

Call for Papers

TOWERS 2007

First International Workshop on Towers of Models 2007

<http://www.model-transformation.org/TOWERS2007/>

24 or 25 June 2007
Zurich, Switzerland

Co-located with TOOLS EUROPE 2007

<http://tools.ethz.ch/>

Theme

In his seminar of January 2007 at the memorial for Gilles Kahn, Robin Milner spoke on the subject of the future of informatics¹.

In particular, he talked about the Grand Challenges in Computing – amongst which there is a Challenge in Ubiquitous Computing. Milner noted that “software engineering does not match procedures in other engineering disciplines ... A Grand Challenge is [therefore] to establish modelling as the basis of informatics.”

A more thorough science-based approach to informatics and ubiquitous computing is both necessary and possible. We often think in terms of models, whether formal or not. These models, each involving a subset of the immense range of concepts needed for ubiquitous computer systems, should form the structure of our science. Even more importantly, the relationships (either formal or informal) among them are the cement that will hold our towers of models together. For example, how do we derive a model for senior executives from one used by engineers in designing a platform for business processes, or by theoreticians in analysing it?

A model consists of concepts and a set of permitted activities in terms of these concepts. Models can be combined and can be realised (e.g., models can be implemented, or explained, or refined by other models). For example, from Milner’s presentation, referring to models of process and interaction:

- security disciplines **realised by** cryptography
- higher-order logic **explains** security disciplines
- cryptography **implemented by** programming language
- intracommunication **realised by** intercommunicating processes
- swim lanes **explain** intracommunication
- CSP **refined by** CSP

The essence of software engineering and informatics is formulating, managing, and realising models. For realistic software engineering, we will need towers of models, built using complex combinations of models. Models vary from very formal to very informal, but this is independent of their usefulness. By looking at relationships between models, we get a chance to relate the less formal to the more formal – and

¹ <http://www.inria.fr/gilleskahn/presentation/milner.pdf>

thus bring users/engineers/theorists closer to each other. Many examples of such relationships exist; we need to base our methodologies on them.

Milner's vision expressed above meets what is being more and more pragmatically observed and promoted by modern model-driven engineering practices. The TOWERS 2007 workshop aims to bring together researchers working on Modeling-in-the-large issues, with a view to discussing them, comparing their approaches, techniques, or ideas, and letting these researchers take advantage of different perspectives - theoretical, conceptual or practical - on these issues.

Any conceptual contribution to Milner's towers of models vision or any practical illustration of its possible deployment will be highly relevant to this workshop.

Goals

The goal of the TOWERS 2007 workshop is to bring together researchers and practitioners interested in the development of modelling as the basis of informatics and more specifically on global model management. In particular, the workshop aims to explore integration and interoperability of models, based on Milner's idea of towers of models. Specifically, we are interested in the following areas:

- Precise definitions of relationships between models (e.g., conformance, realisation, implementation, refinement, composition/merging)
- Repositories for models, and issues related to establishing and managing repositories
- Novel structures and definitions for formulating Towers of Models
- Relations to more practical and normative initiatives like the OMG's metamodeling stack or the Eclipse Modeling Project
- Coordination and synchronisation between models and model repositories
- Relationships between the Grand Challenges in Computing and modelling
- Comparing semantic frameworks for model composition, coordination, and realisation
- Model composition techniques
- Model realisation techniques
- Taxonomy of modeling resources (models, metamodels, transformations, metadata, etc.)
- Taxonomy and precise definitions of global model relationships (conformance, correspondences, matching, composition, etc.)
- Model repositories and issues related to establishing, maintaining and using various relationships between modeling resources
- Relations between model-driven engineering and Domain-Specific Language (DSL) construction frameworks
- Coordination and synchronization between different modeling resources
- Higher-level abstractions and tool support for model coordination
- Comparing semantic frameworks for model coordination
- Scalability and extensibility of compositional model abstractions
- Model annotation or decoration techniques
- Automatic checking of composite model consistency
- Reasoning about correctness of model compositions

- Prediction of properties of compositions from properties of the involved modeling components
- Expression and verification of global constraints
- Formal semantics and type systems for model composition
- Domain-specific versus general composition languages

Submissions

We solicit papers on the above topics. Papers should be original, and not submitted for publication elsewhere. They should generally be around 15 pages in Springer's LNCS format. However, we would like to give the maximum freedom to contributors with respect to the number of pages in order to let them express their original ideas.

Submission details will shortly be available on the workshop web site.

All submitted papers will be peer reviewed by members of the programme committee. Accepted papers will be published in a technical report available at the workshop in Zurich; authors of selected papers will be invited to submit extended and revised versions of their work for consideration by a Special Issue of the Springer journal *Software and Systems Modelling*, which will be published some time after the workshop.

Important Dates

Submissions: 1 May 2007
Notification: 28 May 2007
Camera-ready: 7 June 2007
Workshop: 24 June 2007

Program Committee (Preliminary)

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