, Moses Garuba, Jiang Li, and Chunmei Liu
Taxonomy of Delegation Model ....................................................................................................................... 218
Amir Ali, Umme Habiba, and Muhammad Awais Shibli
Network Intrusion Detection Using Diversity-Based Centroid Mechanism ................................................................. 224

Muhammad Shafique Gondal, Arif Jamal Malik, and Farrukh Aslam Khan

Relationship between Lucas Sequences and Gaussian Integers in Cryptosystems ........................................................ 229

Aleksey Koval

Analysis of the Scalability and Stability of an ACO Based Routing Protocol for Wireless Sensor Networks ................................................................. 234

Kashif Saleem, Abdelouahid Derhab, Mehmet A. Orgun, and Jalal Al-Muhtadi

Session: Networking and Wireless Communications

Use of Centrality Metrics to Determine Connected Dominating Sets for Real-World Network Graphs ................................................................. 243

Natarajan Meghanathan

SCUMG: Secure Code Update for Multicast Group in Wireless Sensor Networks ................................................................. 249

M.B. Nirmala and A.S. Manjunath

Evaluating the Effect of 3D World Integration within a Social Software Environment ................................................................. 255

Hani Bani-Salameh and Clinton Jeffery

Comparison of Multi-user Timing Offset Resilient Uplink OFDMA Schemes with Optimal Power Control ........................................................................... 261

Jin-Hui Lee, Dong-Jun Na, and Kwonhue Choi

Towards Scalability in Systems with Write Operations in Relational Databases ................................................................. 267

Leonardo José Gomes da Silva, Leandro Guarino de Vasconcelos, Glauco da Silva, and Luiz Eduardo Guarino de Vasconcelos

Design of Low-Cost On-board Auto-tracking Antenna for Small UAS ........................................................................... 273

Sai Ram Ganti and Yoohwan Kim

A Minimum Channel Switch Routing Protocol for Cognitive Radio Ad Hoc Networks ................................................................. 280

Natarajan Meghanathan and Mesafint Fanuel

Low Cost Unmanned Aerial Vehicle Monitoring Using Smart Phone Technology ................................................................. 286

Paul Wong, Duong Nguyen, Ahmed Abukmail, Richard Brown, Robert Ryan, and Mary Pagnutti

Framework for Secure Code Updates for Wireless Sensor Nodes ........................................................................... 292

M.B. Nirmala and A.S. Manjunath

Cluster Based Routing in NDN ........................................................................................................................................... 296

Gaurav Verma, Arun Nandewal, and K. Chandrasekaran

Implementing Packet Transfer in Wireless Networks Using PyGame ........................................................................... 302

Yenumula B. Reddy and Anthony Cherry

Intrusion Detection System against Sink Hole Attack in Wireless Sensor Networks with Mobile Sink ........................................................................... 307

Mohamed Guerroumi, Abdelouahid Derhab, and Kashif Saleem
Session: Wavelets and Validated Numerics

Automatic Detection of Early Esophageal Cancer from Endoscope Image Using Fractal Dimension and Discrete Wavelet Transform .......................................................... 317
  Jumpei Yamaguchi, Akihiko Yoneyama, and Teruya Minamoto

Image Quality Assessment for Measuring the Degradation by Using the Dual-Tree Complex Discrete Wavelet Transform .......................................................... 323
  Hajime Omura and Teruya Minamoto

No-Reference Image Blur Assessment in the DWT Domain and Blurred Image Classification ........................................................................................................ 329
  Akihiko Yoneyama and Teruya Minamoto

Image Compression with Average Interpolating Lifting Scheme on Triangular Lattice .......................................................... 335
  Kensuke Fujinoki

Convolution and Correlation Theorems for Wigner-Ville Distribution Associated with Linear Canonical Transform .......................................................... 341
  Mawardi Bahri and Ryuichi Ashino

Fractional Hilbert Transforms of Biorthogonal Wavelets ........................................................................................................ 347
  Akira Morimoto, Ryuichi Ashino, Kazuma Ikebe, Motoi Tatsumi, and Takeshi Mandai

Reproducible Triangular Solvers for High-Performance Computing ........................................................................................................ 353
  Roman Iakymchuk, David Defour, Sylvain Collange, and Stef Graillat

Session: Software Engineering

An Approach to Business Process Recovery from Source Code .......................................................... 361
  Luiz A. Pacini Rabelo, Antonio F. do Prado, Wanderley L. de Souza, and Luis F. Pires

Fuzzy Time Constraint Propagation Mechanism for Workflow Nets ........................................................................................................ 367
  Joslaine Cristina Jeske de Freitas and Stéphane Julia

A Study of Test Techniques for Integration with Domain Driven Design .......................................................... 373
  Eloisa Cristina Silva Santos, Delano Medeiros Beder, and Rosângela A. Delfosso Penteado

Adaptable Design for Root Cause Analysis of a Model-Based Software Testing Process .......................................................... 379
  Mikko Nieminen and Tomi Räty

Investigating the Link between User Stories and Documentation Debt on Software Projects .......................................................... 385
  Henrique F. Soares, Nicollì S.R. Alves, Thiago S. Mendes, Manoel Mendonça, and Rodrigo O. Spinola

Visual Approach for Change Impact Analysis: A Controlled Experiment .......................................................... 391
  Fernanda M. Delfim, Lilian P. Scatalon, Jorge M. Prates, and Rogério E. Garcia

Identifying Similarity of Software in Apache Ecosystem—An Exploratory Study .......................................................... 397
  Luisa Hernández and Heitor Costa

A System Based on Ontology and Case-Based Reasoning to Support Distributed Teams .......................................................... 403
  Rodrigo G.C. Rocha, Ryan Ribeiro, Dimas Cassimiro, Renan Leandro, Diogo Espinhara, Eduardo Tavares, Amanda Oliveira, Gabriel França, Cleyton Rodrigues, and Silvio Meira
A Software Framework for Identifying the Law of Demeter Violations .................................................................409
   Roberto P. Mellado, Gabriel de S.P. Moreira, Adilson M. da Cunha, and Luiz Alberto V. Dias

A Fuzzy Logic Model for Predicting the Development Schedule of Software Projects ........................................415
   Cuauhtémoc López-Martín, Arturo Chavoya, and Maria Elena Meda-Campaña

MuAsmetal: An Experimental Mutation System for Asmetal .................................................................421
   Osama Alkhratha and Jameleddine Hassine

Criteria and Guidelines to Improve Software Maintainability in Software Product Lines ................................427
   Gustavo Vale, Ramon Abilio, André Freire, and Heitor Costa

Detecting Code Smells in Software Product Lines—An Exploratory Study .........................................................433
   Ramon Abilio, Juliana Padilha, Eduardo Figueiredo, and Heitor Costa

Making GUI Testing Practical: Bridging the Gaps .................................................................................................439
   Pekka Aho, Matias Suarez, Atif Memon, and Teemu Kanstrên

   Jailson Brito, Vaninha Vieira, and Adolfo Duran

Using Developers Contributions on Software Vocabularies to Identify Experts ..............................................451
   Katysuco de F. Santos, Dalton D.S. Guerrero, and Jorge C.A. de Figueiredo

Session: High Performance Computer Architecture and Green Computing

Light VN: A Light-Weight Testbed for Network and Security Experiments .....................................................459
   Quamar Niyaz, Weiqing Sun, Rao Xu, and Mansoor Alam

High-Performance Biomedical Association Mining with MapReduce .............................................................465
   Yanqing Ji, Yun Tian, Fangyang Shen, and John Tran

Integrated Design Patterns for Control System Analysis and Synthesis ..........................................................471
   William Babikian, Zechariah Gajadhar, Anjali Dhobale, Michael Rubenacker, and Shouling He

Evaluation of Online Power-Down Algorithms ................................................................................................473
   James Andro-Vasko, Wolfgang Bein, Dara Nyknahad, and Hiro Ito

Optimizing Border Patrol Operations Using Unmanned Aerial Vehicles ......................................................479
   Doina Bein, Wolfgang Bein, Ashish Karki, and Bharat B. Madan

Smart Grid Security Risks .................................................................................................................................485
   Jeffrey Anu, Rajeev Agrawal, Cameron Seay, and Sambit Bhattacharya

Controlling the Distributed Energy Resources Using Smart Grid Communications ........................................490
   Md. Masud Rana and Li Li

Distributed Generation Monitoring of Smart Grid Using Accuracy Dependent Kalman Filter with Communication Systems .........................................................................................496
   Md. Masud Rana and Li Li

Kalman Filter Based Microgrid State Estimation Using the Internet of Things Communication Network .........................................................501
   Md. Masud Rana and Li Li
Joint Write-Once-Memory and Error-Control Codes .................................................................506

Xudong Ma

Session: Innovative Technologies and Practices in Education and Simulation

Critical Success Factors for Location-Based Services in Saudi Arabia ..................................................515

Soumayah F. Alghannam, Mona I. Alawadhi, Dalal A. Alwedaah, and Mutlaq B. Alotaibi

Vector Cryptography System: An Approach for the Analysis of Linear Arithmetic Spaces ..................................522

Fausto Abraham Jacques Garcia and Sandra Luz Canchola Magdaleno

GLIESE—A Framework for Experimental Game Development .................................................................528

Federico Améndola, Martín Fernandez, and Liliana Favre


Muhammad Nadeem, Edward B. Allen, and Byron J. Williams

Training through Simulation for Digital Battlefield ..................................................................................540

Cristian Barria, Cristian Rusu, Claudio Cubillos, and Jaime Diaz

Heuristic Evaluation as a Complement to Usability Testing: A Case Study in Web Domain .................................................................546

Freddy Paz, Freddy A. Paz, Daniela Villanueva, and Jose Antonio Pow-Sang

A Multiple View Interactive Environment to Support MATLAB and GNU/Octave Program Comprehension .................................................................552

Ivan de M. Lessa, Glaucio de F. Carneiro, Miguel Jorge T.P. Monteiro, and Fernando Brito e Abreu

Session: Future of Digital Health

The Role of mHealth Applications in Societal and Social Challenges of the Future ..................................................561

Maša Isakovic, Jaka Cijan, Urban Sedlar, Mojca Volk, and Janez Bešter

Opportunities and Challenges of Internet-Based Health Interventions in the Future Internet ........................................................................................................567

Ai Keow Lim and Christoph Thuemmler

Healthcare Privacy: How Secure Are the VOIP/Video-Conferencing Tools for PHI Data? ..................................................574

Sweta Gurung and Yoohwan Kim

Future Internet in Surgical Operating Theatre ..........................................................................................580

Ahmed Elsherbiny Hasan, Armin Schneider, Alois Paulin, and Christoph Thuemmler

Automatic Fall Detection Using Mobile Devices .................................................................................586

Melissa K. Mulcahy and Stan Kurkovsky

Cloud Computing: Digital Forensic Solutions .......................................................................................589

Emi Morioka and Mehrdad S. Sharbaf

Exploring Timing Model Extractions at EAST-ADL Design-Level Using Model Transformations .................................................................595

Alessio Bucaioni, Saad Mubeen, Antonio Cicchetti, and Mikael Sjödin
Enabling Real-Time Context-Aware Collaboration through 5G and Mobile Edge Computing .............................................................. 601
   Swaroop Nunna, Apostolos Kousaridas, Mohamed Ibrahim, Markus Dillinger,
   Christoph Thuemmler, Hubertus Feussner, and Armin Schneider

Session: Data Mining
PERSEC—Middleware for Multiple Encryption in Web Services ......................................................... 609
   Allan Delon Barbosa Araújo and Paulo Caetano da Silva
Dataless Data Mining: Association Rules-Based Distributed Privacy-Preserving Data Mining ................................................................. 615
   Vikas G. Ashok, K. Navuluri, A. Alhafdhi, and R. Mukkamala
Intelligent Mobile Application for Traffic Monitoring ............................................................................ 621
   Mark Smith
Collecting and Mining Big Data for Electric Vehicle Systems Using Battery Modeling Data ...................... 626
   Chung-Hong Lee and Chih-Hung Wu
A Technology-Business-Environment Model for Effective Internet Entrepreneurship Education ................................................................. 632
   Sonya Zhang
Linear Optimization with Fuzzy Objective Function and Constraints ....................................................... 638
   Ibraheem Alolyan
Parental Awareness and Mediation of Children’s Internet Use in Kuwait .................................................. 640
   Samir N. Hamade
Low Birth Weight Prediction Based on Maternal and Fetal Characteristics ........................................... 646
   Mali Abdollahian and Nadeera Gunaratne
Using the Web 1T 5-Gram Database for Attribute Selection in Formal Concept Analysis to Correct Overstemmed Clusters ........................................ 651
   Guymon R. Hall and Kazem Taghva

Session WB2: Potpourri
Automated Extraction Information System from HUDs Images Using ANN ........................................ 657
   Luiz Eduardo Guarino de Vasconcelos, André Yoshimi Kusumoto,
   Nelson Paiva Oliveira Leite, and Cristina Moniz Araújo Lopes
Change Detection in Satellite Images Using Self-Organizing Maps .......................................................... 662
   Michael D. L. Santos, Elcio H. Shiguemori, Rodrigo L. M. Mota, and Alexandre C. B. Ramos
Improved Histogram-Shifting-Imitated Reversible Data Hiding Scheme ............................................ 668
   Pyung-Han Kim, Dae-So Kim, and Kee-Young Yoo
An Obstacle Classification Method Using Multi-feature Comparison Based on 2D LIDAR Database ......................... 674
   Moohyun Lee, Soojung Hur, and Yongwan Park
An Experiment of Mutual Interference between Automotive LIDAR Scanners ....................................... 680
   Gunzung Kim, Jeongsook Eom, and Yongwan Park
LIVEIA: A Light-Based Immersive Visualization Environment for Imaginative Actualization ................................................................. 686  
Liane Gabora

GPU Based Sound Simulation and Visualization ........................................................................................................ 692  
Torbjorn Loken, Sergiu M. Dascalu, and Frederick C. Harris

Qubits or Symbolic Substitutions for General-Purpose Quantum Computing? ......................................................... 698  
C.H. Wu

A Boltzmann Machine Implementation for the D-Wave ........................................................................................................... 703  
John E. Dorband

Constructing 2D Shapes by Inward Denting ................................................................................................................ 708  
Laxmi P. Gewali and Pratik Hada

Session: Posters

Deadlocks in Different Operating Systems .......................................................................................................................... 717  
Helidon Karçanaj, Edra Bumci, Igli Tafa, and Julian Fejzaj

Facebook Privacy Management Simplified ...................................................................................................................... 719  
Shih-Wei Fang, Dananjaya Rajamanthri, and Mohammad Husain

Interest Flooding Attack Countermeasures Assessment on Content Centric Networking ........................................ 721  
Matteo Virgilio, Guido Marchetto, and Riccardo Sisto

Android vs iOS Security: A Comparative Study .................................................................................................................... 725  
Ibtisam Mohamed and Dhiren Patel

Information Security Culture Critical Success Factors ...................................................................................................... 731  
Mohammed A. Alnatheer

Strategy as a Prerequisite of Enterprise Web 2.0 Implementation .......................................................................................... 736  
Fayez Hussain Alqahtani and Ayed Said Alwadain

A Model of the Factors Influencing Enterprise Architecture Evolution in Organisations ................................................ 740  
Ayed Said Alwadain and Fayez Hussain Alqahtani

E-commerce Concerns—Latin American Factors in Transactional Websites .............................................................. 744  
Jaime Díaz Arancibia, Cristian Rusu, Cristian Barria, and César Collazos

A Conceptual Model for Customer Lock-in Effect in Electronic Business ........................................................................ 746  
Mozhdeh Sadighi, Mohammad Mahdi Ghobadi, and Seyyed Hossein Hasanpour Matikolaee

Adopting Collaborative Workflow Pattern: Lesson Learned ................................................................................................. 751  
Antonio Capodieci, Giuseppe Del Fiore, and Luca Mainetti

Implementations of File Locking Mechanisms, Linux and Windows ...................................................................................... 756  
Nevila Xoxa, Aldiger Mehilli, Igli Tafa, and Julian Fejzaj

The Simulation of Round Robin and Priority Scheduling Algorithm .................................................................................... 758  
Alban Karapici, Enri Feka, Igli Tafa, and Alban Allkoçi

Evaluation of Accomplishment of DO-178C Objectives by CMMI-DEV 1.3 ............................................................................... 759  
Alan Ferreirós and Luiz Alberto Vieira Dias
A Case Study Using Testing Technique for Software as a Service (SaaS) ................................................................. 761
Alexandre Chaves da Silva, Lucas Roberto Correa, Luiz Alberto Vieira Dias,
and Adilson Marques da Cunha

An Attempt to Find Information for Multi-dimensional Data Sets ................................................................. 763
Yong Shi and Sunpil Kim

Using Hadoop on the Mainframe: A Big Solution for the Challenges of Big Data ........................................... 765
Cameron Seay, Rajeev Agrawal, Anirudh Kadadi, and Yannick Barel

Using Personas to Support the Goals in User Stories ................................................................. 770
Pankaj Kamthan

Risk Management Lifecycle Implementation Services in SOA ................................................................. 771
Erasmo Leite Monteiro and Paulo Caetano da Silva

Experiment Report on the Implementation of Agile Testing ................................................................. 772
Danielle Amaral Menéndez, Elisa Sousa Menendez, Thiers Garretti Ramos Sousa,
and Paulo Caetano da Silva

Project Management Using the Scrum Agile Method: A Case Study within a Small
Enterprise ......................................................................................................................... 774
Breno Lisi Romano and Alan Delgado da Silva

Deploying Integrated Environment for Software Testing Tools ................................................................... 777
Breno Lisi Romano, Ricardo Bragagnolle de Souza, and Adilson Marques da Cunha

Deadlock-Freeness Scenarios Detection in Web Service Composition .......................................................... 780
Lígia Maria Soares Passos and Stéphane Julia

Hardware Development: Agile and Co-Design ................................................................................................. 784
Glaydson Luiz Bertoze Lima, Guilherme Augusto Lopes Ferreira, Osamu Saotome,
Adilson Marques da Cunha, and Luiz Alberto Vieira Dias

Modeling Recursive Search Algorithms by Means of Hierarchical Colored Petri Nets
and CPN Tools .................................................................................................................. 788
Clarimundo Machado Moraes Júnior, Rita Maria Silva Julia, and Stéphane Julia

A Parallel GPU Implementation of the Timber Wolf Placement Algorithm .......................................................... 792
Ahmad Al-Kawam and Haidar M. Harmanani

Applying the Method of Diverse Redundancy in Cloud Based Systems for Increasing
Reliability ........................................................................................................................................ 796
Seilkhan Boranbayev, Sanzhar Altayev, and Askar Boranbayev

Applying Data Mining Techniques to Intrusion Detection ............................................................................ 800
Jonathon Ng, Deepi Joshi, and Shankar M. Banik

Implementation of Security Systems for Prevention of Loss of Information
at Organizations of Higher Education ........................................................................................................ 802
Askar Boranbayev, Mikhail Mazhitov, and Zhanat Kakhanov

Author Index ............................................................................................................................................. 805