A Proposal for a TOCHI Special Issue on

User Interface Description Languages for Next Generation User Interfaces

Why it is opportune to produce the special issue now (less than 500 words):

In the last decade, new classes of devices for accessing information have emerged along with increased connectivity. In parallel to the proliferation of these devices, new interaction styles have been explored. Among these new styles are virtual reality, mixed reality, 3D interaction, tangible user interfaces, context-aware interfaces and recognition-based interfaces. As a result of this increasing diversity of devices and interaction styles, developers of next-generation interfaces experience difficulties such as the lack of appropriate interaction abstractions, the need to create different design variations of a single user interface and the integration of novel hardware. As part of the user interface software research community effort to address these difficulties, the concept of a User Interface Description Language (UIDL), which has its foundations in User Interface Management Systems and model-based authoring, has reemerged as a promising approach. UIDLs allow user interface designers to specify a user interface, using high-level constructs, which abstract away implementation details. UIDL specifications can then be automatically or semi automatically converted into concrete user interfaces or user interface implementations. Several UIDLs, mostly using XML as the general language, have been developed in recent years in order to simplify the development of next generation interfaces. However, many questions regarding the usefulness and effectiveness of UIDLs for next generation user interfaces remain open: What models are required for specifying the dynamic behavior of next generation interfaces that are characterized by continuous, physical and multi-user interactions? How can UIDLs be made understandable and useful to user interface developers from different disciplinary backgrounds? How should UIDL's be evaluated? What UIDL approaches will result in powerful design and run time services? And finally how the result of collaboration between user interface developers and UIDL researchers will affect the UI architectural framework of the next generation of user interfaces?

A number of workshops were held in recent years, addressing questions that are of relevance to the topic of this special issue: an AVI 2004 workshop on "XML-based User Interface Description Languages". A CHI 2005 workshop, "The Future of User Interface Design Tools", and a CHI 2006 workshop, "What is the Next Generation of Human Computer Interaction?". Finally, a successful workshop on User Interface description Languages for Next Generation user Interfaces was held in CHI 2008, attracting an interdisciplinary body of participants that included interaction designers and user interface software tools researchers. Encouraged by the interdisciplinary interest and new growth in the field of UIDLs for next generation user interfaces as demonstrated by these workshops, we believe that the time is ripe to present high-quality, original work that discusses the ways in which UIDLs can support the design, implementation and evaluation of next generation user interfaces.