

# Tools and Techniques for Pervasive Usability

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Nowadays, everyday life is becoming a multi-platform environment where people are surrounded by different types of devices through which they can connect to networks in different ways. Most of them are mobile personal devices carried by users moving freely about different environments populated by various other devices. Such a scenario raises the need for multi-platform migration services that are able to follow users through the changing contexts by moving from one device to another at run time, while also adapting to its specific features.

In this talk I will discuss how methods and tools can support designers and developers to address a number of challenges raised by pervasive usability, such as the possibility of obtaining user interfaces able to adapt to any device. I will provide an overview concerning results that can be obtained through model-based approaches, in particular when multi-device interfaces, even using different modalities, are considered, and will link up the discussion to projects currently underway. A key aspect is to be able to have different views on interactive systems, each view associated with a different abstraction level. With the support of tools, XML-based languages and transformations, it is possible to move from one level to another and convert a description for one interaction platform to another for a different one.

To address such issues, traditional solutions such as transcoding or style sheets are not enough. We need new authoring environments able to support designers and developers to obtain usable multi-device and multi-modal interfaces. Such tools should be able to provide various levels of automation and to capture the many relations between tasks and platforms. Integrated support of top-down and bottom-up transformations can provide the flexibility necessary to address the many needs of developers and designers. I will also discuss how the multiple views of an interactive system can support run-time migration of user interfaces through different platforms while preserving interaction continuity and usability. This implies attention to systematic methods to support run-time adaptation of interactive systems, tools supporting such methods, and representations able to capture the information that the methods require for runtime support.

Lastly, a research agenda for the field will be introduced and discussed.