UIs Automatically Optimized for Your Smartphone

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Abstract. Graphical user interfaces (UIs) for PCs will most likely not fit relatively small screens of devices like today's *Smartphones*. Providing dedicated UIs for several devices manually, however, is costly and takes time. Therefore, we have developed an approach to (semi-)automatic generation of UIs for various devices. A designer defines classes of dialogues in a device-independent discourse model. Such a discourse model can be also viewed as specifying classes of scenarios, i.e., use cases. It refers to a *domain model* that specifies the domain-of-discourse of the dialogues between user and *application*. From such models, we can generate UIs (semi-)automatically. Recently, we included in this generation process *automatic optimization* based on heuristic search. In effect, this tutorial shows that and how user interfaces can be automatically optimized for your Smartphone.

Keywords: (Semi-)automatic generation of user interfaces, automatic optimization for small devices, Smartphones.

1 Tutorial goals

The main goals are to show that usable *user interfaces* (UIs) can be generated (semi-)automatically, in particular through *automatic optimization* based on heuristic search. This approach is particularly useful for optimizing UIs for relatively small screens like those of current *Smartphones*. Just based on a simple device specification of the Smartphone, the UI is specifically optimized for it. Such UIs can be generated fully automatically and optimally fit the given device, so that they are ready for real-world use, e.g., on Smartphones.

2 Key Learning Outcomes

In this tutorial, participants learn about modeling discourses using a new approach inspired by human-human communication. They will know how modeling discourses and generating user interfaces can be approached systematically. They will also see how techniques from heuristic search can be used for optimizing automatically generated user interfaces for small devices like today's Smartphones.

3 CV of the Presenter

Hermann Kaindl is the director of the Institute of Computer Technology at the Vienna Univ. of Technology. He joined this institute 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 member of the INCOSE and the AAAI, and is on the executive board of the Austrian Society for Artificial Intelligence.

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