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Filipe Mota Pinto (Eds.)

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Model and Data Engineering

First International Conference, MEDI 2011
Óbidos, Portugal, September 2011
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Preface

The First International Conference on Model and Data Engineering (MEDI 2011) was held in Obidos, Portugal, during September 28–30. MEDI 2011 was a forum for the dissemination of research accomplishments and for promoting the interaction and collaboration between the models and data research communities. MEDI 2011 provided an international platform for the presentation of research on models and data theory, development of advanced technologies related to models and data and their advanced applications. This international scientific event, initiated by researchers from Euro-Mediterranean countries, aimed also at promoting the creation of north–south scientific networks, projects and faculty/student exchanges.

The conference focused on model engineering and data engineering. The scope of the papers covered the most recent and relevant topics in the areas of advanced information systems, Web services, security, mining complex databases, ontology engineering, model engineering, and formal modeling. These proceedings contain the technical papers selected for presentation at the conference.

We received more than 67 papers from over 18 countries and the Program Committee finally selected 18 long papers and 8 short papers. The conference program included three invited talks, namely, “Personalization in Web Search and Data Management” by Timos Sellis, Research Center “Athena” and National Technical University of Athens, Greece; “Challenges in the Digital Information Management Space,” Girish Venkatachaliah, IBM India, and “Formal Modelling of Service-Oriented Systems,” Antónia Lopes, Faculty of Sciences, University of Lisbon, Portugal.

We would like to thank the MEDI 2011 Organizing Committee for their support and cooperation. Many thanks are due to Selma Khouri for providing a great deal of help and assistance. We are very indebted to all Program Committee members and outside reviewers who very carefully and timely reviewed the papers. We would also like to thank all the authors who submitted their papers to MEDI 2011; they provided us with an excellent technical program.

September 2011

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Table of Contents

Keynotes

Personalization in Web Search and Data Management	1
<i>Timos Sellis</i>	
Challenges in the Digital Information Management Space	2
<i>Girish Venkatachaliah</i>	
Formal Modelling of Service-Oriented Systems	3
<i>Antonia Lopes</i>	

Ontology Engineering

Automatic Production of an Operational Information System from a Domain Ontology Enriched with Behavioral Properties	4
<i>Ana Simonet</i>	
Schema, Ontology and Metamodel Matching - Different, But Indeed the Same?	18
<i>Petko Ivanov and Konrad Voigt</i>	
A Framework Proposal for Ontologies Usage in Marketing Databases ...	31
<i>Filipe Mota Pinto, Teresa Guarda, and Pedro Gago</i>	
Proposed Approach for Evaluating the Quality of Topic Maps	42
<i>Nebrasse Ellouze, Elisabeth Métais, and Nadira Lammari</i>	

Web Services and Security

BH : Behavioral <u>H</u> andling to Enhance Powerfully and Usefully the Dynamic Semantic Web Services Composition	50
<i>Mansour Mekour and Sidi Mohammed Benslimane</i>	
Service Oriented Grid Computing Architecture for Distributed Learning Classifier Systems	62
<i>Manuel Santos, Wesley Mathew, and Filipe Pinto</i>	
Securing Data Warehouses: A Semi-automatic Approach for Inference Prevention at the Design Level	71
<i>Salah Triki, Hanene Ben-Abdallah, Nouria Harbi, and Omar Boussaid</i>	

Advanced Systems

F-RT-ETM: Toward Analysis and Formalizing Real Time Transaction and Data in Real-Time Database	85
<i>Mourad Kaddes, Majed Abdouli, Laurent Amanton, Mouez Ali, Rafik Bouaziz, and Bruno Sadeg</i>	
Characterization of OLTP I/O Workloads for Dimensioning Embedded Write Cache for Flash Memories: A Case Study	97
<i>Jalil Boukhobza, Ilyes Khetib, and Pierre Olivier</i>	
Toward a Version Control System for Aspect Oriented Software	110
<i>Hanene Cherait and Nora Bounour</i>	
AspeCis: An Aspect-Oriented Approach to Develop a Cooperative Information System	122
<i>Mohamed Amroune, Jean-Michel Inglebert, Nacereddine Zarour, and Pierre-Jean Charrel</i>	

Knowledge Management

An Application of Locally Linear Model Tree Algorithm for Predictive Accuracy of Credit Scoring	133
<i>Mohammad Siami, Mohammad Reza Gholamian, Javad Basiri, and Mohammad Fathian</i>	
Predicting Evasion Candidates in Higher Education Institutions	143
<i>Remis Balaniuk, Hercules Antonio do Prado, Renato da Veiga Guadagnin, Edilson Ferneda, and Paulo Roberto Cobbe</i>	
Search and Analysis of Bankruptcy Cause by Classification Network	152
<i>Sachio Hirokawa, Takahiro Baba, and Tetsuya Nakatoh</i>	
Conceptual Distance for Association Rules Post-Processing	162
<i>Ramdane Maamri and Mohamed said Hamani</i>	
Manufacturing Execution Systems Intellectualization: Oil and Gas Implementation Sample	170
<i>Stepan Bogdan, Anton Kudinov, and Nikolay Markov</i>	
Get Your Jokes Right: Ask the Crowd	178
<i>Joana Costa, Catarina Silva, Mário Antunes, and Bernardete Ribeiro</i>	

Model Specification and Verification

An Evolutionary Approach for Program Model Checking	186
<i>Nassima Aleb, Zahia Tamen, and Nadjat Kamel</i>	

Modelling Information Fission in Output Multi-Modal Interactive Systems Using Event-B	200
<i>Linda Mohand-Oussaïd, Idir Aït-Sadoune, and Yamine Aït-Ameur</i>	
Specification and Verification of Model-Driven Data Migration	214
<i>Mohammed A. Aboulsamh and Jim Davies</i>	

Models Engineering

Towards a Simple Meta-Model for Complex Real-Time and Embedded Systems	226
<i>Yassine Ouhammou, Emmanuel Grolleau, Michael Richard, and Pascal Richard</i>	
Supporting Model Based Design	237
<i>Rémi Delmas, David Doose, Anthony Fernandes Pires, and Thomas Polacsek</i>	
Modeling Approach Using Goal Modeling and Enterprise Architecture for Business IT Alignment	249
<i>Karim Doumi, Salah Baïna, and Karim Baïna</i>	
MDA Compliant Approach for Data Mart Schemas Generation	262
<i>Hassene Choura and Jamel Feki</i>	
A Methodology for Standards-Driven Metamodel Fusion	270
<i>András Pataricza, László Gönczy, András Kövi, and Zoltán Szatmári</i>	
Metamodel Matching Techniques in MDA: Challenge, Issues and Comparison	278
<i>Lamine Lafi, Slimane Hammoudi, and Jamel Feki</i>	
Author Index	287

Toward a Version Control System for Aspect Oriented Software

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Abstract. During the lifetime of a software system, series of changes are made to the software. So many versions will be produced. Version control systems contain significant amounts of data that could be exploited in the study of software evolution. Analyzing the source code of these versions can help to identify necessary changes, understand the impact of changes, and provides a facility to track the changes and to deduce logical relations between changed entities. We are interested in this paper to the evolution analysis of Aspect Oriented Systems. This last will become the legacy systems of the future and will be subject to the same evolutionary demands as today's software systems. In this paper, we propose a Version Control System for Aspect Oriented Programs, using graph transformation formalism to manage and control their evolution.

Keywords: Version Control Systems, Aspect Oriented Programming, Software evolution, Graph rewriting.

1 Introduction

Software evolution analysis refers generally to progressive change in the software's properties or characteristics. This process of change in one or more of their attributes leads to the emergence of new properties or to improvement, in some sense [26]. Divers studies have shown that more time is spent on changing than developing the software [3].

Version control systems contain large amounts of historical information that can give deep insight into the evolution of a software project. The majority of research has focused on examining the artifacts stored in a software repository, and their associated metadata. Analyzing the source code of the software repository can help identify necessary changes, understand the impact of changes, provides a facility to track the changes and to deduce logical relations between changed entities.

Aspect-oriented programming (AOP) languages provide a new kind of modules, called aspects that allow one to modularize the implementation of crosscutting concerns which would otherwise be spread across various modules. In spite of the more advanced modularization mechanisms, aspect-oriented programs still suffer from evolution problems i.e. more relationships are introduced by this paradigm