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## **Re: W3C Workshop on Future Standards for Model-based User Interfaces**

My primary objective would be to attend the workshop to exchange ideas with experts in the area of web engineering and model-based web user interfaces. My participation is encouraged by Prof. Norrie and would be funded as part of my research at ETH Zurich. Let me know if I can support the workshop in some other way (presentation, organisation, etc.). See the more detailed statement of interest below. Since statements of interest are subject to be published on the web page of the workshop, I chose the third person.

### **Statement of Interest:**

Michael is a young academic in the Global Information Systems Group at ETH Zurich. His research interests revolve around web engineering and usability, context-awareness, and support for adaptivity. As part of his research, he studies existing web design methodologies (WebML, HERA, UWE, etc.) as well as experiments with popular web application development frameworks (GWT, JavaFX, OpenLaszlo, Ruby on Rails, jQuery UI, YUI, etc.), some of which he also teaches in the web engineering course at ETH Zurich.

His recent work includes a domain-specific language for context-aware database-driven web applications.<sup>1</sup> The DSL addresses the gap between existing web design methodologies on the one hand and context-aware development frameworks and implementation platforms on the other. The goal is to design a common language with integrated support for design and run-time adaptivity in web applications that scale along multiple dimensions of context.

Michael is also interested in web usability and quality aspects of web engineering. Given the proliferation of novel forms of large displays and the fact that overall screen sizes and average resolutions have increased dramatically over the past few years, he is currently working on usability metrics that inform the design of web sites with respect to large screens. So far, adaptation to large screens has only received little attention in the web engineering community where the focus has tended to be on migrations between desktop and mobile platforms and therefore adaptation to smaller screens. As far as adaptation to large screens is concerned, it is not sufficient to scale the content merely on a percentage basis. The efficient 'upscaling' of content not to waste valuable screen real estate and to force unnecessary scrolling in widescreen contexts is still an issue. His tentative solution is based on the DSL with its rich context model and a context-aware debug tool he is developing as part of his Ph.D. to guide the design and support developers in the often cumbersome testing and debugging processes of adaptive web applications.<sup>2</sup> His current research focuses on the context-aware concepts and the required forms of design and run-time adaptations based on a concrete UI using native web technologies.<sup>3</sup> In the future, the approach is to build on a component-based UI model that better meets the new requirements of modern Web 2.0 and Rich Internet Applications which do not necessarily follow the traditional page-based model of the web. He believes that future standards for model-based UIs should cater for the component-based plug-and-play style of modern web applications and be aligned along scenarios that support adaptation to different device capabilities and platform constraints based on first-class context-aware concepts.

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<sup>1</sup> Michael Nebeling, Michael Grossniklaus, Stefania Leone, and Moira C. Norrie, "Domain-specific language for Context-aware Database-driven Web Applications", *submitted to ICWE 2010*

<sup>2</sup> Michael Nebeling, "Investigating Integrated Design and Run-time Support for Adaptivity in Multi-dimensional and Highly Interactive Web Applications", *Ph.D. Research Plan, ETH Zurich, March 2010*

<sup>3</sup> Michael Nebeling, Fabrice Matulic, and Moira C. Norrie, "Adaptation of Web Sites to Large Screens", *submitted to the Quality of Web Engineering workshop at ICWE 2010*