

# Accessibility and Computing

A regular publication of the ACM Special Interest Group on Accessible Computing

## A Note from the Editor

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Dear SIGACCESS member:

Welcome to the September issue of the SIGACCESS newsletter. Two papers are included in this issue. Dr. Leo Ferres provides a thorough report on the 7<sup>th</sup> International Cross-Disciplinary Conference on Web Accessibility. The paper written by Dr. Jonathan Lazar summarizes the recent development in accessibility related public policy in the United States.

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### *Who we are*

SIGACCESS is a special interest group of ACM. The SIGACCESS Newsletter is a regular online publication of SIGACCESS. We encourage a wide variety of contributions, such as: letters to the editor, technical papers, short reports, reviews of papers of products, abstracts, book reviews, conference reports and/or announcements, interesting web page URLs, local activity reports, etc. Actually, we solicit almost anything of interest to our readers.

Material may be reproduced from the Newsletter for non-commercial use with credit to the author and SIGACCESS. Deadlines will be announced through relevant mailing lists one month before publication dates.

We encourage submissions as word-processor files, text files, or e-mail. Postscript or PDF files may be used if layout is important. Ask the editor if in doubt.

Finally, you may publish your work here before submitting it elsewhere. We are a very informal forum for sharing ideas with others who have common interests.

Anyone interested in editing a special issue on an appropriate topic should contact the editor.

# Developing Regions: Common Goals, Common Problems? 7th International Cross-Disciplinary Conference on Web Accessibility Report

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In Memory of William Loughborough (1926-2010)

## Abstract

The Seventh W4A International Cross-Disciplinary Conference on Web Accessibility was held on Monday 26th and Tuesday 27th May 2010 as part of the Nineteenth International World Wide Web Conference (WWW2010) located at the Raleigh Convention Center in Raleigh, North Carolina, USA. We ran over 2 days, welcomed 69 attendees. We accepted 31.25% of all submissions, each paper was peer reviewed by three members of our programme committee. We published ISBN'ed proceedings as part of the ACM Digital Library, and the best papers have been invited to submit extended versions of their work to Taylor and Francis' New Review of Hypermedia and Multimedia.

## Overview

The International Cross Disciplinary Conference on Web Accessibility (W4A) was started in 2004 with the aim of accelerating research activities towards an accessible World Wide Web. Through previous conferences, a growing number of participants from academia, industry, government and non-profit organizations around the world have gathered to exchange their latest research results, widen their perspectives through discussions with their peers, and establish future research agendas across disciplines and sectors. Each year, we choose a theme to encourage a focus on the emerging challenges in a particular area of accessibility, and for W4A 2010 we posed the question: Developing Regions: Common Goals, Common Problems?

A revolution in the information society is now starting, based on the use of mobile phones in developing countries. The hyper-growth of mobile phone penetration is deeply changing the lives of people in most of the world; their ways of communicating, working, learning, and structuring their societies. The promising next step is obviously to access the Web. The Web has already touched the lives of over a billion people and now is the time for the next billions.

However, this expansion faces unprecedented accessibility challenges. Even the word "accessibility" needs a new definition for people in the developing regions. How can someone who is illiterate or barely literate access the Web? In some cases, a language

may not even have a written form. The affordability of the technology is also a challenge, while access is constrained by low computational power, limited bandwidth, compact keyboards, tiny screens, and even by the lack of electric power. All of these constraints compound the problems of access and inclusion.

The desire for access in developing regions and the resourcefulness of the people who want inclusion unite the communities of people in developing regions and the communities of disabled people in the developed world. Will complex and highly graphical interfaces exclude developing regions from access? What problems exist, what are the newly appearing problems, and what solutions are required? How do the adoption patterns for Web accessibility and inclusion vary across cultures? What effect will the Web in the developing regions have on accessibility in the developed regions and vice versa?

We have common goals and common challenges to overcome, but what are they and how can they be addressed to our mutual benefit? What can Web accessibility experts learn from providing access in developing regions and what can developers do to facilitate access in developing regions based on lessons from Web accessibility?

Ten technical papers and 8 communication papers were selected from 32 submissions through our thorough peer-review process. As usual, we received worldwide submissions, spanning Asia, Europe, North America, and South America. The coverage of submissions was comprehensive across Web accessibility research fields: exploration of more scientific, harmonized, and useful guidelines, new tools to improve accessibility, new accessibility technologies to tackle new social and rich websites, technologies to improve Web access in everyday life environments, reports from countries around the globe, and many papers that directly addressed the challenges supporting an ageing population of Web users. This year's Web Accessibility Challenge, sponsored by Microsoft and chaired by Markel Vigo was a big success. We had a record 11 submissions to it, all of excellent quality and leading-edge innovation. Below are the winners of the Challenge awards.

This year, we had two outstanding keynote speakers. Steve Bratt, World Wide Web Foundation and Gregg Vanderheiden, Trace Center. Steve became the first Chief Executive Officer of the World Wide Web Foundation in September 2008. He is leading the launch of the Foundation, and working to fund and start high-impact initiatives to advance both the Web itself and its ability to empower all people on the planet. Steve received his Ph.D. from the Massachusetts Institute of Technology, and his B.S. from the Pennsylvania State University. Steve will share his thoughts on how connecting those who are currently unconnected to the Internet could help alleviate the world's greatest tragedies, such as poverty, hunger, disease, violence, corruption, lack of education, etc. and the complexity of the challenge to be addressed.

Gregg is a professor of Industrial and Biomedical Engineering, and director of Trace R&D Center at the University of Wisconsin-Madison. He has worked in technology and disability for more than 38 years and currently directs the NIDRR Rehabilitation Engineering Research Center (RERC) on Information Technology Access, and co-directs the RERC on Telecommunications Access (joint with Gallaudet University). He has received over 30 awards for his work on technology and disability include the ACM Social Impact Award for the Human-Computer Interaction Community, the Ron Mace Award, the Access award from AFB, the Yuri Rubinski Memorial World Wide Web Award (WWW6), and the Isabelle and Leonard H. Goldenson Award for Outstanding Research in Medicine and Technology

(UCPA). Gregg's talk focuses on how a coalition of academic, industry and non-governmental organizations and individuals are coming together to promote the creation of a National Public Inclusive Infrastructure (NPII) to address the problem of lower cost accessibility that could be invoked on any computer, anywhere.

In addition to the keynotes, this year would have been the first to also host a Dinner Keynote at the conference dinner. We felt that the more casual atmosphere would allow for a more relaxed and extended discussion of the topics among the conference attendees. This first year the Steering and Organizing Committees thought the best person to do this was William Loughborough. William had been associated with San Francisco's Smith-Kettlewell Institute of Visual Science since 1963. His developments at SKIVS included a touch-pad screen reader, a miniature light probe, and the system of Remote Infrared Audible Signage marketed as "Talking Signs" which are installed around the world. Sadly, William passed away unexpectedly only a few days before the conference. During the dinner we instead had a remembrance and a discussion of his legacy, and this conference was dedicated to his memory.

Many people contributed to the success of this conference. We would like to thank the programme committee for their exceptional work and dedication in the review process. We would also like to thank the authors for their excellent work and delegates for their participation. Finally, we would like to thank our sponsors: ACM SIGACCESS; Mozilla Foundation; Google; Microsoft and the Zakon Group.

## **W4A 2008 Roll of Honour**

### ***2010 Best Paper Award***

Andy Brown, Caroline Jay, and Simon Harper; for Audio access to calendars

The rise of 'Web 2.0' has brought a much more interactive aspect to the Web: users are no longer just reading pages, but creating them, modifying them, and interacting with them. The Web is increasingly becoming the preferred means of communication, and particularly booking events and appointments; online personal and corporate diaries allow friends and colleagues to arrange meetings and coordinate activities. Many of these types of online activities require users to perform the apparently simple task of entering a date. For sighted people who have access to pop-up calendars, selecting a date is quick and easy. Unfortunately, this facility is not currently available to people with visual impairments, for whom entering a correctly formatted date can be a difficult and time-consuming task, with mistakes having potentially serious consequences. Here we describe the process by which we designed and evaluated an audio interface for entering dates. An eye-tracking study gave insight into how tabular calendars help sighted people enter dates, This understanding was used to design an audio interface that used the cognitive advantages of the visual design, rather than mimicking the visual representation. Iterative testing was followed by an evaluation using participants with visual impairments that highlighted the problems with manual date entry, and which showed the audio system to be effective and popular.

## ***2010 John M Slatin Award for Best Communication Paper***

Brian Kelly, Sarah Lewthwaite, and David Sloan; for Developing countries; developing experiences: approaches to accessibility for the real world

The need for developing countries to consider appropriate strategies for enhancing access to networked resources by disabled people provides an opportunity to assess the merits and limitations of the approaches which have been taken in western countries. This paper reviews the limitations of dependence on a constrained technical definition of accessibility, and builds on previous work which developed a holistic approach to Web accessibility and a generic model to assist policy makers in understanding the complexities of addressing Web accessibility. We explore how such approaches can be deployed by practitioners and developers with responsibilities for the deployment of Web services within the context of limited resources, flawed technologies, conflicting priorities and debates within disability studies on the nature of disability. A pragmatic framework is presented which supports promotion of digital accessibility within a wider social inclusion context. It learns from past difficulties and aims to assist policy makers and practitioners across the world in decision-making when seeking to deploy accessible Web-based services within the context of limited resources, conflicting priorities and the limitations of technical accessibility guidelines.

## ***2010 Web Accessibility Challenge sponsored by Microsoft: Judges Award***

Nikolaos Kaklanis, Konstantinos Votis, Konstantinos Moustakas, and Dimitrios Tzovaras; for 3D HapticWebBrowser: towards universal web navigation for the visually impaired.

When viewed at a macroscopic scale, an interesting emergent property of the Web is that it constantly evolves towards being the most important entry point for information production and consumption by everyone. This purpose is defeated right if a single user with a disability cannot access a given piece of information on the Web. However, information on the Web is graphically-orientated and in most cases visually impaired users have very restricted access and find it difficult to recognize this kind of visual representation. For visually impaired people and especially for blind users alternative information presentation ways must be found, which would replace visual information. 3D HapticWebBrowser, is a free open source web browser to address the problems of visually impaired in accessing the Web. Issues of multimodal interaction and haptic technologies enable universal navigation of web pages and efficient map exploration of preferable 2D maps.

## ***2010 Web Accessibility Challenge sponsored by Microsoft: Delegates Award***

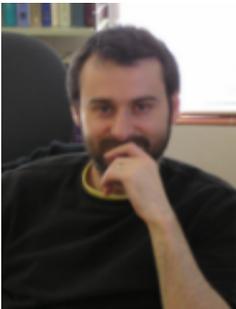
Jeffrey P. Bigham, Chandrika Jayant, Hanjie Ji, Greg Little, Andrew Miller, Robert C. Miller, Aubrey Tatarowicz, Brandyn White, Samuel White, and Tom Yeh; for VizWiz: nearly real-time answers to visual questions.

Visual information pervades our environment. Vision is used to decide everything from what we want to eat at a restaurant and which bus route to take to whether our clothes match and how long until the milk expires. Individually, the inability to interpret such visual information is a nuisance for blind people who often have effective, if inefficient, work-arounds to overcome them. Collectively, however, they can make blind people less independent. Specialized technology addresses some problems in this space, but automatic approaches cannot yet answer the vast majority of visual questions that blind people may have. VizWiz addresses this shortcoming by using the Internet connections and cameras on existing smartphones to connect blind people and their questions to remote paid workers' answers. VizWiz is designed to have low latency and low cost, making it both competitive with expensive automatic solutions and much more versatile

## **W4A 2011**

W4A 2011 will take its usual place, co-located with the WWW 2011 - 18th International World Wide Web Conference, in late March 2011, in Hyderabad, India. Our theme will be 'Crowdsourcing the cloud', and as such we will be particularly interested in receiving submissions that look to address aspects of the challenge of improving accessibility of the Web through virtual collaboration. Details of the conference, including submissions, will be available on the W4A web site at: <http://www.w4a.info/> We look forward to seeing you there!

### **About the author:**



Dr. Leo Ferres is Assistant Professor of Computer Science at Universidad de Concepcion, Chile. He has a PhD in Cognitive Science from Carleton University in Ottawa, Canada. His research interests include language processing, and language generation in particular, and knowledge representation.

# Public Policy Activity

## Related to Accessibility in the United States

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The year 2010 has been very active in the area of public policy related to interface accessibility within the US. A number of events, which have been planned or discussed in previous years, have come to fruition. Other events have occurred which have started new policy processes related to accessibility.

Some background on public policy—it's a broader term than government policy, because public policy also includes activities from non-governmental organizations such as the United Nations and the World Wide Web Consortium (most of the SIGACCESS newsletter readers are probably familiar with the Web Accessibility Initiative, which is a part of the World Wide Web Consortium). In many countries around the world, people with disabilities have certain rights within the law. For instance, many countries require government web sites to be accessible (whether the web sites actually are accessible is a totally different matter).

One of the most active areas of public policy in human-computer interaction has been web accessibility. While there are many topics relating to HCI and public policy (such as distracted driving, privacy, security and voting machine usability), many of these discussions are not driven by HCI folks. As an example, the HCI community entered the area of voting machines relatively late (primarily after the 2000 US Presidential Election). Partially because of this, the national discussion on voting machines still primarily revolves around voting machine security, not usability or accessibility. But researchers and practitioners working on interface accessibility have really been involved in policy discussions for a long time. The SIGCHI, SIGACCESS, and other communities have a long tradition of work towards making interfaces accessible for people with perceptual and motor impairments (and more recently, cognitive impairments). The public policies related to interface accessibility in the United States were built based on existing research and practice, and for a great example, the regulations that relate to US government web site accessibility (part of Section 508) are strongly based on the Web Content Accessibility Guidelines (WCAG 1.0). That relationship is even noted in the 1194.22 portion of the Section 508 guidelines. So there's a long connection and tradition of having a close relationship between accessibility researchers and practitioners and policymakers in the area of web accessibility policy.

Often, I talk with researchers in HCI who don't want to hear about public policy, who don't have training in public policy, and who are quite happy to just work with technology. The reality is, public policies impact the entire field of HCI, especially accessibility. If you don't get involved in policy discussions related to accessibility, you are likely to wind up with policies in place that you don't like. We WANT policies based on input from practitioners and researchers, people who know accessibility firsthand. So please, when you see opportunities to get involved, with local policymakers, with national policymakers, or especially on international standards boards, please, get involved and share your knowledge!

Here's a sampling of events that have occurred in 2010, related to public policy and accessibility in the United States:

March 2010—The US Access Board released a draft version of the new Information and Communication Technology (ICT) Standards and Guidelines, as a part of the "508 refresh." These guidelines were open for public comment until June 2010. The last action before March 2010 had been the TEITAC (Telecommunications and Electronic and Information Technology Advisory Committee) report which had been released in April 2008. A copy of the 2010 draft rules are available at:

<http://www.access-board.gov/sec508/refresh/draft-rule.htm>

April 2010—U.S. Assistant Attorney General Tom Perez, head of the Civil Rights Division of the Justice Department, stated publicly that the Americans with Disabilities Act applies to non-governmental web sites which are considered public accommodations. His exact wording: "It is and has been the position of the Department of Justice since the late 1990s that Title III of the ADA applies to Web sites. We intend to issue regulations under our 2 Title III authority in this regard to help companies comply with their obligations to provide equal access." See full comments at: [http://www.justice.gov/crt/speeches/perez\\_tenbroek\\_speech.pdf](http://www.justice.gov/crt/speeches/perez_tenbroek_speech.pdf)

June 2010—In a joint letter to university presidents across the US, the civil rights divisions of the U.S. Departments of Justice and Education stated that the adoption of inaccessible e-book readers for university coursework, such as the Kindle DX, violates Section 504 of the Rehabilitation Act. It was noted that while the Kindle DX has text to speech capability, the menus and navigation are not accessible, and therefore, if the Kindle DX (or similar e-book readers) are used, appropriate accommodations must be provided. The e-book readers themselves are not considered to be appropriate accommodations.

[http://www.ada.gov/kindle\\_ltr\\_eddoj.htm](http://www.ada.gov/kindle_ltr_eddoj.htm)

June 2010--the Department of Labor issued an advance notice of proposed rulemaking (ANPRM) related to Section 503 of the Rehabilitation Act, to strengthen the regulations relating to hiring, including question (#13) which related to accessible online hiring processes, noting both online hiring processes, and application and testing kiosks. More information at: [http://www.dol.gov/ofccp/regs/compliance/sec503/Sec503\\_ANPRM.htm](http://www.dol.gov/ofccp/regs/compliance/sec503/Sec503_ANPRM.htm)

July 2010—A joint memo, issued by the Office of Management and Budget and the Chief Information Officer of the Federal government, noted that compliance activities related to Section 508 will begin again. While the Justice Department has the responsibility to collect compliance data on Section 508, this data has not been collected since 2004 (although a separate DOJ web page indicates 2003). The memo notes that the Justice Department and the General Services Administration will begin data collection on Section 508 compliance again in Fall 2010. More information at:

[http://www.whitehouse.gov/sites/default/files/omb/assets/procurement\\_memo/improving\\_accessibility\\_gov\\_info\\_07192010.pdf](http://www.whitehouse.gov/sites/default/files/omb/assets/procurement_memo/improving_accessibility_gov_info_07192010.pdf)

July 2010--the Justice Department issued an advance notice of proposed rulemaking (ANPRM), to more clearly have the Americans with Disabilities Act address, as worded by the ANPRM, the "Accessibility of Web Information and Services of State and Local Government Entities and Public Accommodations." Most US states have separate laws or regulations relating to the accessibility of state and local government web sites (see a list of state-level regulations at: <http://accessibility.gtri.gatech.edu/sitid/stateLawAtGlance.php>), but the requirements for accessibility of web sites related to "public accommodations" is still unclear. The original Americans with Disabilities Act was signed into law in 1990, before the advent of the web, and therefore, did not in any way specifically address the web or internet. More information is available at: <http://www.ada.gov/anprm2010.htm>

The year 2010 has been an active one in the area of accessibility policy, and since many of these actions were the beginning, not the end of regulatory processes, it is expected that 2011 will also be an active year. Considering all of the previous examples, it is clearly necessary, as accessibility researchers, to not only keep an eye on the regulatory processes currently happening, but to get involved, and provide our expertise in the development of these processes.

#### **About the author:**



Dr. Jonathan Lazar is a Professor of Computer and Information Sciences at Towson University. He is the founder and director of the Universal Usability Laboratory at Towson University, and currently serves as director of the undergraduate program in Information Systems. Dr. Lazar is co-author of the book *Research Methods in Human-Computer Interaction* (Wiley, 2010), editor of the book *Universal Usability* (Wiley, 2007) and author of *Web Usability: A User-Centered Design Approach* (Addison-Wesley, 2006). Dr. Lazar is the ACM SIGCHI (Special Interest Group on Computer-Human Interaction) Chair of Public Policy, he serves on the editorial boards of *Universal Access in the Information Society* and *Interacting with Computers*, and serves as forum editor for "Interacting with Public Policy" in *ACM Interactions Magazine*. Dr. Lazar received the 2010

Dr. Jacob Bolotin Award from the National Federation of the Blind,  
and received a 2009 Innovator of the Year Award from the  
Maryland Daily Record.