Model-based

Ubiquitous

Interactive

Modiquitous 2011

Proceedings of the 1st International Workshop on Model-based Interactive Ubiquitous Systems

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Proceedings of Modiquitous Workshop

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Stefan Pietschmann is research associate and Ph.D. student at the Institute of Software and Multimedia Technology of the Technical University of Dresden. He has been actively involved in several research projects in the field of collaborative and context-aware web applications. In the project CRUISe he specifically addresses the model-driven development of adaptive interactive applications based on the idea of a universal service composition.

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INTRODUCTION

Ubiquitous systems today are introducing a new quality of interaction both into our lives and into software engineering. Systems become increasingly dynamic making frequent changes to system structures, distribution, and behavior necessary. Also, adaptation to new user needs and contexts as well as new modalities and communication channels make these systems differ strongly from what has been standard in the last decades.

Models and model-based interaction at runtime and design-time form a promising approach for coping with the dynamics and uncertainties inherent to interactive ubiquitous systems (IUS). Hence, this workshop discussed how model-based approaches can be used to cope with these challenges. Therefore, it covers the range from design-time to runtime models and from interaction to software engineering, addressing issues of interaction with and engineering of interactive ubiquitous systems.

The MODIQUITOUS workshop was intended to discuss challenges and possible solutions of the EICS community to design and runtime aspects of interactive ubiquitous systems with a focus on model-based approaches. It aims to bring together researchers and practitioners focused on different problems of IUS.

THEME, GOALS, AND RELEVANCE

Model-based interactive ubiquitous systems form a new promising yet challenging domain within the scope of the Engineering of Interactive Computing Systems (EICS) conference. This workshop is intended to discuss these challenges and possible solutions of the EICS community to design and runtime aspects of interactive ubiquitous systems with a focus on model-based approaches.

The related problem space becomes clear when looking at typical future scenarios: users will not only carry their data but also their applications and profiles with them. This may mean switching from planning a project on a desktop system to a collaborative setting in a meeting and further to a mobile or public display setting where a mobile device is used for creating sketches for the first steps in the project. Consequently, applications will evolve from device-oriented to emergent cyber-physical and ubiquitous software in a broad sense, forming interactive and socio-technical systems. This opens manifold possibilities, but also a number of research problems regarding both the development process and the execution environment for those kinds of applications.

The MODIQUITOUS workshop is intended to provide a basis for discussion the adequate solution space. Therefore, it aims to bring together researchers and practitioners focused on different challenges of IUS, including:

- Model-driven architecture (MDA) in the context of IUS

- Advantages and potential problems of using MDA in the IUS domain

- Meta models for IUS, specifically for IUS-related aspects like interaction, different modalities, dynamic distribution, context-awareness, etc.

- Domain-specific models for IUS

- Model-driven generation of (intelligent) IUS

- Model-to-model and model-to-code transformations for IUS development

- Model-driven development and execution architectures, i.e., runtime systems for IUS

- Tools and frameworks for supporting the model-driven development of IUS

- Concepts for context-awareness and self-adaptation of IUS on model and runtime

- Software Engineering aspects of IUS

- Human Computer Interaction aspects of IUS

All these topics are of high relevance to a big part of the EICS community as their use is not restricted to ubiquitous systems and will show new ways for many kinds of new systems like mobile device settings, pervasive computing and social software.

PROGRAM

The workshop was held in the morning of June 13, 2011 as part for the ACM EICS Symposium.

08:45	**Arrival**
09:00	**Welcome and introductions**
	Introductory statements by the organizers and brief introduction by each participant
09:15	**Paper presentations**

- Emmanuel Dubois, Christophe Bortolaso and Guillaume Gauffre
  Models Articulations for Ubiquitous System Design

- Linshu Duan and Heinrich Hussmann
  Model-Based Testing of Automotive Infotainment System HMIs

- Jan Zibuschka, Uwe Laufs and Heiko Roßnagel
  Towards Ubiquitous Emergency Management Systems

- Ivan Gudymenko and Katrin Borcea-Pfitzmann
  A Framework for Transforming an Abstract Privacy Model into Implementable UbiComp System Requirements

10:35	**Coffee break**
11:00	**Paper presentations**

- Florian Haag, Michael Raschke and Thomas Schlegel
  Ubiquitous Alignment

- Marius Feldmann, Thomas Springer and Alexander Schill
  Generating consistent universal controllers for Web-Service-enabled appliances

- Romina Kühn, Christine Keller and Thomas Schlegel
  A Context Taxonomy Supporting Public System Design

12:00	**Discussion and Topic Definition**
	Discussion of hot research topics and definition of topics for the groups
12:15	**Group Work**
	Discussion of the selected topic, e.g., identification of research roadmap items
12:45	**Discussion**
	Plenum discussion and topic integration
13:00	**Lunch**