SIGACCESS Member Profile

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Member of SIGACCESS since: 2005

Member of ACM since: 2005

1. How many years have you been working in this area?

17 years professionally, but have been dabbling in AT for close to 30 years. (my brother is blind) I built my first CCTV system in 1976 when I was 14.

2. Please describe your current and/or past research project(s): (Please include target user group, technologies used, example results obtained to date, etc.)

The majority of the work we undertake is aimed at assisting the vision impaired in education and is of an applied nature. Our "umbrella" research project is the Cisco Academy for the Vision Impaired (CAVI, see http://www.ece.curtin.edu.au/~iain/CAVI). In this project we take an existing industry standard certification course, the Cisco Network Academy Program (see http://cisco.netacad.net) and modify the delivery and develop teaching aids so that people with severe vision impairment can successfully undertake the courses. We teach both local students, who attend in person, and remote students who access the lectures (live) by VoIP technologies and the laboratory equipment via the Internet. Our current students are located in the USA (5), Germany (1), the UK (2), India (1), Eastern Australia (9) and Perth (5).

This gives us the ideal environment to examine what technology is already available and what needs to be developed. This has led to research in the areas of Braille character recognition, hardware Braille translation methods, accessible software development (e.g. http://www.ece.curtin.edu.au/~iain/inetsim), a dual channel wireless headset and accessible PDAs.

3. What is your professional background?

I received my degree in Computer Systems Engineering in 1998. I had been working for 8 years as Technical officer at the Association for the Blind (WA) developing hardware and software solutions for people with vision impairments in employment and education and decided I needed to update my qualifications. Prior to undertaking study, I worked in the industrial robotics area, maintaining and programming CAM systems for engraving and signwrtiting. Currently, I am undertaking a PhD titled "eLearning Modalities and the Vision Impaired" in addition to my role as Lecturer with the Department of Electrical & Computer Engineering.

4. What technology or product would you really like to see developed? Why?

An affordable PDA for the blind. We are currently working on an open system for this, much like the concept in the One Laptop Per Child (OLPC) project. The device we are developing is an ARM based linux machine that incorporates a "docking station" that produces hard copy Braille. Unlike existing systems we intend not only that the software used be open source and include a usable/accessible development environment but also that the hardware be open. This will allow for other developers to build additional functionality such as Braille displays, GPS maps/devices and so on.

5. What product do you think has been really successful in this area? What makes it so good?

None are perfect, but I think the stand out development for the vision impaired is Apples Voice Over (VO). This is because it is released as part of the operating system and for such a young product, is quite usable. The vision impaired are among the most financially disadvantaged and to require payment of the same cost of the computing platform for a screen reader puts computing out of the reach of many, particularly those in the developing world. It also has many other advantages for developers testing new approaches to accessibility. The development environment allows rapid prototyping of user interfaces that include accessibility for very little effort by the developer.

6. Are there any user groups that you feel are currently underserved by the research community? Why?

I would say that more needs to be done for people with low vision. The research community is well aware of the needs of people with no usable vision, but the majority of legally blind have some residual vision. Take for example web browsers, there are several very good applications available for speech output, IBM's Homepage reader is one such application. This is why we, in conjunction with the Association for the Blind (WA), are developing a web browser that will re-render web pages according to the users specifications, tailored for users with low vision. This application allows users to remap colours (without altering the graphics, movies or other media on the page), text sizes and fonts, for particular styles of web pages, that will allow the user to make the most of the vision they have.

7. Have you participated in any SIGACCESS-sponsored event (e.g. the annual ASSETS conference)?

Yes. I attended the SIGACCESS conference in 2006 where I presented four posters on work currently being undertaken. The topics were:

- iNetSim – A network simulation tool for the vision impaired, part of our CAVI project
- Wireless Headset Communications for Vision Impaired Persons in Multi-User Environments
- Hardware-Based Text to Braille Translator- A portable device that optically recognizes Braille and converts it to text for sighted non Braille readers

- An FPGA based system for fast Braille translation – Part of our PDA for the blind project that forward and back translates Braille in hardware.

8. What else would you like to see SIGACCESS do?

I think SIGACCESS is doing well in most areas, the only thing I would liked to have seen is the publication of a journal, which has already been announced. I am looking forward to subscribing to the ACM Transactions on Accessible Computing. There really is a need for a publication in this area, we may be few in numbers, but this is a crucial area of research.