

Proceedings of the

34th Euromicro Conference

Software Engineering and Advanced Applications

September 3-5, 2008

Parma, Italy



Los Alamitos, California

Washington • Tokyo



34th Euromicro Conference Software Engineering and Advanced Applications

SEAA 2008

Table of Contents

Message from the General and Organizing Chairs.....	xi
Message from the Program Chair.....	xii
Message from the CBSE Track Chairs.....	xiii
Message from the MMTTC Track Chairs.....	xv
Message from the SPPI Track Chairs.....	xvii
Message from the NGW Track Chairs.....	xviii
Message from the QSOA Track Chairs.....	xix
Message from the SAPS Track Chairs.....	xx
Message from the DESS Track Chairs.....	xxi
Message from the SM Track Chairs.....	xxii
Keynote 1.....	xxiii
Keynote 2.....	xxiv
Keynote 3.....	xxv
Keynote 4.....	xxvi
Panel: SOA and Quality Assurance.....	xxvii

Component Based Software Engineering Track (CBSE)

Session 1: Services

Checking Session-Oriented Interactions between Web Services	3
<i>Pavel Parizek and Jiri Adamek</i>	
Data Model Driven Enterprise Service Bus Interceptors	11
<i>Michael Thonhauser, Christian Kreiner, Egon Teiniker, and Gernot Schmoelzer</i>	
The WebComfort Framework: An Extensible Platform for the Development of Web Applications	19
<i>Joao de Sousa Saraiva and Alberto Rodrigues da Silva</i>	

Session 2: Product Lines

InCoME: Integrated Cost Model for Product Line Engineering	27
<i>Jarley Palmeira Nóbrega, Eduardo Santana de Almeida, and Sílvia Romero Lemos Meira</i>	
Managing the Life-cycle of Industrial Automation Systems with Product Line Variability Models	35
<i>Roman Froschauer, Deepak Dhungana, and Paul Gruenbacher</i>	
A Case Study in Software Product Lines - The Case of the Mobile Game Domain	43
<i>Leandro Marques Nascimento, Eduardo Santana de Almeida, and Sílvia Romero de Lemos Meira</i>	

Session 3: Embedded Systems

Reconfigurable State Machine Components for Embedded Applications	51
<i>Christo Angelov, Xu Ke, Yu Guo, and Krzysztof Sierszecki</i>	
Introducing Component Based Software Engineering at an Embedded Systems Sub-Contractor	59
<i>Mikael Akerholm, Kristian Sandström, and Ivica Crnkovic</i>	

Session 4: Component Models

Component Design based on Model Executability	68
<i>Franck Barbier and Eric Cariou</i>	
A Compositional Approach to Active and Passive Components	76
<i>Kung-Kiu Lau and Ioannis Ntalamagkas</i>	
A Fault-tolerance Framework for Distributed Component Systems	84
<i>Brahim Hamid, Ansgar Radermacher, Patrick Vanuxeem, Agnes Lanusse, and Sebastien Gerard</i>	

Session 5: OSGi

Enhanced OSGi Bundle Updates to Prevent Runtime Exceptions	92
<i>Premysl Brada</i>	
A Method for the Resource Monitoring of OSGi-based Software Components	100
<i>Tuukka Miettinen, Daniel Pakkala, and Mika Hongisto</i>	
Service Coroner: A Diagnostic Tool for Locating OSGi Stale References	108
<i>Kiev Gama and Didier Donsez</i>	

Multimedia and Telecommunications Track (MMTC)

Session 1: Grid Computing

Secure Grid Micro-Workflows Using Virtual Workspaces	119
<i>Tim Dörnemann, Matthew Smith, Ernst Juhnke, and Bernd Freisleben</i>	
Mapping Virtual Organizations in Grids to Peer-to-Peer Networks	127
<i>Kay Dörnemann, Dennis Meier, Markus Mathes, and Bernd Freisleben</i>	

GRAIL – A Tool for Accessing and Instrumenting WSRF-compliant Web Services	135
<i>Thomas Jejkal, Rainer Stotzka, and Michael Sutter</i>	

Session 2: Multimedia Systems

Multimedia System for Emergency Services over TETRA-DVBT Networks	142
<i>Román Belda, Ismael de Fez, Francisco Fraile, Víctor Murcia, Pau Arce, and Juan Carlos Guerri</i>	
On Performance of 3GPP Service Triggering Mechanism in IMS Network	150
<i>Zhaoyong Xun, Jianxin Liao, and Xiaomin Zhu</i>	
Business Model Specific Charging Mechanism in Cognitive Radio	156
<i>Gülfem Isiklar Alptekin and Ayse Basar Bener</i>	

Software Process and Product Improvement Track (SPPI)

Session 1: Improving Software Management

Business Value through Product Line Engineering - A Case Study	167
<i>Devesh Sharma, Aybuke Aurum, and Barbara Paech</i>	
A Method for Balancing Short- and Long-Term Investments: Quality vs. Features	175
<i>Markus Lindgren, Anders Wall, Rikard Land, and Christer Norström</i>	
A Framework for Simulation of Requirements Engineering Processes	183
<i>Martin Höst, Björn Regnell, and Christofer Tingström</i>	

Session 2: Defect Prediction and Prevention

Software Defect Prediction Using Call Graph Based Ranking (CGBR) Framework	191
<i>Burak Turhan, Gozde Kocak, and Ayse Bener</i>	
Towards a Defect Prevention Based Process Improvement Approach	199
<i>Marcos Kalinowski, Guilherme H. Travassos, and David N. Card</i>	
Defect Prediction using Combined Product and Project Metrics - A Case Study from the Open Source "Apache" MyFaces Project Family	207
<i>Dindin Wahyudin, Alexander Schatten, Dietmar Winkler, A. Min Tjoa, and Stefan Biffel</i>	

Session 3: Agile Software Engineering and Product Lines

Understanding Decision-Making in Agile Software Development: A Case-study	216
<i>Nils Brede Moe and Aybüke Aurum</i>	
Investigating UML- and Ontology-Based Approaches for Process Improvement in Developing Agile Multi-Agent Systems	224
<i>Thomas Moser, Klemens Kunz, Kamil Matousek, and Dindin Wahyudin</i>	

Migrating Industrial Systems towards Software Product Lines: Experiences and Observations through Case Studies	232
<i>Hongyu Pei Breivold, Stig Larsson, and Rikard Land</i>	
Session 4: Requirements Prioritization and Portfolio Management	
Requirements Prioritization Based on Benefit and Cost Prediction: A Method Classification Framework	240
<i>Maya Daneva and Andrea Herrmann</i>	
An Empirical Study into the State of Practice and Challenges in IT Project Portfolio Management	248
<i>Egon Gleisberg, Hendrik Zondag, and Michel R.V. Chaudron</i>	
Session 5: Evaluation Methods for Products and Processes	
The Role of Experience in Software Testing Practice	258
<i>Armin Beer and Rudolf Ramler</i>	
Evaluating RUP Software Development Processes Through Visualization of Effort Distribution	266
<i>Werner Heijstek and Michel Chaudron</i>	
Towards Efficient Software Component Evaluation: An Examination of Component Selection and Certification	274
<i>Rikard Land, Alexandre Alvaro, and Ivica Crnkovic</i>	
Special Session: Next Generation Web Computing (NGW)	
VieCAR - Enabling Self-adaptive Collaboration Services	285
<i>Daniel Schall, Christoph Dorn, Schahram Dustdar, and Ignazio Dadduzio</i>	
Web Browser as an Application Platform	293
<i>Antero Taivalsaari, Tommi Mikkonen, Dan Ingalls, and Krzysztof Palacz</i>	
Evaluation of Task Pattern Use in Web-based Collaborative Engineering	303
<i>Kurt Sandkuhl and Janis Stirna</i>	
Building Blocks for a Web Programming Language	310
<i>Tuomas Turto</i>	
Special Session: Quality and Service-Oriented Applications (QSOA)	
Let The Puppets Move! Automated Testbed Generation for Service-oriented Mobile Applications	321
<i>Antonia Bertolino, Guglielmo De Angelis, Francesca Lonetti, and Antonino Sabetta</i>	
SEMF - Service Evolution Management Framework	329
<i>Martin Treiber, Hong-Linh Truong, and Schahram Dustdar</i>	
BPEL Workflows Combining Standard OGC Web Services and Grid-enabled OGC Web Services	337
<i>Tino Fleuren and Paul Müller</i>	

Service Consolidation with End-to-End Response Time Constraints	345
<i>Jonatha Anselmi, Edoardo Amaldi, and Paolo Cremonesi</i>	
Iterative Service Orchestration based on Dependability Attributes	353
<i>Joachim Götze, Jochen Müller, and Paul Müller</i>	
Special Session: Software Architectures for Pervasive Systems (SAPS)	
A Data Propagation Infrastructure for PLM	363
<i>Falk Brauer, Daniel Barisic, Guido Stromberg, and Mario Neugebauer</i>	
Vimoware - A Toolkit for Mobile Web Services and Collaborative Computing	366
<i>Hong-Linh Truong, Lukasz Juszczak, Shariq Bashir, Atif Manzoor, and Schahram Dustdar</i>	
SAIL: A Sensor Abstraction and Integration Layer for Context Awareness	374
<i>Michele Girolami, Stefano Lenzi, Francesco Furfari, and Stefano Chessa</i>	
Special Session: Distributed Embedded Software Systems (DESS)	
A Software Framework for Hard Real-Time Distributed Embedded Systems	385
<i>Christo Angelov, Krzysztof Sierszecki, and Feng Zhou</i>	
Formal Analysis of a Distributed Fault Tolerant Clock Synchronization Algorithm for Automotive Communication Systems	393
<i>Bo Zhang</i>	
Distributed Embedded Real-Time Systems and Beyond: A Vision of Future Road Vehicle Management	401
<i>Horst F. Wedde, Sebastian Lehnhoff, Christian Rehtanz, and Olav Krause</i>	
Special Session: Software Management (SM)	
Session 1	
A Meta-model for the Assessment of Non-Functional Requirement Size	411
<i>Mohamad Kassab, Maya Daneva, and Olga Ormandjieva</i>	
Evaluation of the Effect of Functional Similarities on Development Effort	419
<i>Ozden Ozcan Top, Seckin Tunalilar, and Onur Demirors</i>	
IFPUG-COSMIC Statistical Conversion	427
<i>Juan J. Cuadrado-Gallego, Luigi Buglione, Ricardo J. Rejas-Muslera, and Fernando Machado-Piriz</i>	
Session 2	
Comparing Software Cost Prediction Models by a Visualization Tool	433
<i>Nikolaos Mittas and Lefteris Angelis</i>	
A Case Study Using Web Objects and COSMIC for Effort Estimation of Web Applications	441
<i>F. Ferrucci, C. Gravino, and S. Di Martino</i>	
A Proposed Method for Release Planning from Use Case-based Requirements Specification	449
<i>Akos Szoke</i>	

Session 3

Complementing Measurements and Real Options Concepts to Support Inter-iteration Decision-Making in Agile Projects	457
<i>Zornitza Racheva, Maya Daneva, and Luigi Buglione</i>	
A Metamodeling Approach to Estimate Software Size from Requirements Specifications	465
<i>Silvia Abrahao and Emilio Insfran</i>	
Outlining a Model Integrating Risk Management and Agile Software Development	476
<i>Jaana Nyffjord and Mira Kajko-Mattsson</i>	
Author Index	484