# Table of Contents

Foreword ........................................................................................................................................ iii

Conference Organization ............................................................................................................ iv

How to make an information elephant dance

*Dr. Cecilia Claudio* ..................................................................................................................... 1

Impact! The Challenge of Industrial Research in Computer Science in a web 2.0 world

*Dr. Laura Haas* ......................................................................................................................... 2

Building Global Ecosystem for Collaborative Computing Research and Education

*Dr. Yi Deng* ................................................................................................................................. 3

Applications I

Transformations for Rapid Prototyping of Time-critical Applications

*Shi-Kuo Chang, Zhoulan Zhang, Colin J. Ihrig, Paolo Maresca, Valentina Ternelli* … 4

Case Study: Applying Business Process Management Systems (S)

*Gregor Scheithauer, Guido Wirtz* .............................................................................................. 12

Verification of Optimization Algorithms: a Case Study of a Quadratic Assignment

Problem Solver

*Tsong Yueh Chen, Huimin Lin, Robert Merkel, Daoming Wang* ............................................ 16
<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Authors</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Software Engineering Methodology I</strong></td>
<td>Towards a Theoretical Model for Evaluating the Acceptance of Model-driven Measurement Procedures (S)</td>
<td>Nelly Condori-Fernandez, Oscar Pastor</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>Knowledge Transformation from Task Scenarios to View-based Design Diagrams</td>
<td>Nima Dezhkam, Kamran Sartipi</td>
<td>26</td>
</tr>
<tr>
<td></td>
<td>PSPCAT: A PSP Data Collection and Analysis Tool (S)</td>
<td>Chien-Hung Liu, Shu-Ling Chen, Yu-Chun Huang</td>
<td>33</td>
</tr>
<tr>
<td><strong>Software Process Modeling I</strong></td>
<td>A Systematic Method for Process Tailoring Based on Knowledge Reuse (S)</td>
<td>Xiao-yang He, Ya-sha Wang, Yu-xin Teng, Jin-gang Guo</td>
<td>38</td>
</tr>
<tr>
<td></td>
<td>Linking Return on Training Investment with Defects Causal Analysis</td>
<td>Santiago Matalonga, Tomas San Feliu Gilabert</td>
<td>42</td>
</tr>
<tr>
<td></td>
<td>Autonomous Reconfiguration Procedures for EJB-based Enterprise Applications</td>
<td>Thomas Vogel, Jens Bruhn, Guido Wirtz</td>
<td>48</td>
</tr>
<tr>
<td><strong>Software Maintenance and Evolution</strong></td>
<td>Cross-language Clone Detection</td>
<td>Nicholas A. Kraft, Brandon W. Bonds, Randy K. Smith</td>
<td>54</td>
</tr>
<tr>
<td></td>
<td>Software Maintenance Maturity Model (S3\textsuperscript{m}DSS) A Decision Support System</td>
<td>Alain April, Naji Habra, Arnaud Counet</td>
<td>60</td>
</tr>
<tr>
<td></td>
<td>Odyssey-MEC: Model Evolution Control in the Context of Model-Driven Architecture</td>
<td>Chessman Correa, Leonardo Murta, Claudia Werner</td>
<td>67</td>
</tr>
</tbody>
</table>
SE with Computational Intelligence and Machine Learning I

Analyzing the Impact of Attribute Noise on Software Quality Classification
Andres A. Folleco, Taghi M. Khoshgoftaar, Lofton A. Bullard ................................. 73

An Adaptive Neural Network with Dynamic Structure for Software Defect Prediction
Zhiwei Xu, Naeem Seliya, Weibiao Wu ................................................................. 79

Software Engineering Methodology II

Evaluating the Accuracy of Call Graphs Extracted with the Eclipse CDT
Nicholas A. Kraft, Kevin S. Webb ............................................................. 85

A Comparison of Time Tracking Tools for Software Developers
Jouni Lappalainen, Lasse Harjumaa, Jukka Sirvio, Tytti Pokka, Heidi Moisanen, Hanna Leskinen ................................................................. 91

RealSpec: an Executable Specification Language for Modeling Resources
Amir A. Khwaja, Joseph E. Urban ................................................................. 97

Software Testing I

Predicting Change Propagation in Object-oriented Systems: a Control-call Path Based Approach and Associated Tool
Linda Badri, Mourad Badri, Daniel St-Yves .................................................. 103

A Qualitative Assessment of the Reverse Engineering Capabilities of Unit Testing Tools for Understanding Java Programs
Andy Tinkham, Scott Tilley, Tauhida Parveen ................................................ 111

Estimating Event Lifetimes for Distributed Runtime Verification
Christos Kloukinas, George Spanoudakis, Khaled Mahbub ................................ 117

SE with Computational Intelligence and Machine Learning II

Ontology-learning Supported Semantic Search Using Cooperative Agents
Cheng Zhong, Zilan (Nancy) Yang, Mohsen Afsharchi, Behrouz H. Far ............... 123
Automating a Domain Model Aware Reengineering Methodology
Javier Belmonte, Philippe Dugerdil

Explaining Product Release Planning Results Using Concept Analysis
Gengshen Du, Thomas Zimmermann, Guenther Ruhe

Weighted Static Code Attributes for Software Defect Prediction
Burak Turhan, Ayse Bener

Software Engineering Methodology III

Predicting Software Project Size Using Project Generated Information
Marcio de O. Barros

Supporting Reusable Component Selection with Use Case Gap-based Development Effort Estimation
Xin Zhou, Bonnie Ray, Chenhua Feng

A Project Scheduling Method Based on Human Resource Availability
Lizi Xie, Junchao Xiao, Dapeng Liu, Qing Wang

Estimating the Effort of Independent Verification and Validation in the Context of Mission-critical Software Systems - A Case Study (S)
Haruka Nakaoa, Adam Trendowicz, Jurgen Munch

Software Process Modeling II

Unified Basic Concepts for Process Capability Models
Clenio F. Salviano, Adriana M. C. M. Figueiredo

Systematic Approach to Risk Management in Software Projects through Process Tailoring
Lisandra M. Fontoura, Roberto Tom Price

Process tailoring based on well-formedness rules
Eliana B. Pereira, Ricardo M. Bastos, Toacy C. Oliveira
Non-invasive Software Process Data Collection for Expert Identification
Andrea Janes, Alberto Sillitti, Giancarlo Succi ......................................................... 191

SOA-Based Software Testing and Maintenance

Using XML Patterns to Guide Perturbation Based Testing of Web Services
Paulo N. Cruz Filho, Silvia Regina Vergilio ................................................................. 197

Translating OWL Specified Domain Knowledge to Aspect Oriented Model
Juanzi Li, Xinyu You, Xiaoying Bai ............................................................................. 203

MAPLE: a Maintenance Approach for Pattern-enabLed rEconfiguration of SOA-based Enterprise Application
Songlin Hu, Ying Liang, Jiuming Tian, Yicheng Song ............................................. 209

Reliability Oriented QoS Driven Composite Service Selection Based on Performance Prediction (S)
Lei Yang, Yu Dai, Bin Zhang ..................................................................................... 215

Service Oriented Technology and Web Technology I

Design of an RSS Crawler with Adaptive Revisit Manager (S)
Bum-Suk Lee, Jin Woo Im, Byung-Yeon Hwang, Du Zhang ........................................ 219

QuickPay Online Payment Protocol (S)
Jian Dai, Mark Stamp ................................................................................................. 223

Sharing Application Logic Across Programming Language Boundaries (S)
Dennis S. Patrone, Bina Ramamurthy ................................................................. 227

Software Reuse and Component Technology I

Synergizing Collaboration and Reuse in Software Engineering (S)
Stefan Seedorf, Oliver Hummel .............................................................................. 232
Improving Component Container Development Process through Product Line Engineering
Guoliang Liu, Yang Li, Jun Wei ................................................................. 238

System and Software Architecture I

.NET Extensions to the π-architecture Description Languages (S)
Zawar Qayyum, Flavio Oquendo ............................................................... 244

Towards Collaborative Development Based on Software Architecture (S)
Yanchun Sun, Hui Song, Xinghua Wang, Wenpin Jiao ............................ 250

Choosing a Software Architecture: An Approach and a Case Study
C. Ghezzi, G. Tamburrelli ................................................................. 255

Formal Methods I

PROTEF: Automatic Verification of Pattern-Based LTL Templates
Luis Garcia, Steve Roach, Salamah Salamah ........................................... 261

Formal Specification of Object-oriented Systems with Collaborative Objects and Petri Nets – a Case Study
Boleslaw Mikolajczak ................................................................. 267

A Property Specification Tool for Generating Formal Specifications: Prospec 2.0
Irbit Gallegos, Omar Ochoa, Ann Gates, Steve Roach, Salamah Salamah, Corina Vela 273

SE with Computational Intelligence and Machine Learning III

On the Rarity of Fault-prone Modules in Knowledge-based Software Quality Modeling
Taghi M. Khoshgoftaar, Naeem Seliya, Dennis J. Drown .......................... 279

Machine Learning and Value-based Software Engineering: a Research Agenda
Du Zhang ................................................................. 285

Automatic Clustering of Defect Reports
Vasile Rus, Sameer Mohammed, Sajjan Shiva ........................................ 291
Software Engineering Methodology IV

Subjective Assessment of the Mutual Influence of ISO 9126 Software Qualities: an Empirical Study
Sandro Morasca .......................................................... 297

Reverse Engineering Interface Protocols for Comprehension of Large C++ Libraries during Code Evolution Tasks
Edward B. Duffy, Jason O. Hallstrom, Brian A. Malloy ......................... 303

Knowledge Management to Support the Deployment of a CMMI Level 3 Process
A. P. Cavalcanti, F. Furtado, V. Moura, R. Costa, S. R. L. Meira ................... 309

System and Software Architecture II

Code Transformation Techniques and Management Architecture for Self-manageable Distributed Applications
M. Muztaba Fuad .......................................................... 315

A Decision-centric Architecture Design Method Facilitating the Contextually Capture and Reuse of Design Knowledge
Xiaofeng Cui, Yanchun Sun, Sai Xiao, Hong Mei .................................. 321

System Architecture Induces Document Architecture (S)
Peter Henderson, Nishadi De Silva ................................................. 327

A Software Framework for Integrative Physiological Model Simulation (S)
E. Zeynep Erson, M. Cenk Cavusoglu .............................................. 333

Service Oriented Technology and Web Technology II

Combining SOA and BPM Technologies for Cross-System Process Automation

Ontology-Enabled Generation of Embedded Web Services
Klaus Marius Hansen, Weishan Zhang, Goncalo Soares .......................... 345
Modeling Services to Construct Service-oriented Healthcare Architecture for Digital Home-care Business

*Chi-Lu Yang, Yeim-Kuan Chang, Chih-Ping Chu* .......................................................... 351

**Databases**

Testing Relational Database Schemas with Alternative Instance Analysis

*Maria Claudia F. P. Emer, Silvia Regina Vergilio, Mario Jino* ........................................... 357

Analyzing Termination and Confluence in Active Rule Base via a Petri Net Approach (S)

*Lorena Chavarria-Baez, Xiaou Li* ................................................................. 363

A Fuzzy Trigger Language for Relational Database Systems

*Ying Jin, Tejaswitha Bhavsar* ................................................................. 367

**Data Mining I**

A Comparative Study on Data Representation to Categorize Text Documents (S)

*D.A. Meedeniya, A.S. Perera* ................................................................. 371

An Example on Economics-driven Software Mining

*Rami Bahsoon, Wolfgang Emmerich* ................................................................. 375

VP: an Efficient Algorithm for Frequent Itemset Mining

*Qin Ding, Wen Shen Huang* ................................................................. 381

**Model-Based Software Engineering I**

Evolution Shelf: Exploiting Evolution Styles within Software Architectures

*Olivier Le Goaer, Mourad-Chabane Oussalah, Dalila Tamzalit, Abdelhak-Djamel Seriai* ................................................................. 387

Coverage-based Testing Using Qualitative Reasoning Models

*Harald Brandl, Gordon Fraser, Franz Wotawa* ................................................................. 393
Traceability Models to Control an Aspectual Model-driven Development (S)
Marta S. Tabares, Raquel Anaya, Ana Moreira, João Araujo, Fernando Arango ........ 399

Knowledge Engineering

Knowledge-based System Development with Scripting Technology: A Recommender System Example
Dietmar Jannach ................................................................. 405

Integrating Trust Management into Usage Control in P2P Multimedia Delivery
Li Yang, Raimund Ege .......................................................... 411

Flow Balancing Model for Air Traffic Flow Management (S)
Bueno Borges de Souza, Li Weigang, Antonio Marcio Ferreira Crespo, Victor Rafael Rezende Celestino .......................................................... 417

Applications II

VisRFID: Visualizing Customer Behavior in Geotemporal Space Using RFID Technology
Beomjin Kim, Keith Bock, Michael Burton, Rod Strong, Benjamin Aeschliman ........ 422

Analyzing Manufacturing Process Knowledge Flows with KoFI
Oscar M. Rodriguez-Elias, Alberto L. Moran, Jaqueline I. Lavandera, Aurora Vizcaino ................................................................. 428

Performance: a Longitudinal Study
Nenad Stankovic .................................................................. 434

Formal Methods II

A Formal Approach for Translating a SAM Architecture to PROMELA
Gonzalo Argote-Garcia, Peter J. Clarke, Xudong He, Yujian Fu, Leyuan Shi ............ 440

An Algorithm for Computing Loop Functions
Ali Mili, Shir Aharon, Chaitanya Nadkarni ........................................... 448
<table>
<thead>
<tr>
<th>Title</th>
<th>Authors</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Verifying Behavioral Correctness of Design Pattern Implementation</td>
<td>Tu Peng, Jing Dong, Yajing Zhao</td>
<td>454</td>
</tr>
<tr>
<td>Automated Multiperspective Requirements Traceability Using Ontology</td>
<td>Namfon Assawamekin, Thanwadee Sunetnanta, Charnyote Pluempiwiriyawej</td>
<td>460</td>
</tr>
<tr>
<td>Eliciting Scenarios from Scenarios</td>
<td>Abdolmajid Mousavi, Behrouz H. Far</td>
<td>466</td>
</tr>
<tr>
<td>Tailoring an Aspectual Goal-oriented Approach to Model Features</td>
<td>Carla Silva, Fernanda Alencar, Joao Araujo, Ana Moreira, Jaelson Castro</td>
<td>472</td>
</tr>
<tr>
<td>Representing Textual Requirements as Graphical Natural Language for</td>
<td>Magda G. Ilieva, Harold Boley</td>
<td>478</td>
</tr>
<tr>
<td>Software Testing II</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A Dynamic Adjusting Method for Test Case Prioritization (S)</td>
<td>Bo Qu, Changhai Nie, Baowen Xu, Xiaofang Zhang</td>
<td>484</td>
</tr>
<tr>
<td>A Systematic Mapping Study on Non-Functional Search-based Software</td>
<td>Wasif Afzal, Richard Torkar, Robert Feldt</td>
<td>488</td>
</tr>
<tr>
<td>A Degraded ILP Approach for Test Suite Reduction</td>
<td>Zhenyu Chen, Xiaofang Zhang, Baowen Xu</td>
<td>494</td>
</tr>
<tr>
<td>A Meta-model to Support Regression Testing of Web Applications</td>
<td>Yanelis Hernandez, Tariq M. King, Jairo Pava, Peter J. Clarke</td>
<td>500</td>
</tr>
</tbody>
</table>
Service Oriented Technology and Web Technology III

Service Granularity Effects in SOA
Ned Chapin ................................................................. 506

Securing Service-oriented Systems Using State-Based XML Firewall
Abhinay Reddyreddy, Haiping Xu ......................................................... 512

Toward Model Checking Web Services Over the Web
John C. Sloan, Taghi M. Khoshgoftaar ..................................................... 519

A Metadata Model for Managing and Querying XML Resources in Peer-to-peer Systems
Deise de Brum Saccol, Nina Edelweiss, Renata de Matos Galante .................. 525

Formal Methods III

Minimal Observability for Transactional Hierarchical Services
Debmalya Biswas, Blaise Genest ........................................................... 531

Using Boolean Cardinality Constraint for LTS Bounded Model Checking (S)
Sachoun Park, Gihwon Kwon ............................................................... 537

Japanese Puzzle as a SAT Problem (S)
Sachoun Park, Gihwon Kwon ............................................................... 543

Business Models for Service-Oriented Architectures

Bridging the Semantic Gap Between Process Documentation and Process Execution
Gregor Scheithauer, Guido Wirtz, Candemir Toklu .................................... 549

Performance Challenges in Migrating to SOA Based Healthcare Systems
Suyog Gaidhani, Vijayananda Jagannatha ................................................. 555
Agent-Based Technology and Intelligence I

Dynamically Optimize Process Execution Based on Process-agent (S)
Jian Dai, Junchao Xiao, Qing Wang, Mingshu Li, Huaizhang Li ............................ 561

Mobile-FIRST: a Mobile Agent Based First Responder System (S)
Jason Honda, Harry H. Cheng, Donna Djordjevich ................................. 565

Ontology-based and Evolutionary Search for Computational Agents Schemes (S)
Roman Neruda ...................................................................................... 569

Software Reuse and Component Technology II

A Goal-oriented Mixed-granularity Component Selection Method for Huge Component Repositories (S)
Xiaolin Xi, Jiyong Park, Jiakun Liu, Seongsoo Hong ........................................ 573

A Case Study: Self-managed COTS Component-based Elevator System (S)
Michael E. Shin, Fernando Paniagua .......................................................... 577

Using Scenario Monitoring to Address State Based Crosscutting Concerns (S)
Mark Mahoney, Tzilla Elrad ................................................................. 581

Methods and Tools for Robust Services and Service Compositions

Negotiating Service Levels - A Generic Negotiation Framework for WS Agreement
Sebastian Hudert, Heiko Ludwig, Guido Wirtz ............................................... 587

Taxonomy on Consistency Requirements in the Business Process Integration Context
Andreas Schönberger, Guido Wirtz ........................................................ 593

Developing Enterprise Applications with Support to Dynamic Unanticipated Evolution (S)
Hyggo O. de Almeida, Marcos F. Pereira, Marcio de M. Ribeiro, Angelo Perkusich, Emerson Loureiro, Evandro Costa .......................................................... 599
Data Mining II

Privacy-preserving Classification of Data Streams (S)
Ching-Ming Chao ................................................................. 603

Comparing the Use of Traditional and Associative Classifiers towards Personalized Recommendations
Joel Pinho Lucas, Saddys Segrera, María N. Moreno ........................................... 607

Discovering Meaningful Clusters from Mining the Software Engineering Literature
Yan Wu, Harvey Siy, Li Fan .............................................................. 613

Model-Based Software Engineering II

A Model-Driven Approach for the Semi-automated Generation of Web-based Applications from Requirements
Ali Fatolah, Stephane S. Some, Timothy C. Lethbridge ......................................... 619

A Model-driven Toolset to Support an Approach for Analyzing Integration of Business Process Aspect of Enterprise Application Integration
Souvik Barat, Vinay Kulkarni ................................................................. 625

Model-based Test Complexity Analysis for Software Installation Testing (S)
Jerry Gao, Karen Kwok, Todd Fitch ............................................................. 631

Service Oriented Technology and Web Technology IV

A Similarity Analysis Model for Semantic Web Information Filtering Applications
Lucas Drumond, Rosario Girardi, Fabio Silva ..................................................... 638

Fuzziness in the Semantic Web: Survey and Future Directions
Seyed Koosha Golmohammadi, Marek Reformat, Witold Pedrycz ............................. 643

A Language-based Approach to Addressing Reliability in Composite Web Services
Onyeka Ezenwoye, S. Masoud Sadjadi .............................................................. 649
Agents, Web, and Security

A Systematic Process for Domain Engineering
Eduardo Santana de Almeida, Alexandre Alvaro, Vinicius Cardoso Garcia, Daniel Lucredio, Renata Pontin de Mattos Fortes, Silvio Romero de Lemos Meira …….. 655

Diagnosing Runtime Violations of Security & Dependability Properties
Theocharis Tsigritis, George Spanoudakis ……………………………………………… 661

Model-Based Software Engineering III

Translating Workflow Diagrams into Web Designs
Antonio Navarro, Jorge Merino, Alfredo Fernandez-Valmayor, Jesus Cristobal …… 667

A Security Domain Model for Static Analysis and Verification of Software Programs
Alan B. Shaffer …………………………………………………………………………… 673

Component Based Architectures for eXtreme Transacion Processing (S)
Luca Vetti Tagliati ………………………………………………………………………... 679

Ontologies I

An Ontology for Controlled Experiments on Software Engineering
Rogerio Eduardo Garcia, Erika Nina Hohn, Ellen Francine Barbosa, Jose Carlos Maldonado ………………………………………………………………………... 685

Improving Automatic Model Creation Using Ontologies
Sven J. Korner, Tom Gelhausen ………………………………………………………… 691

Ontology-based Development of Testing Related Tools
Ellen F. Barbosa, Elisa Y. Nakagawa, Ana C. Riekstin, Jose C. Maldonado ……….. 697
Software Test Automation and Practice I

Test Order Generation for Efficient Object-oriented Class Integration Testing
Rattikorn Hewett, Phongphun Kijsanayothin, Darunee Smavatkul .............................. 703

Using Observer Automata to Select Test Cases for Test Purposes
Gordon Fraser, Martin Weiglhofer, Franz Wotawa .................................................. 709

Building Testable Components - a Systematic Approach and Its Experimental Study
Jerry Gao, Wrihang Roberto Liang, Radhika Chhabra, Ramyashree Swamyo, Ma Xiang ................................................................. 715

SyncTest: a Tool to Synchronize Source Code, Model and Testing
Xiaoying Bai, Tao Liu .......................................................................................... 723

Agent-Based Technology and Intelligence II

A Virtual Machine for Distributed Agent-oriented Programming
Bin Zhou, Hong Zhu ......................................................................................... 729

MAAEM: a Multi-agent Application Engineering Methodology
Adriana Leite, Rosario Girardi, Uiratan Cavalcante ........................................... 735

A Semantic Based Certification and Access Control Approach Using Security Patterns on SEAGENT
Fatih Tekbacak, Tugkan Tuglular, Oguz Dikenelli ............................................. 741

Documenting and Modeling Multi-agent Systems Product Lines
Ingrid Nunes, Uira Kulesza, Camila Nunes, Carlos J. P. de Lucena ....................... 745

Model-Based Software Engineering IV

A Study of the Model Explosion Problem in CTL Model Update
Yulin Ding, Yan Zhang .................................................................................... 752
Feature Modeling for Context-Aware Software Product Lines
Paula Fernandes, Claudia Werner, Leonardo Murta .............. 758

MEtaGile: A Pragmatic Domain-specific Modeling Environment (S)
Olivier Buchwalder, Claude Petitpierre ......................... 764

Software Requirements Engineering II

Obtaining Well-Founded Practices about Elicitation Techniques by Means of an Update of a Previous Systematic Review (S)
Oscar Dieste, Marta Lopez, Felicidad Ramos ...................... 769

Automatic Discovery of Interactions Between Software Requirements
Edgar S. Calisaya, Marcos R. S. Borges, Maria Luiza M. Campos ............. 773

A Model-driven Approach for Software Product Lines Requirements Engineering
Mauricio Alferez, Uira Kulesza, Andre Sousa, Joao Santos, Ana Moreira, Joao Araujo, Vasco Amaral .......................................................... 779

Model Interpretation for Executable Observation Specifications (S)
Mathias Funk, Piet van der Putten, Henk Corporaal ...................... 785

Security Technology & Systems

Network Intrusion Detection Based on Bayesian Networks (S)
Alma Cemerlic, Li Yang, Joseph M. Kizza ................................ 791

Supremum of Agent Number Needed in Analyzing Security Protocols Based on Horn Logic
Feng Liu, Zhoujun Li, Ti Zhou, Mengjun Li .............................. 795

Towards the Detection of Emulated Environments via Analysis of the Stochastic Nature of System Calls
Tauhida Parveen, William Allen, Scott Tilley, Gerald Marin, Richard Ford ............ 802
SE of Autonomic Grid Computing Systems and Applications I

Self-managed Deployment in a Distributed Environment via Utility Functions
Debzani Deb, Michael J. Oudshoorn, John Paxton ........................................ 808

Design of a Fault-tolerant Job-flow Manager for Grid Environments Using Standard Technologies, Job-flow Patterns, and a Transparent Proxy
Gargi Dasgupta, Onyeka Ezenwoye, Liana Fong, Selim Kalayci, S. Masoud Sadjadi, Balaji Viswanathan ................................................................. 814

Supporting Context-awareness in Web-based Groupware Development (S)
Jose Maria N. David, Marcos R. S. Borges, Jose A. Pino ................................. 820

Software Engineering Methodology V

Object-Z to Java/OO-Perl: A Conversion from Object-Z to Executable Skeletal Code with Dynamically Checkable Design Contracts
Sherri M. Sanders, Cui Zhang ................................................................. 824

An Empirical Study on Modularization of Object Oriented Software
Jing Liu, Bin Liu, Chi K. Tse, Keqing He ...................................................... 830

Bridging the Gap Between Slicing and Model-based Diagnosis
Franz Wotawa ................................................................. 836

Dynamic Analysis and Design Pattern Detection in Java Programs (S)
Lei Hu, Kamran Sartipi ................................................................. 842

Service Oriented Technology and Web Technology V

Active Ontologies - an Approach for Using Ontologies as Semantic Web Services Interfaces (S)
Tiago Cordeiro Marques, Marcio Gurgao Mesquita, Julio Cesar Campos Neto, Pedro Porfirio Muniz Farias ................................................................. 847

Failure Prediction Based Self-healing Approach for Web Service Composition (S)
Yu Dai, Lei Yang, Bin Zhang, Kening Gao ...................................................... 853
<table>
<thead>
<tr>
<th>Title</th>
<th>Authors</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Wed-based data Management and Analysis System for CO2 Capture (S)</td>
<td>Yuxiang Wu, Christine W. Chan</td>
<td>857</td>
</tr>
<tr>
<td>Software Test Automation and Practice II</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Integrating Random Testing with Constraints for Improved Efficiency</td>
<td>Yoonsik Cheon, Antonio Cortes, Gary T. Leavens, Martine Ceberio</td>
<td>861</td>
</tr>
<tr>
<td>and Diversity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Properties of Machine Learning Applications for Use in Metamorphic</td>
<td>Christian Murphy, Gail Kaiser, Lifeng Hu, Leon Wu</td>
<td>867</td>
</tr>
<tr>
<td>Testing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fault Injection Testing of User-space File Systems Using Traditional</td>
<td>Jonathan Hittle, Sudipto Ghosh</td>
<td>873</td>
</tr>
<tr>
<td>and Aspect-based Techniques (S)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evaluation of Personalized Information Systems: Application in</td>
<td>M. Soui, C. Kolski, M. Abed, G. Uster</td>
<td>877</td>
</tr>
<tr>
<td>Intelligent Transport System (S)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SE of Autonomic Grid Computing Systems and Applications II</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dynamis: Dynamic Overlay Service Composition for Distributed Stream</td>
<td>Farshad A. Samimi, Philip K. McKinley</td>
<td>881</td>
</tr>
<tr>
<td>Processing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wings4Symbian: A Pervasive Computing Middleware for Symbian OS Mobile</td>
<td>Olympio C. Silva Filho, Danilo F. S. Santos, Angelo Perkusich, Emerson</td>
<td>887</td>
</tr>
<tr>
<td>Devices</td>
<td>Loureiro, Hyggo Almeida</td>
<td></td>
</tr>
<tr>
<td>An OWL/SWRL Based Diagnosis Approach in a Pervasive Middleware</td>
<td>Weishan Zhang, Klaus Marius Hansen</td>
<td>893</td>
</tr>
<tr>
<td>Model-Based Software Engineering V</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A Constraint Model for Automated Deployment of Automotive Control</td>
<td>Mihai Nica, Bernhard Peischl, Franz Wotawa</td>
<td>899</td>
</tr>
<tr>
<td>Software</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Applying Critical Pair Analysis in Graph Transformation Systems to Detect Syntactic Aspect Interaction in UML State Diagrams
Zaid Altahat, Tzilla Elrad, Luay Tahat ................................................................. 905

Model Comparison: a Strategy-Based Approach
Kleinner Oliveira, Toacy Oliveira ................................................................. 912

Ontologies II

Towards Metrics for Ontology Balance
Steffen Mencke, Martin Kunz, Reiner R. Dumke ........................................ 918

Techniques for De-fragmenting Mobile Applications: A Taxonomy
Damith C. Rajapakse ................................................................. 923

Identifying NFRs Conflicts Using Quality Ontology
Taiseera Al Balushi, Pedro R. Falcone Sampaio, Mitul Patel, Oscar Corcho, Pericles Loucopoulos ................................................................. 929

Ontology-based Process Modeling and Execution Using STEP/EXPRESS
Arndt Muhlenfeld, Wolfgang Mayer, Franz Maier, Markus Stumptner .............. 935

Reviewer’s Index ...................................................................................... 941

Author’s Index ......................................................................................... 944

Note: (S) means short paper.