

Model-based development

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This issue contains the second part of the regular papers that have been nurtured from Models'05 conference. In the last issue 2007/4, we saw the first part of these papers accompanied with a tutorial by Geri Georg and Lionel Briand.

These papers are “**Simplifying Autonomic Enterprise Java Bean Applications via Model-driven Development: a Case Study**” by the authors Jules White, Douglas Schmidt, and Aniruddha Gokhale and the second “**Refactoring OCL Annotated UML Class Diagrams**” by Slavisa Markovic and Thomas Baar.

In the first paper, Jules White, Douglas C. Schmidt, and Aniruddha Gokhale present a tool that graphically captures Enterprise Java Bean (EJB) application design, quality of service requirements, and autonomic properties. The paper also describes how tools can be used to generate code that simulates such systems for verification purposes.

In the second paper, Slavisa Markovic and Thomas Baar present formalized refactoring rules for Object Constraint Language (OCL) constraints in UML impacted by refactoring of their associated class diagrams. The rules are presented as a graph-grammar inspired formalism, and they have also been implemented as Queries/Views/Transformations (QVT) transformation rules in a commercial tool. The problem of syntactic preservation is discussed and the KeY tool is used to show how this problem can be resolved.

Furthermore, we have four regular papers. In the first paper, titled “**Survey of Reliability and Availability Prediction Methods from the Viewpoint of Software Architecture**”, the authors *Anne Immonen* and *Eila Niemelä* define a framework for comparing reliability and availability analysis methods. According to the framework, the authors provide an extensive comparison of the existing analysis methods and techniques that can be used for reliability and availability prediction at the architectural level. The comparison discovers which methods are suitable for the reliability and availability prediction of today's complex systems, what are the shortcomings of the methods, and which research activities need to be conducted in order to overcome these identified shortcomings.

In the second paper “**Producing Robust Use Case Diagrams via Reverse Engineering of Use Case Descriptions**” the authors *Mohamed El-Attar* and *James Miller* present the concept of simple structured use case descriptions as a means to reduce inconsistencies in use case models. Necessary structural elements to formalize the use case description are introduced and a tool-supported process to systematically generate the corresponding use case diagrams based on these descriptions or vice versa is proposed.

The third paper “**Applying CSP||B to Information Systems**” by Neil Evans, Helen Treharne, Regine Laleau and Marc Frappier describes an approach called “CSP|B” that facilitates the specification of systems with complex flows of control and highly structured data. The paper presents a new loose coupling of CSP and B, so that the usability of existing tool support, in particular the FDR model checker and the B toolkit, is retained. The authors also introduce a new abstraction technique to aid tractable model checking.

In the fourth paper “**A Metamodeling Language Supporting Subset and Union Properties**” the authors

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Marcus Alanen and Ivan Porres describe a metamodeling language using a set-theoretic formalization. The benefits are the focus on extension mechanisms and the better understanding of the foundations of MOF 2.0.

We hope you enjoy reading the articles in this issue.

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Editors in Chief