

## COMPUTER SCIENCE COLLOQUIUM

Department of Computer Science  
City University of Hong Kong

### **Model-Based Development of Interactive Systems - Tool Support for Software Engineers and HCI Specialists**

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**Date :**

30 July 2007 (Monday)

**Time :**

10:00am - 11:00am (Refreshment will be served at 9:45am)

**Venue :**

CS Seminar Room, Rm Y6405, 6th Floor Yellow Zone, Academic Building,  
City University of Hong Kong, Tat Chee Avenue, Kowloon Tong.

#### **Abstract**

Model-based software development is becoming more and more popular because of its advantages in managing different versions of software for different platforms that are sometimes called product lines.

Nowadays, the term model-based is often identified as part of the object-oriented development strategies related to UML. The origins of using model specification in software development come from task-based ideas. Originally, such models were used to specify the behavior of people. Later on task models became the basis for developing user interfaces.

During the last several years we have been working on combining object-oriented and task-based methods. In this talk we will present an adaptive, platform independent pattern-based development process using different models. However, the talk will concentrate on a special problem of developing user interfaces from models. It especially focuses on deriving navigational models for a variety of special devices. It will show how platform dependent specifications can be generated from general specifications.

The talk is structured in the following way that first task models and dialog graphs are introduced. Afterwards it will be shown how tools can be used to support the development process from task models to dialog graphs. Additionally, it will be shown how abstract canonical prototype of interactive systems can be generated. We will demonstrate how such prototypes can be animated based on the related task model and the specified navigation dialogs. It will also be presented how the prototype can evolve to the final interactive system using XUL for user interface specifications. A special XUL editor has been developed that allows to replace generated GUI elements. Object models can be used to generate details of a user interface. The refined user interface elements still have a reference back to the related models. This allows to identify the corresponding methods in the application kernel and it offers a lot of opportunities for usability evaluations.

The methodology we will present allows an interactive development of as well the application kernel as the user interface. It is important to mention that according to this approach software engineers and HCI specialists base their work on the same models.

Most of the tools were implemented in java and are available within the eclipse environment.

#### **Biography**

Dr. Forbrig is a full professor of software engineering at the University of Rostock in Germany. He got his PhD in compiler construction (1980) and his habilitation in software engineering methods (1987). Besides working in industry from 1981 to 1998 he was appointed as a full professor in 1994. His research interests include classical software engineering like UML, design patterns and case tools. Additionally, he is interested in combining task-based development methods with object-oriented ones. His research combines human computer interaction with software engineering.

Dr. Forbrig is vice chair of IFIP TC 13.2 and was visiting professor at the University of Cottbus (Germany, 1993), University of Linz (Austria, 1997), University of Potchefstroom (South Africa, 2000) and Concordia University Montreal (Canada, 2003).

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*In case of questions, please contact Dr Orville Leverne Clubb at Tel: 2788 7652, E-mail: [dcclubb@cityu.edu.hk](mailto:dcclubb@cityu.edu.hk),  
or visit the CS Departmental Seminar Web at <http://www.cs.cityu.edu.hk/>.*