Guest Editorial ASSETS 2009

The ASSETS conference brings together a diverse set of researchers from all over the world for the common purpose of exploring the use of computer and information technologies to support and reach everyone regardless of age, disability, or situational impairment. This exploration takes on many forms, with diversity not only in the populations they support, but in the approach and focus of research as well. ASSETS 2009, the 11th ACM SIGACCESS Conference on Computers and Accessibility featured 26 technical papers. I am delighted to have been involved with the editing of this special issue of TACCESS, which is composed of expanded versions of four of these papers. While all four papers share a common focus on accessibility issues for people with visual impairments, their underlying methodologies and themes are applicable to accessibility issues for all people. In addition, these papers represent a diversity of approaches from collaborative techniques for Web accessibility to device development for orientation and mobility, from work to play, from adults to children, and from moving around in the physical world to communication and knowledge acquisition.

The first contribution by Daisuke Sato, Hironobu Takagi, Masatomo Kobayashi, Shinya Kawanaka, and Chieko Asakawa entitled “Exploratory Analysis of Collaborative Web Accessibility Improvement,” is an expansion of the ASSETS 2009 Best Paper and takes a very novel look at Web accessibility. Today, Web accessibility for people with visual impairments remains a challenging issue. Rather than depending on site owners to make their pages accessible, this article reports on a project that enables volunteers to fix accessibility problems that are reported via this service. Web accessibility issues are posted to a support community. Supporters then use intelligent authoring tools to (collaboratively) generate metadata that addresses the problems. The metadata is stored in a public repository and can be applied by any user of the identified Web pages. The article describes the project and its philosophy, provides some case studies, and then presents a detailed analysis of the usage of the service over a 20-month period, which shows an impressive number of users/volunteers and high-quality fixes in relatively short amounts of time. Future directions aimed at making this a successful mainstream approach are provided.

Two of the articles in this special issue address the needs of orientation and navigation for people with visual impairments, but the approach and populations under study are very different. Both articles demonstrate the usefulness of their systems by including large-scale evaluations within the target population.

“Orienting Kinesthetically: A Haptic Handheld Wayfinder for People with Visual Impairments” by Tomohiro Amemiya and Hisashi Sugiyama describes a system intended to aid adults with visual impairments in navigating independently. The article describes the implementation of a handheld device that applies a pseudo-attraction force technique to generate a persistent pulling or pushing sensation. Not only does the article illustrate the engineering considerations in developing effective and potentially useful devices, it also illustrates practical and technical issues with evaluating device use in a realistic and safe environment. The device was evaluated with 23 visually-impaired participants walking in a human-sized maze to simulate outside navigation. The results of the study are very encouraging for this unique approach.

The contribution by Jaime Sanchez, Mauricio Saenz, Miguel Ripoll, and Jose Miguel Garrido, “Usability of a Multimodal Videogame to Improve Navigation Skills for Blind Children,” also addresses the problem of navigation and orientation but from the perspective of teaching needed skills to children with visual impairments through play. The article reports on the development of two different games: one is a haptic-based device (Digital Clock Carpet) and the other a 3D-sound videogame (MOVA3D). Both of these games are presented with an extensive usability evaluation of each. Interestingly, the evaluation consisted of several phases and illustrates an iterative design process coupled with user feedback. Several usability evaluations were conducted, first with experts in usability and interaction, and later with several groups of children from the target population. Improvements were made between each evaluation. Finally, a substantial 3-month study was conducted concerning the impact of the games on the development and use of orientation and mobility skills.

The final contribution in the issue is by Iyad Abu Doush, Enrico Pontelli, Tran Cao Son, Dominic Simon, and Ou Ma and is titled “Multimodal Presentation of Two-Dimensional Charts: An investigation Using Open Office XML and Microsoft Excel™.” The article looks at issues with access to 2-dimensional business charts written in Excel for people with visual impairments. This sophisticated system combines the use of aural cues, speech commentaries, and 3-dimensional haptic feedback tailored to both the type of chart (e.g., line graph versus bar chart) and the task the user is trying to accomplish (e.g., question-answering versus knowledge synthesis). The authors have handled a wide variety of chart-types and have tailored their methods to each. As with other article in this issue, details of the implementation as well as the design process and iterative evaluation/redesign loop are described. In several places the authors have abstracted design principles and guidelines that should prove useful for others interested in accessibility issues with charts.

Like all of the papers at ASSETS 2009, these papers are brought together by the common motivation of developing technologies to improve the inclusion of people who might otherwise be excluded. We see common themes concerning what this means, including the development of technologies with a particular purpose (through an understanding of both issues faced by the target population and necessary characteristics of potential solutions), and evaluations

of both usability and effectiveness of the developed technologies with the target population. These are important themes that should aid all accessibility researchers in making a difference in accessibility for all.

Kathleen F. McCoy
Assets 2009 Program Chair