Keynote: Navigation in Ambient Spaces

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ABSTRACT

More and more spaces and environments are now sensitive and responsive to the presence of their users and not longer in a research prototype stage. In my talk I will highlight several interaction challenges that arise for the users in these novel and complex so-called “smart” environments. In particular, I will focus on how people can be guided through these spaces with the help of novel interface technologies. While these space may offer hundreds of different services and experiences to their users, still this fundamental problem will remain as the users need to actively navigate in these environments. In the talk I will present different of our approaches to help people "find their ways" in these environments with novel interfaces. Personal wearable devices can play an important role to assist the users. One example highlighted in the talk, besides others [1], will be the StripeMap prototype [3]. Small wearable devices present new challenges for cartography as well as HCI. In cartography large display sizes have significant advantages. The StripeMaps is a system that adapts the mobile web design technique of linearization for displaying maps on smartwatches' small screens. Just as web designers simplify multiple column desktop websites into a single column for easier navigation on mobile devices, StripeMaps transforms any two-dimensional route map into a one-dimensional "stripe". A conducted user study shows show that this simplification allows StripeMaps to outperform both traditional mobile map interfaces and turn-by-turn directions for pedestrian navigation using smartwatches.

Author Keywords

Smartwatches; Cartography; Mobile Maps; Pedestrian Navigation

ACM Classification Keywords

H.5.2 [Information Interfaces and Presentation]: User Interfaces—*input devices and strategies*, *interaction styles*

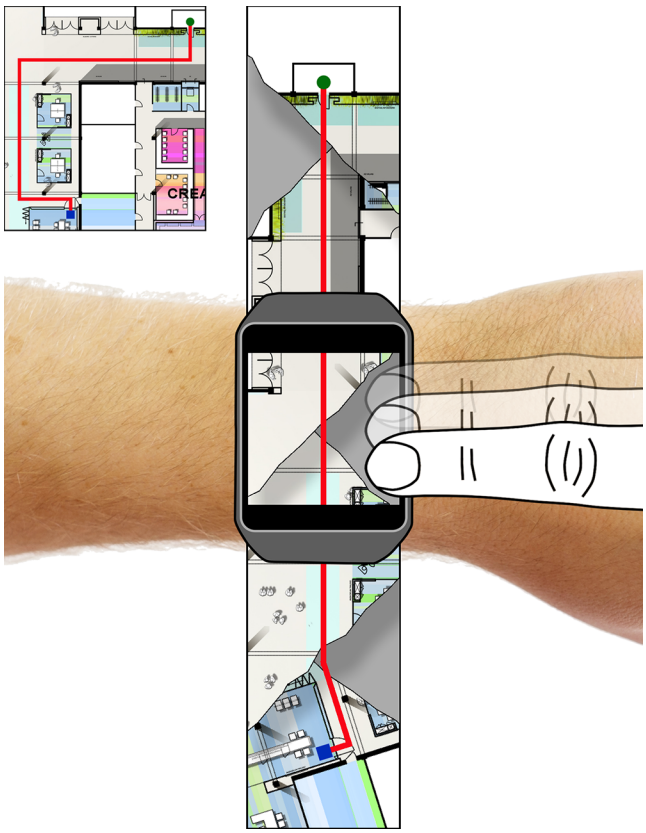

Figure 1: The StripeMaps concept. As screen space and interaction possibilities are limited on smartwatches, the StripeMaps application converts a 2D map to a 1D stripe. The original path on the 2D map is shown on the mini-map in the upper left corner. The cut (shown on the smartwatch) indicates the direction of the turn the user needs to make to navigate along the path.

ABOUT THE SPEAKER

Johannes Schöning a professor of computer science with a focus on HCI at Hasselt University. In addition, he is a visiting lecturer at UCL London within the Intel Collaborative Research Institute for Sustainable Cities. His main research interests are new methods and interfaces to navigate through spatial information. In general Johannes Schöning is developing new intelligent user interfaces that help people to solve daily tasks more effectively [2]. Before taking over the faculty position in Hasselt he worked in industry and at the German Research Centre for Artificial Intelligence DFKI in Saarbrücken from 2009 to 2011.

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During that time Mr. Schöning received a PhD in computer science at the Saarland University in 2010 and a Master in Geoinformatics at the University of Münster at the Institute for Geoinformatics in 2007. His research and work was awarded with several prices and awards, such as two Google Research Awards, the ACM Eugene Lawler Award or the Nokia Innovator Award.

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