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Multi-Level Language Engineering: A New Paradigm for Conceptual Modelling and Software Development

Predavač:

Prof. Dr. Ulrich Frank
University of Duisburg-Essen
Germany

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Sažetak:

Model-driven software development is promising attractive benefits. Developers and prospective users can focus on conceptual models rather than on cryptic code, coding principles can be enforced by software generators, and model-driven software architectures allow for a great deal of independence from specific implementation level languages and platforms. In recent years, domain-specific languages have gained increasing attention. They promote the productivity of modelers and programmers, and contribute to system quality, too. Therefore, they are suited to strengthen further the idea of model-driven software development. However, model-driven software within the dominating object-oriented paradigm suffers from serious limitations. A new language paradigm that enables an unlimited number of classification levels, multi-level language engineering, promises to overcome these limitations. It does not only allow for more expressive models, but it also promotes reuse and maintainability as well as user-empowerment. Based on the analysis of problem with the current paradigm, the talk introduces a particular approach to multi-level software engineering that includes a versatile metamodel, various multi-level DSMLs and a language-engineering and execution engine. It allows for the common representation of models and code. As a consequence, there is no need for synchronizing code and models. This talks gives an overview of the motivation and conceptual foundation of multi-level modelling and presents a multi-level language engineering environment that enables the convenient specification and implementation of multi-level modelling and programming languages.

O predavaču:

Ulrich Frank holds the chair of Information Systems and Enterprise Modelling at the Institute of Computer Science and Business Information Systems at the University of Duisburg-Essen. His main research topic is enterprise modelling, i.e. the development and evaluation of modelling languages, methods and corresponding tools. In recent years, he focused especially on multi-level domain-specific modelling languages and corresponding tools. Further areas of research include method engineering, models at run time, methods for IT management and research methods. Together with Tony Clark from Sheffield University, he conducts the project “Language Engineering for Multi-level Modeling” (LE4MM). The project aims at further developing an integrated meta-modeling and meta-programming environment and, based on that, at the development of new self-referential enterprise systems that integrate enterprise software with conceptual models of themselves and the context they operate in at run time.

Ulrich Frank is on the editorial board of the journals “Enterprise Modelling and Information Systems Architectures”, “Business & Information Systems Engineering”, “Software and Systems Modeling”, “Information Systems and E-Business Management”, and the “Journal of Information System Modeling and Design”. He worked as a research fellow at the IBM Almaden Research Center in San Jose and had assignments as visiting researcher/professor at universities in various countries. Ulrich Frank served as the spokesman of the German Business Informatics Community within the German Informatics Society. He is the German representative of the IFIP Technical Committee TC8 and a review board member of the *Deutsche Forschungsgemeinschaft* (German National Science Foundation).