Ladjel Bellatreche
Filipe Mota Pinto (Eds.)

Model and Data Engineering

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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   Ladjel Bellatreche
Filipe Mota Pinto

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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