Model a Discourse and Transform it to Your User Interface

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Abstract. Every interactive system needs a user interface, today possibly even several ones adapted for different devices (PCs, PDAs, mobile phones). Developing a user interface is difficult and takes a lot of effort, since it normally requires design and implementation. This is also expensive, and even more so for several user interfaces for different devices.

This tutorial shows how human-computer interaction can be based on discourse modeling, even without employing speech or natural language. Our discourse models are derived from results of Human Communication theories, Cognitive Science and Sociology. Such discourse models can specify an interaction design. This tutorial also demonstrates how such an interaction design can be used for model-driven generation of user interfaces and linking them to the application logic and the domain of discourse.

Keywords: Discourse modeling, model-driven user interface generation.

1 Tutorial goals

The main goals are to show a new approach to modeling discourses, and to demonstrate that and to explain how user interfaces can be generated automatically from high-level discourse models, primarily through transformations using a model-driven approach. Ideally, even end users may be able to model discourses and to transform them into their user interfaces.

2 Key Learning Outcomes

In this tutorial, participants learn about modeling discourses using a new approach inspired by human-human communication. They know how modeling discourses and generating user interfaces can be approached systematically. Based on the available tool for automated generation of user interfaces from such models, participants also learn about a new approach to UI prototyping with "perfect fidelity". The result would be identical to the real UI due to this generation process, assuming that the same interaction design according to our approach is taken as input. After a change in

the discourse model, the related changes in the UI can be seen more or less immediately.

3   CV of the Presenter

Hermann Kaindl joined the Institute of Computer Technology at the Vienna University of Technology in Vienna, Austria, in early 2003 as a full professor. Prior to moving to academia, he was a senior consultant with the division of program and systems engineering at Siemens AG Austria. There he has gained more than 24 years of industrial experience in software development and human-computer interaction. He has published four books and more than a hundred papers in refereed journals, books and conference proceedings. He is a *Senior Member* of the IEEE, a *Distinguished Scientist* member of the ACM, a *Fellow* of IARIA and a member of the INCOSE, and is on the executive board of the Austrian Society for Artificial Intelligence.

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