Educators’ Symposium at MoDELS 2006

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Overview

Model-driven development approaches and technologies for software-based systems, in which development is centered round the manipulation of models, raise the level of abstraction and thus, improve our abilities to develop complex systems. Therefore, a number of approaches and tools have been proposed for the model-driven development (MDD) of software-based systems.

Putting the model-driven development vision into practice requires not only sophisticated modeling approaches and tools, but also considerable training and education efforts. To make people ready for model-driven development, its principles and applications need to be taught to practitioners in industry, incorporated in university curricula, and probably even introduced in schools.

Industry is striving to improve their practice of software development by adopting MDD. The adoption, nevertheless, is determined by the availability of skilled software engineers who have been educated and trained in modeling and model-driven development. On the other hand teaching model-driven development skills slowly influences the practices in industry as an increasing number of graduates might make realizing the vision of MDD possible.

The educator's symposium at MoDELS is intended as a forum in which educators and trainers can meet to discuss pedagogy, use of technology in the classroom, and share their experience pertaining to teaching modeling techniques and model-driven development.

The leading topic of this symposium was the synergy between industrial needs, influences on education and vice versa. A special emphasis will be put on the synergy between industrial needs and university education. In particular the following topics are encouraged:

- Designing of and experience from university courses at various levels with industrial needs in mind
- How to include industrial experiences into teaching modeling and MDD
- How to identify modeling-related topics to be undertaken while teaching modeling and MDD, which are of interests to industry
- How to ensure and assess industrial relevance of the contents of modeling courses
- How to assess industrial relevance of the teaching/learning process
- How the teaching of modeling techniques influences industrial practices
- Methodology issues (how to teach modeling or MDD) with industry in mind
- Integrating modeling and MDD into the software engineering curriculum
- Teaching modeling, MDD and associated tools (requirements, available tools)
- Requirements from industry for university education in MDD
- Experiences from industry about education in MDD
- Case studies on required skills for realizing the vision of MDD.

**Presentations**

The presentations at the Educators’ symposium leaned towards industrial relevance of modeling courses. The majority of papers considered the issues of industrial relevance of the education, which was one of the main topics of the symposium. In particular the papers addressed the following issues:

- experiences with teaching modeling throughout the software engineering curriculum
- using project-based learning as a vehicle for teaching modeling
- teaching modeling through student projects where parts of tools are implemented
- teaching modeling in the context of J2EE applications
- using an artificially created software development laboratory as a means of enhancing the motivation for learning modeling

All topics formed a basis for the discussion on subjects related to teaching the concepts of modeling and model-driven software development. All papers considered model-driven software development as the necessary skills for the future software developers.

The variety of authors from various countries from 2 continents provided an opportunity to compare the industrial views on modeling – from modeling being a desired skill in industry to modeling being only a surplus (while the desired competence was in the tools and technologies). These aspects led to two interesting discussion sections.

**Discussions**

The discussions during the symposium were concerned with two main aspects: maximizing students’ chances of success on the global job market, building an experience exchange network between the student community and the teacher community. The following points were addressed during the discussion:

- Course content, in particular lectures and supplementary activities, such as exercises and laboratories,
- Process of teaching
- Format of the course, in particular, the distinction between education and training, as the latter seems to be more appreciated by industry
- Course support
  - training materials, such as textbooks, material from the web, Wiki – maintained by the students themselves,
  - Tools used during courses.