

W4A 2012



# International Cross-Disciplinary Conference on Web Accessibility Lyon, France 2012

<http://www.w4a.info/>

#w4a12

Endorsed by the IW3C2  
International World Wide Web Conference Committee



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# Foreword

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 organisations 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 2012 we aim at exploring the challenges that the Web of Data poses on web accessibility and also we want to ascertain how we can benefit from the methods, techniques and tools used in the domain of the Web of data as some of the problems we face are common: information overload, data unreachability, lack of semantic linking and unstructured content.

When we refer to the Web of data we try to target different phenomena occurring on the Web. The existing superficial content allows us to browse and interact with the Web; however, we are far from taking full advantage of it. For instance, laying beneath the surface of the Web we can find trends and patterns in information structure and in user behaviour that do shape the way we communicate, consume and browse. As far as accessibility is concerned, Web content plays a central role in an ecosystem where user agents, authoring tools, crowd-sourcing frameworks and testing tools determine how accessible is the Web. As these components are moving to the cloud, their mere activity and interplay produces large amounts of data. For instance, thousands of testing reports are being generated every day by automatic tools and auditors. Moreover, crowd-sourcing tools are facilitating a myriad of accessibility fixes and providing guidance to users. In parallel, announcements made by UK and US governments, amongst others, to make public data available are contributing to adding enormous amounts of data to the Web. While some of these data repositories consist of raw data, some other are explicitly structured and semantically annotated set of documents. However, users still find it difficult to access to these data mainly because of information overload and access barriers. So even if the major goal of Open Government initiatives is to foster transparency, the reality is that citizens struggle to access.

Therefore we can find data produced by the accessibility ecosystem –users and tools– and intentionally uploaded data. The former, if adequately exploited, can yield invaluable knowledge to better understand web accessibility as a phenomenon. The latter provide us mechanisms to arrange these data on the web so that they are accessible for machines although not for humans.

This year, we had a record of submissions, 7 technical papers and 14 communication papers were selected from 39 submissions through peer review process. The number of submissions is steadily growing each year and for the next edition, which is the 10th anniversary of our conference, we expect to hit 50 submissions. As usual, we received submissions from researchers worldwide, spanning Asia, Europe, North America, Oceania and South America. The coverage of submissions was comprehensive and innovative across Web accessibility research fields: sign language on the Web, ubiquitous accessibility, access to rich and dynamic content and dyslexia issues on the Web. Acceptance rate of technical papers was 30%. W4A is a small yet influential conference that has a growing impact on the research community. We back this statement as according to the ACM Digital Library, on average, each W4A paper has been downloaded 441 times and has 3.06 citations. It is the acceptance rate as well as the thorough review process which leads to a high quality number of papers that ensures the excellence of the W4A conference. These data confirm that W4A does not only provide excellent visibility to papers but also enables strong scientific impact.

James Hendler will be the main keynote of this year's conference. Professor Hendler is the Tetherless World Professor of Computer and Cognitive Science, and the Assistant Dean for Information Technology and Web Science, at Rensselaer (USA). Professor Hendler wrote the seminal paper on the Semantic Web and

has been pioneering the development of the Web of Data paradigm. In this sense, he serves as an expert for the US government, providing guidance to the Data.gov project. His keynote, “Increasing Access to the Web of Broad Data”, will address the opportunities and risks that the Web of Data can bring to Web accessibility realm.

Professor Alan Newell will deliver the William Loughborough Memorial Address (sponsored by ACM SIGWEB). Alan Newell is an Emeritus Professor at the School of Computing at Dundee University (Scotland). He has published widely in this field, including his recent book: “Design and the Digital Divide: insights from 40 years in Computer Support for Older and Disabled People” (Morgan & Claypool, 2011). The after dinner speech takes place in a casual environment will allow for an extended and lively discussion among the conference attendees. Professor Newell will emphasize on the accessibility challenges faced older users in his “Usability, Demography, and Directions for W4A” talk.

Many people contributed to the success of this conference. We would like to thank the programme committee and advocates 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, ACM SIGCHI and ACM SIGWEB; Google; Microsoft; and the Zakon Group.

Markel Vigo, Julio Abascal, Paola Salomoni and Rui Lopes, March 2012

# Conference Programme

Monday 16<sup>th</sup> April 2012

Opening (09:00 – 09:30)

Session 1: Accessible Web 2.0 (9:30 – 10:30)

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| <b>Awards and Closing</b> (17:10 – 17:30)   |    |

# Conference Information

Conference proceedings have the ACM ISBN 978-1-4503-1019-2 and include abstracts and notes sections for all our technical, communications and challenge presentations. The conference USB stick comprises all papers.

## Publications

The conference proceedings will be published as part of the ACM International Conference Proceedings Series and will be available at the ACM Digital Library. Authors of the best papers at W4A 2012 will be invited to submit extended versions to a special issue of the International Journal of Universal Access on the Information Society (UAIS).

## History

In our previous conferences, all papers were reviewed by three of our programme committee and we accepted an average of around 35% of the submissions. In our previous conferences, we welcome between 30–50 attendees to each conference from a diverse set of companies ranging from the Governors of the US Federal Reserve to Healthcare Trusts and car manufacturers. We publish ISBNed ACM proceedings and various Special Issues of respected journals within the field. Finally, the conference findings are published in the ACM ACCESS Computers and Accessibility newsletter. We also solicit sponsorship from the ACM SIGACCESS, ACM SIGWEB, IBM Research, Adobe, Mozilla Foundation, Google, Microsoft and the like. You can find information on the previous conferences and workshops from their archived sites:

- W4A 2011, Hyderabad, India (<http://www.w4a.info/2011/>).
- W4A 2010, Raleigh, NC, USA (<http://www.w4a.info/2010/>).
- W4A 2009, Madrid, Spain (<http://www.w4a.info/2009/>).
- W4A 2008, Beijing, China (<http://www.w4a.info/2008/>).
- W4A 2007, Banff, Canada (<http://www.w4a.info/2007/>).
- W4A 2006, Edinburgh, UK (<http://www.w4a.info/2006/>).
- W4A 2005, Chiba, Japan (<http://www.w4a.info/2005/>).
- W4A 2004, New York, NY, USA (<http://www.w4a.info/2004/>).

## Lunch and Coffee

The conference lunch and coffee will be held together with the World Wide Web (WWW) conference. The WWW morning coffee break is scheduled for 10:30-11:00, the lunch is scheduled for 12:30 to 14:00 and the afternoon coffee break is scheduled for 15:30-16:00.

# Web Accessibility Challenge

The W4A Accessibility Challenge has been generously sponsored by Microsoft since 2008, and is offered as a venue for researchers and developers to showcase new technologies in the area of Web accessibility. This year we received four high-quality entries from India, Italy and the United States. Contributions focus on different areas within web accessibility, and all push forward the state of the art.

The W4A Accessibility Challenge consists two prizes: the Judges Prize and the Delegates Prize. The Judges Prize is awarded by a recognized panel of experts. This year, we are honored to have the participation of Jennison Asuncion, Adaptech Research Network, Jerry Randell, Helen Keller Services for the Blind, Cynthia Shelly, Senior Technical Strategist for Accessibility at Microsoft, and Glenda Watson Hyatt, Soaring Eagle Communications. The distinguished judges have diverse backgrounds in the web accessibility space.

The Delegates Prize is awarded by the audience of the main W4A Conference by secret ballot after listening to the Challenge presentations. This is an interesting and exciting part of the W4A Conference, since authors can make a case for their Accessible Technologies and the results may be different from the Judges decision. In general, all authors will receive valuable feedback from the conference attendees, and the possibility of networking with industry and government regarding their technologies.

Yevgen Borodin and Jeffrey Bigham  
March 2012

# W4A Google Student Award

Thanks to continued support of Google, this year marks the 3rd Google Student Award event. The Award allows talented students with limited funding to attend the W4A Conference, present their research, and get early feedback from top researchers in the field of Web Accessibility. The focus of this year's competition was on the use of cloud-computing for web accessibility. Once again, the quality of this year's submissions made the selection of the two winners very difficult, but the committee chose the two students whose research was most promising in terms of its depth and potential impact.

The W4A Organizing Committee is happy to introduce the 2012 winners: Nancy Alajarmeh (New Mexico University, USA) and Kabil Jaballah (Ecole Supérieure des Sciences et Techniques de Tunis, Tunisia). Both Nancy and Kabil will give presentations of their work at W4A 2012; their extended abstracts are included in these proceedings. We are most thankful to Google Inc for their generous support, and we look forward to their ongoing involvement in W4A.

Shari Trewin and Anna Cavendar  
March 2012



# W4A 2012 Special Issue: International Journal of Universal Access on the Information Society

Each year, selected authors of outstanding papers accepted for presentation at W4A are invited to submit extended versions of their papers to a W4A Special Issue of a journal relevant to web accessibility research and development. This year, we are pleased to announce that Universal Access in the Information Society will be publishing the W4A special issue. Authors will shortly be invited to extend their papers to develop further the ideas originally presented in their W4A paper, or present new research; all revised submissions will undergo a further peer-review process before publication.

## About Universal Access in the Information Society



Universal Access in the Information Society is Springer International Journal that addresses the accessibility, usability, and, ultimately, acceptability of Information Society Technologies by anyone, anywhere, at anytime, and through any media and device. Universal Access in the Information Society (UAIS) focuses on theoretical, methodological, and empirical research, of both a technological and non-technological nature, that addresses equitable access and active participation of potentially all citizens in the information society. It features papers that report on theories, methods, tools, empirical results, reviews, case studies, and best-practice examples.

The Journal's primary objectives are to:

- provide an archival publication channel for the discussion and advancement of theoretical and practical aspects of universal access in the information society,
- facilitate the rapid and wide diffusion of scientific and technological results that promote universal access in the information society, and
- stimulate cross-fertilization between the different contributing disciplines.

Universal Access in the Information Society appears in both print and digital format. UAIS is currently indexed by the Journal Citation Reports (JCR) and will receive its first impact factor in 2012. Available at <http://www.springer.com/computer/hci/journal/10209>.

## Reviewing Process

All papers will be peer reviewed by W4A reviewers, experts in the field, and in consultation with the Editor-in-Chief of Universal Access in the Information Society.

## Special Issue Editors

Chieko Asakawa and Hironobu Takagi  
IBM Research, Japan.

# Opening

# Notes

# Session 1: Accessible Web 2.0

## Developing A Semantic User And Device Modeling Framework That Supports UI Adaptability Of Web 2.0 Applications For People With Special Needs

Philip Ackermann<sup>1</sup>, Carlos A. Velasco<sup>1</sup>, Christopher Power<sup>2</sup>, Yehya Mohamad<sup>1</sup>, Jaroslav Pullmann<sup>1</sup>

<sup>1</sup>Fraunhofer Institute for Applied Information Technology FIT, Germany

<sup>2</sup>University of York, UK

Research on user and device models to customize or adapt application interfaces has been subject of attention since decades. This paper presents our work developing a user and device modelling framework that supports dynamic adaptation of the UI of cloud and web 2.0 applications. This work builds upon previous efforts of the authors leveraged with the use of the semantic framework CC/PP, which allows the matching of device capabilities and user preferences arising because of functional restrictions. The combination of these models with those of the corresponding web applications, enables an adaptive transformation process that facilitates access to users with special needs because of their functional restrictions or because of context-related handicapping situations. We argue that this approach will enable a user-centric access to the web, including mobile and ubiquitous delivery of information and applications.

**Notes:**

*Communication Paper*

# Evaluating The Accessibility Of Rich Internet Applications

Nádia Fernandes, Daniel Costa, Sérgio Neves, Carlos Duarte, Luís Carriço

University of Lisbon, Portugal

The Web has been growing in size and complexity and is used for the most diverse activities in our every day life, becoming almost indispensable. Besides, Web applications are becoming more popular, and consequently used by a wide range of people. Thus, it is important to evaluate the accessibility of those applications to guarantee that everyone can access the information.

Currently, there are some tools to evaluate the accessibility of classical Web pages, which use WCAG guidelines. However, Web applications impose different challenges, so it is mandatory to find a way to automatically obtain the dynamically introduced HTML code, in order to evaluate what users really experience.

This paper details a new process of accessibility evaluation of Web applications, which evaluates the content by triggering possible events that partially change the Web page. It also presents an experimental study with several Web applications, demonstrating the potential of this framework in evaluating Web applications.

**Notes:**

*Communication Paper*

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# Towards Ubiquitous Accessibility: Capability-based Profiles And Adaptations, Delivered Via The Semantic Web

Matthew Atkinson, Matthew Bell, Colin Machin

Loughborough University, UK

The continuing proliferation of mobile devices, content and applications presents barriers to the mainstreaming of Assistive Technologies (ATs), despite their potential utility for users in demanding situations or with minor-to-moderate impairments. We have previously proposed that user profiling based on human rather than machine-oriented capabilities, coupled with a shift from conspicuous ATs to considering a broader range of adaptations presents opportunities for platform and AT vendors to support many more users. However there has not been a standard, consistent and, most importantly, straightforward way to deliver these benefits. We propose that this delivery gap can be bridged by using the semantic web and related technologies, so the potential benefits of the capability-based approach may be realised.

**Notes:**

*Communication Paper*

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# Session 2: Evaluating Accessibility

## Using Acceptance Tests To Validate Accessibility Requirements In RIA

Willian Massami Watanabe<sup>1</sup>, Renata Pontin de Mattos Fortes<sup>2</sup>

<sup>1</sup>Yahoo! Brazil and ICMC-USP, Brazil

<sup>2</sup>ICMC-USP, Brazil

Accessibility stands as a quality requirement for Web applications. However, current accessibility automatic evaluation tools are not capable of evaluating DOM dynamic generated content that characterizes Ajax applications and RIAs - Rich Internet Applications. In this context, this paper describes an approach for testing accessibility requirements in RIA, by using acceptance tests. The authors had implemented a set of assistive technology user scenarios in the acceptance tests, in order to guarantee keyboard accessibility in web applications. As the scenarios were implemented as acceptance tests scenarios, they provide accessibility analysis over all layers of the software, from server-side to client-side implementations (JavaScript and dynamically generated DOM elements) in RIA. The test scenarios are automatically executed, and by doing so, fit the Continuous Integration process of constant delivery of new functionalities in Web projects.

**Notes:**

*Technical Paper*

# Getting One Voice: Tuning Up Experts' Assessment In Measuring Accessibility

Silvia Mirri, Ludovico Antonio Muratori, Paola Salomoni, Matteo Battistelli

University of Bologna, Italy

Web accessibility evaluations are typically done by means of automatic tools and by humans' assessments. Metrics about accessibility are devoted to quantify accessibility level or accessibility barriers, providing numerical synthesis from such evaluations. It is worth noting that, while automatic tools usually return binary values (meant as the presence or the absence of an error), human assessment in manual evaluations are subjective and can get values from a continuous range.

By exploiting experiences and surveys in online rating systems, in this paper we present a model which takes into account multiple manual evaluations and provides final single values. In particular an extension of our previous metrics BIF, called cBIF, has been designed and implemented to evaluate consistence and effectiveness of such a model. Suitable tools and the collaboration of a group of evaluators let us to prove pros and cons of cBIF and draw interesting cues for future researches.

**Notes:**

*Communication Paper*

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# Guidelines, Icons And Marketable Skills: An Accessibility Evaluation Of 100 Web Development Company Homepages

Teresa Gilbertson, Colin Machin

Loughborough University, UK

Accessible websites are increasingly desired by clients with many web developers listing accessibility as a skill offered by their companies. An accessibility and validation study of 100 UK web development company websites found that, while the skill set is gaining popularity in terms of visibility, the mention of accessibility on a developer website has no impact in terms of the actual accessibility of the site. The presence of validation and conformance icons for XHTML, CSS, WCAG 1.0 and 2.0 also does not necessarily reflect the current state of the site, which may have changed multiple times since the validation occurred. Accessibility errors are still common, with missing alt text and labels and poor keyboard accessibility in terms of keyboard traps as well as omission of “lang” attributes and reused id attribute values listed among the most frequent barriers encountered.

**Notes:**

*Communication Paper*

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# A Macroscopic Web Accessibility Evaluation At Different Processing Phases

Nádia Fernandes, Luis Carriço

University of Lisbon, Portugal

This paper details a comparative experimental study to understand the difference of the accessibility properties of the Web regarding three different evaluation approaches: one using WCAG 1.0, already done and serving as the baseline; another using WCAG 2.0 techniques and targeting the pages as they reach the browser; and a final one, also using WCAG 2.0, but evaluating the pages after the browser processing, thus as they will be delivered to the end-user.

For that, we evaluated over 20000 Web pages using already established accessibility metrics. We then compared the results obtained from the WCAG 2.0 evaluation of the two processing phases, and further assessed the differences towards the WCAG 1.0 version. We observed some changes in the macroscopic properties of the evaluation in both cases. Regarding the comparison between the two phases, we observed a narrower distribution of quality, i.e., the worst pages are in fact not that bad, and the best ones not that good. We also confirmed empirically the more objective nature of WCAG 2.0 in regard to the previous version.

**Notes:**

*Communication Paper*

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# Session 3: Novel Views on Web Accessibility

## Understanding Web Accessibility And Its Drivers

Yeliz Yesilada<sup>1</sup>, Giorgio Brajnik<sup>2</sup>, Markel Vigo<sup>3</sup>, Simon Harper<sup>3</sup>

<sup>1</sup>Middle East Technical University Northern Cyprus Campus, Turkey

<sup>2</sup>University of Udine, Italy

<sup>3</sup>University of Manchester, UK

Access is what the web is ‘about’, it is the motivation behind its creation, and it is the rationale behind HTML. The desire to provide all users at CERN with the ability to access all documents was Tim Berners-Lee’s primary goal, and this goal must also be carried through to equal access for all users. But this equality of access – accessibility – is difficult to quantify, define, or agree upon. In a constantly evolving field, understanding each other can be tricky; indeed, there are many different definitions in the literature, all with a different perspective. This makes it difficult for our community to interact, reach agreement, or share understanding. What is more, it makes it very difficult for those outside the web accessibility community to understand, plan, budget, enact policy, or conform to accessibility requirements and legislation when the community itself has so many, in some cases, conflicting definitions. We asked over 300 people, with an interest in accessibility, to discuss their views and definitions in an attempt to harmonise our understanding and support the expectations of users outside the community. We find that misunderstanding accessibility definitions, language, and terms might cause tension between different groups. That social, and not economic, aspects drive our perspectives of accessibility, and that definitions used by standards and regulatory bodies are most accepted - not those of individual experts. Forcing accessibility adoption does not encourage the acceptance of an accessibility ethos, but providing empirical evidence that accessibility benefits all, does. Finally, realistic and concise language was preferred when attempting to communicate, or define accessibility.

Notes:

*Technical Paper*

# A Challenge To Web Accessibility Metrics And Guidelines: Putting People And Processes First

Martyn Cooper<sup>1</sup>, David Sloan<sup>2</sup>, Brian Kelly<sup>3</sup>, Sarah Lewthwaite<sup>4</sup>

<sup>1</sup>The Open University, UK

<sup>2</sup>University of Dundee, UK

<sup>3</sup>University of Bath, UK

<sup>4</sup>King's College London, UK

This paper argues that web accessibility is not an intrinsic characteristic of a digital resource but is determined by complex political, social and other contextual factors, as well as technical aspects which are the focus of WAI activities. It can therefore be inappropriate to focus on metrics only associated with properties of the resource.

The authors describe the value of standards such as BS 8878 which focus on best practices for the process of developing web products and include a user focus. The paper concludes with a case study that illustrates how learning analytics could provide data to support the improvement of the inclusivity of learning resources, providing a broader perspective beyond the digital resource.

**Notes:**

*Communication Paper*

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# Certification Or Conformance: Making A Successful Commitment To WCAG 2.0

Suzette Keith<sup>1</sup>, Nikolaos Floratos, Gill Whitney<sup>1</sup>

<sup>1</sup>Middlesex University, UK

The need for accessible websites is well known and WCAG 2.0 provides an important benchmark standard for measuring progress of eGovernment and other commercial websites. This study was commissioned by ANEC and aimed to examine how many websites which had either been assessed by an independent third party or made a voluntary declaration of accessibility, were in reality complying with web accessibility standards.

Testing a sample of 100 websites from 5 European countries found that simple measures of numbers of passes to WCAG 2 level A are highly disappointing. Closer inspection of the results revealed that a limited number of criteria at level A are accounting for more than half the failures. These individual failures at level A tend to mask the commitment made by development teams to meet the needs of disabled users. Clearer processes are needed to support web development and ongoing updates and to resolve these ongoing barriers to achieving conformance to accessibility guidelines.

**Notes:**

*Communication Paper*

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# Alipi: A framework for re-narrating web pages

T B Dinesh<sup>1</sup>, Suzan Uskudarli<sup>2</sup>, Subramanya Sastry, Deepti Aggarwal<sup>3</sup>, Venkatesh Choppella<sup>3</sup>

<sup>1</sup>Janastu.org, India

<sup>2</sup>Bogazici University, Turkey

<sup>3</sup>International Institute of Information Technology, India

We propose Alipi, a distributed and participatory approach for re-narrating Web pages for the purpose of rendering the content more accessible. This model supports alternative descriptions for a Web page or parts of it via rewriting or re-narration for a given target audience by volunteers. The goal is to render the Web accessible to people across varied abilities, age, economic situation, language and geographic locations. We present the motivation, architecture and prototype implementation of Alipi.

**Notes:**

*Communication Paper*

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# W4A Google Student Awards

## Doing Math: Mathematics Accessibility Issues

Nancy Alajarmeh

New Mexico University, USA

Signing avatars have the potential to produce sign language in its visual/Dynamic form. In Tunisia, we developed a system called Websign which is able to translate any text information into any signed language through an avatar. Our paper outlines the importance of the avatars technology in making the world accessible to deaf people. We put a special focus on how to generate exchangeable signing avatars and the way to make them accessible, indexable and easily located on the Internet.

**Notes:**

*Google Student Award Paper*

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# Accessible 3D signing avatars: the Tunisian experience

**Kabil Jaballah**

Ecole Supérieure des Sciences et Techniques de Tunis, Tunisia

Limited mathematics accessibility support has been always a barrier for students with impaired vision to learn that fundamental subject. In response to that persistent need, enhancing mathematics accessibility has been deeply thought of with more attention given towards facilitating “Doing the math” and not only working on the rendering level. In specific, for the challenges students face in algebra, which is an essential skill that has a complex nature, the efforts are being made to enable students to do and learn algebraic skills; i.e., arithmetic manipulation on the level of basic building blocks of entire expressions, working on complex expressions simplifications and evaluation, and solving algebraic equations. As a non-visual framework, manipulation is made through an accessible hierarchy of recorded, navigatable, and recoverable steps. The framework is to facilitate doing the math in minimal possible efforts from the students; i.e., avoiding rewriting the same sub-expressions when they are not manipulated at certain point in the hierarchy from one step to the next.

**Notes:**

*Google Student Award Paper*

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# Microsoft Accessibility Challenge

## Voting Forum for the Delegate Award Sponsored by Microsoft

Please nominate one of the candidates below for the “Delegate’s award”:

- 1. **AMari: a reporting interface for accessibility evaluations**  
Silvia Mirri, Matteo Casadei, Ludovico Antonio Muratori, Paola Salomoni, Matteo Battistelli
- 2. **Universal and Ubiquitous Web Access with Capti.**  
Yevgen Borodin, Andrii Sovyak, Alexander Dimitriyadi, Yury Puzis, Valentyn Melnyk, Faisal Ahmed, Glenn Dausch, I.V. Ramakrishnan.
- 3. **ABCD SW: Autistic Behavior & Computer-based Didactic Software**  
M. Claudia Buzzi, Marina Buzzi, Davide Gazzé, Caterina Senette, Maurizio Tesconi.
- 4. **Alipi – tools for a Re-narration Web.**  
T B Dinesh, Venkatesh Choppella.

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|                          |  |
|--------------------------|--|
| <b>Delegates Choice:</b> |  |
|--------------------------|--|

# AMari: a reporting interface for accessibility evaluations

Silvia Mirri, Matteo Casadei, Ludovico Antonio Muratori, Paola Salomoni, Matteo Battistelli

University of Bologna, Italy

Accessibility evaluation and monitoring actions are distributed activities based on the analysis and verification of a huge amount of data. In this paper we present an application prototype, which produces accessible and personalized outputs (by means of graphics and tables) in a feasible way, on the basis of Web pages accessibility validations, thereby making data more understandable and accessible to distributed Web authoring/editorial staffs.

**Notes:**

*Challenge Paper*

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# Universal and Ubiquitous Web Access with Capti

Yevgen Borodin, Andrii Sovyak, Alexander Dimitriyadi, Yury Puzis, Valentyn Melnyk, Faisal Ahmed, Glenn Dausch, I.V. Ramakrishnan.

Charmtech Labs LLC, USA

In this paper we present Capti – a universally and ubiquitously accessible web browsing application enabling intuitive and usable web access for people with and w/o vision impairments. Capti provides a usable screen-reader interface for web browsing and an accessible listen-to-it-later Playlist ([charmtechlabs.com](http://charmtechlabs.com)).

**Notes:**

*Challenge Paper*

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# ABCD SW: Autistic Behavior & Computer-based Didactic Software

**M. Claudia Buzzi, Marina Buzzi, Davide Gazzé, Caterina Senette,  
Maurizio Tesconi**

IIT-CNR, Italy

In this demo we show an open source software (SW) program designed to facilitate the execution of Applied Behavior Analysis (ABA) intervention with low-functioning autistic children. The SW is based on Augmentative and Alternative Communication (AAC) and Discrete Trial Training (DTT). The SW automatically records data extractable from the session (times, success/error, etc.), while the tutor inserts subjective data such as type and level of prompt provided to a child, along with comments. The SW adapts the trial to the child's abilities (receptive/verbal) to make it accessible (comprehensible and operable). To offer the child a simple and accessible interaction environment, the tutor and child user interfaces are kept separate and offered on mobile devices. Using a laptop, the tutor sets the exercise that appears on the child's tablet. Synchronization between devices offers the tutor a real-time summary of actions performed by child, freeing up his/her cognitive resources needed to memorize this information and possibly favoring the decision-making process for the ABA intervention.

**Notes:**

*Challenge Paper*

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# Alipi – tools for a Re-narration Web

T B Dinesh<sup>1</sup>, Venkatesh Choppella<sup>2</sup>

<sup>1</sup>Janastu.org, India

<sup>2</sup>International Institute of Information Technology, India

A set of tools that demonstrate the concept of a re-narration web, that aims to add alternative, target specific narrations of web documents as an extension of the web protocol with the intent of assisting a process of content dissemination and access that is inclusive of non-literate people.

**Notes:**

*Challenge Paper*

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# 'William Loughborough' After Dinner Speech

## Usability, Demography, and Directions for W4A

Alan F. Newell

University of Dundee, Scotland

The introduction to this conference reads: "The World Wide Web has changed the way we search, access, consume and produce information". Older people's use of the Internet remains lower than that of younger adults (64% of those 65 and older have never used the Internet, and, although the usage by older people is growing, it is at a slow rate). The situation in the USA is not dissimilar. In the UK, and possibly the rest of the world, this lack of usage of the Internet is also the case for those younger people who have few or no educational qualifications. There is also growing evidence that members of these groups are more likely to become "digitally disengaged" as their characteristics and capabilities change with time.

### Notes:

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# Keynote

## Increasing Access to the Web of “Broad Data”

**James Hendler**

Rensselaer Polytechnic Institute, USA

In this keynote, I will discuss some of the issues that arise as people try to use the “broad data” that can be found on the World Wide Web. The modern combination of “lightweight” semantics, based to a large degree on the rapidly maturing products of early semantic Web research, coupled with the “big data” tools that have moved away from traditional relational databases, provides an area of exploration that is pushing research in new and interesting directions. Tim Berners-Lee’s call for “Raw Data Now” is being heeded in many quarters, and other forces, including those of transparency and innovation, are creating vast repositories of data that are available without restriction.

**Notes:**

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# Session 4: Designing Web Accessibility

## Methodology For Identifying And Solving Accessibility Related Issues In Web Content Management System Environments

Juan Miguel López<sup>1</sup>, Afra Pascual<sup>2</sup>, Cristina Menduiña<sup>2</sup>, Toni  
Granollers<sup>2</sup>

<sup>1</sup>University of the Basque Country, Spain

<sup>2</sup>GRIHO research group. University of Lleida, Spain

This work presents a methodology that allows identifying and solving accessibility related issues web pages using Web Content Management System (CMS) environments. In this sense, the methodology establishes a series of steps to be performed in order to ensure that the content managed by CMSs is accessible. A study has been performed on two different CMSs to check the validity of the steps defined in the methodology. The paper includes the methodology used, the evaluation performed on both CMS (OpenCMS and Typo3) and the key findings of the analysis. The results of the study have been positive as the objective of providing CMS environments that allow developing accessible web pages has been fulfilled.

**Notes:**

*Technical Paper*



# Evaluation Of The Effectiveness Of A Tool To Support Novice Auditors

Christopher Bailey, Elaine Pearson

Teesside University, UK

The Accessibility Evaluation Assistant (AEA) is a web accessibility knowledge management tool designed specifically to assist novice auditors in conducting an accessibility evaluation. The software incorporates a bespoke structured walkthrough approach designed to guide the auditor through a series of checks based on established accessibility principles with the goal of identifying accessibility barriers. A previous trial examined the pedagogical potential of the tool when incorporated into the undergraduate computing curriculum. The results of the evaluations carried out by the novices yielded promising levels of validity and reliability. This paper presents the results of a second experiment designed to test the overall efficacy of the AEA when compared to a WCAG 2.0 conformance review. The results of evaluations produced using both AEA and Conformance Review methods were examined and comparisons made of quality factors such as effectiveness, reliability, efficiency and usefulness. Quantitative and qualitative data from the experiment support continued use of the AEA in an educational context, highlight the benefits compared to WCAG and give further insight into the complex nature of developing accessibility evaluation skills in novices.

**Notes:**

*Technical Paper*

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# MIPAW – Modele Of A Progressive Implementation Of Web Accessibility

Jean-Pierre Villain, Olivier Nourry

Qelios, France

This paper presents the elaboration of a progressive implementation model for WCAG, centered on the notions of access to information and essential needs of users. MIPAW's main goal is to serve as a framework for the elaboration of progressive enhancement methodologies, of measurement systems of the real level of accessibility, and the setting up of efficient quality assurance management systems. Based on state of the art, real-world experience, and expertise in accessibility, as well as quality assurance areas, the project has the ambition of providing methodological tools better suited to the constraints of web industrialization, while preserving the deployment of real user-centric accessibility. MIPAW is a project lead as part of the activities of the AccessiWeb GTA (Workgroup on Accessibility), and has received active support from 16 of the most prominent French companies in the area of expertise in digital accessibility.

**Notes:**

*Communication Paper*

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# Session 5: Dyslexia and Sign Language on the Web

## Web Accessibility And People With Dyslexia: A Survey On Techniques And Guidelines

Vagner Figueredo de Santana<sup>1</sup>, Rosimeire de Oliveira<sup>2</sup>, Leonelo Dell Anhol Almeida<sup>1</sup>, Maria Cecilia Calani Baranauskas<sup>1</sup>

<sup>1</sup>Institute of Computing - University of Campinas, Brazil

<sup>2</sup>Centre for Mathematics, Computing and Cognition - Federal University of ABC, Brazil

Although the dyslexia has significant occurrence in the global population, ranging from 15 to 20%, not much is known about how developers, designers, and content producers should respect differences and consider people with dyslexia in the Web. In this paper we present a survey regarding the state of the art on dyslexia and Web Accessibility. From the results, we present a set of 41 guidelines that may support website stakeholders (i.e., people directly involved with the design, development, and content) in phases involving design, coding, and Web content insertion. Moreover, we propose a mapping of these guidelines considering the responsibilities of different roles of websites stakeholders. Informed by this survey we expect development teams to objectively consider abilities of people with dyslexia in order to remove accessibility barriers.

Notes:

*Technical Paper*

# Layout Guidelines for Web Text and a Web Service to Improve Accessibility for Dyslexics

Luz Rello<sup>1</sup>, Gaurang Kanvinde<sup>2</sup>, Ricardo Baeza-Yates<sup>3</sup>

<sup>1</sup>Universitat Pompeu Fabra, Spain

<sup>2</sup>Accessible Systems, India

<sup>3</sup>Yahoo! Research Barcelona, Spain

In this paper we present a web service that makes texts in the Web more accessible to people with dyslexia. The layout guidelines for developing this service are based on a user study with a group of twenty two dyslexic users. The data collected from our study combines qualitative data from interviews and questionnaires and quantitative data from tests carried out using eye tracking. We analyze and compare both kinds of data and present a set of layout guidelines for making the text Web more readable for dyslexic users.

**Notes:**

*Technical Paper*

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# Mobile Sign Language Translation System For Deaf Community

**Mehrez Boulares, Mohamed Jemni**

Research Laboratory of Technologies, Information and Communication (UTIC) Ecole Supérieure des Sciences et Techniques de Tunis, Tunisia

Nowadays, web technologies are a very efficient way to ensure communication between a large and heterogeneous audience. Furthermore, web information is mainly based on textual and multimedia content and consequently, some people with special needs, such as deaf and hard of hearing people, have difficulties to access to information or to communicate with hearing people. This problem is due to the lack of services that facilitate sign language learning for hearing people or text translation into sign language for persons with hearing impairment. In this context, we present in this paper a new approach based on web services, X3D and android operating system to build a mobile translation system from text into sign language using virtual signing agent. The main feature of this work is that it can be used to learn sign language and to provide sign language translation of written text for people with hearing impairment.

**Notes:**

*Communication Paper*

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# Web-content's Syndication In Sign Language

Oussama El Ghoul, Nour Ben Yahia, Mohamed Jemni

LaTICE, Tunisia

Web content syndication is the process by which website material is made available to multiple other sites through a “push” technology. Most commonly, it consists of making web feeds available from a site in order to supply other people with latest news, or summaries or update of new web site content. Syndication feeds are generated using one of the two most common formats RSS and Atom. RSS and Atom represent a way to gather updated web content and broadcast or receive it regularly. Instead of daily consulting news sites, podcasts, blogs and other sources of information, internet's users can subscribe to feeds with an RSS Reader which check automatically updates and display it on the user's screen. Thanks to the efficiency and ease of access to information, demonstrated by this technology, RSS feeds become more and more deployed on websites and implemented on web browsers and email clients. Moreover, RSS become one of the main tools of broadcasting information. However, until now deaf are still deprived of this technology. The reason is that all web contents are syndicated in textual format, which is not convenient to the community of deaf that represents a majority of illiterate people, particularly those in developing countries. In this context, our contribution resides on the specification of an approach of web-content's syndication in sign language. We recommend adapting RSS feeds in order to make it accessible to deaf people and suggest adding to the list of languages accepted by the RSS specification new list of languages including sign languages. We propose also describing sign language sentences using specific textual description, which can be played by a virtual character.

**Notes:**

*Communication Paper*

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# Session 6: Innovative Accessibility Techniques and Studies

## Why Read If You Can Skim: Towards Enabling Faster Screen Reading

Faisal Ahmed, Yevgen Borodin, Yury Puzis, I.V. Ramakrishnan

Stony Brook University, USA

Skimming broadly refers to different speed-reading methods that aim to enhance the rate of reading without unduly compromising on comprehension and retention of information. Skimming of content could be particularly useful for people with vision impairments, who frequently experience information overload when listening to reams of digital content online. Support for usable and useful skimming in modern screen readers remains very poor. This paper explores the user requirements for a usable non-visual skimming interface, informed by a large-scale human-subject experiment with blind individuals. Specifically, the study has: (1) helped identify the type of skimming that can be useful in screen reading main content in web pages; (2) led to the development of a usable interface for accessible online skimming; (3) demonstrated the utility of the accessible skimming interface in two realistic use scenarios; (4) identified automatic summarization techniques that could “closely” approximate skimming methods used by sighted people.

**Notes:**

*Technical Paper*

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# Enhancing Learning Accessibility Through Fully Automatic Captioning

Maria Federico, Marco Furini

Università di Modena e Reggio Emili, Italy

The simple act of listening or of taking notes while attending a lesson may represent an insuperable burden for millions of people with some form of disabilities (e.g., hearing impaired, dyslexic and ESL students). A common approach to help such students is to provide them with a digital version of a classroom lesson, but to be effective such videos should be coupled with synchronized captions. A human-based solution is usually employed to produce such captions, but it is an expensive approach that many educational institutes cannot afford.

In this paper, we propose an architecture that aims at automatically creating captions for video lessons by exploiting advances in speech recognition technologies. Our approach couples the usage of off-the-shelf ASR (Automatic Speech Recognition) software with a novel caption alignment mechanism that smartly introduces unique audio markups into the audio stream before giving it to the ASR and transforms the plain transcript produced by the ASR into a timecoded transcript.

An experimental assessment investigated the effectiveness of our approach and results show that our proposal may be a cost-effective solution to provide equal access to learning material for students of all abilities.

**Notes:**

*Communication Paper*

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# An Intuitive Accessible Web Automation User Interface

Yury Puzis, Yevgen Borodin, Faisal Ahmed, I.V. Ramakrishnan

Stony Brook University, USA

In recent years, the Web has become an ever more sophisticated and irreplaceable tool in our daily lives. While the visual Web has advanced at a rapid pace, assistive technology has not been able to keep up, increasingly putting visually impaired users at a disadvantage. Web automation has the potential to bridge the accessibility divide between the ways blind and sighted people access the Web; specifically, it can enable blind people to accomplish web browsing tasks that were previously slow, hard, or even impossible to achieve. In this paper, we propose and evaluate an intuitive and accessible web automation interface. We validate the design in a Wizard-of-Oz user study with visually-impaired subjects and show that the proposed approach has the potential to significantly increase accessibility and usability of web pages, reduce interaction time, and increase user satisfaction. Our findings demonstrate the feasibility of and emphasize the pressing need for truly accessible web automation technologies.

**Notes:**

*Communication Paper*

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# Awards and Closing

# Notes

# Notes

# Conference Sponsors



**Microsoft:** Microsoft's mission is to enable people and businesses throughout the world to realise their full potential. Microsoft is committed to being a responsible industry partner by working with businesses, communities, and governments to help advance social and economic well-being and to enable people around the world to realise their full potential. Microsoft's commitment and responsibilities as a global corporate citizen are grounded in our company mission and values, manifested through our business practices and operations, and carried out by thousands of Microsoft employees and suppliers worldwide.



**Google:** In little more than a decade, Google created one of the world's largest global computing infrastructures for both internal and external use. Using our unique technologies along with open source tools, we keep Google's customer-facing products running, robust and secure. Our objective is to create solutions that allow people to work and communicate in new and innovative ways – giving back to the world's technical community whenever we can.



**The Zakon Group:** OpenConf is an abstract and peer-review management system that greatly facilitates the submission and review processes for conferences, workshops, and symposia. The software is flexible enough that OpenConf is also used for journals, grants, books, and competitions.



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**ACM's Special Interest Group on Hypertext, Hypermedia and the Web:** The ACM Special Interest Group on Hypertext and the Web is a community of scholars, researchers, and professionals who study and use the concepts and technologies of linked information that were originally conceived as hypertext and are most famously realized on the Web.



**ACM's Special Interest Group on Accessible Computing:** ACM's Special Interest Group on Accessible Computing, SIGACCESS, promotes the interests of professionals working on research and development of computing and information technology to help persons with disabilities.



**ACM's Special Interest Group on Computer-Human Interaction:** SIGCHI is the premier international society for professionals, academics and students who are interested in human-technology & human-computer interaction (HCI).



**The International World Wide Web Conferences Steering Committee:**

The International World Wide Web Conferences Steering Committee (IW3C2), is the organization that manages the WWW Conference series. This series aims to provide the world a premier forum for discussion and debate about the evolution of the Web, the standardization of its associated technologies, and the impact of those technologies on society and culture.



**Interaction Design:** Interaction-Design.org is all about making research accessible. We deal with human-centered aspects of technology: Interaction Design, User Experience (UX), Human-Computer Interaction (HCI), Information Architecture (IA), Human Factors, Usability, and related fields.

# Keynote Speakers

## **James Hendler (Rensselaer Polytechnic Institute, USA)**

Professor James A. Hendler wrote the seminal paper on the Semantic Web and has been pioneering the development of the Web of Data paradigm. He currently serves as an expert for the US government, providing guidance to the Data.gov project.

Professor Hendler is the Tetherless World Professor of Computer and Cognitive Science, and the Assistant Dean for Information Technology and Web Science, at Rensselaer. He is also a faculty affiliate of the Experimental Multimedia Performing Arts Center (EMPAC), serves as a Director of the UK's charitable Web Science Trust and is a visiting Professor at the Institute of Creative Technology at DeMontfort University in Leicester, UK. Hendler has authored about 200 technical papers in the areas of Semantic Web, artificial intelligence, agent-based computing and high performance processing. He is also the former Chief Scientist of the Information Systems Office at the US Defense Advanced Research Projects Agency (DARPA) and was awarded a US Air Force Exceptional Civilian Service Medal in 2002. He is the Editor-in-Chief emeritus of IEEE Intelligent Systems and is the first computer scientist to serve on the Board of Reviewing Editors for Science. In 2010, Hendler was named to the "honor roll" of the 20 most innovative professors in America by Playboy magazine.



## **Alan Newell (School of Computing at Dundee University)**

Professor Alan Newell is an Emeritus Professor at the School of Computing at Dundee University. This contains one of the largest academic groups in the world researching into computer and communication systems for older and disabled people. He has published widely in this field, including his recent book: "Design and the Digital Divide: insights from 40 years in Computer Support for Older and Disabled People" (Morgan & Claypool 2011). His current interest is the use of professional theatre to raise awareness and facilitate discussion on these issues. He was appointed a Member of the Order of the British Empire for contributions to computer-based systems for people with disabilities, and in 2011 was presented with the (US) Association for Computing Machinery SIGCHI Social Impact Award. A former Deputy Principal of the University, Alan is a Fellow of the Royal Society of Edinburgh, the Association for Computing Machinery and the British Computer Society, and an Honorary Fellow Royal College of Speech and Language Therapists.



# W4A Camp

W4A Camp is a new departure for us, and sits on the Wednesday morning (yes Just Half a Day) after the main conference. **It is free anyone can attend BUT there are no facilities** – we may be “reclaiming the streets”, squatting in the hotel lobby or bar, under a tree in the park, or in someones hotel room, and sniffing for Wi-Fi where ever we can get it. In-short anarchic and very flexible – BUT with the advantage of discussing work, ideas, research collaborations, demoing projects, giving advice to PhD students, reading and feed-backing on papers, or looking at what went wrong with your submission this year!

Either way it will be exciting and productive with just a small amount of structure (leaders); you choose the topics, the presentations, the thread of the camp. We decide the general themes – the rest is up to us all together!

## Themes (and “Leaders”)

1. Demos and Coding led by Peter Thiessen (eBuddy);
2. Doctoral Clinic;
3. Accessibility Body of Knowledge led by David Sloan (University of Dundee);
4. Discussion Open House led by Hironobu Takagi (IBM Research); and
5. Whatever else YOU decide...

## How Will We Proceed?

1. Before the conference and throughout the conference we can share our ideas using **#w4acamp12** / **#w4a12** social networking tags;
2. During the conference we will put our ideas on our camp post-it wall;
3. On Tuesday afternoon we will decide about the themes and also a meeting point; finally,
4. On Wednesday morning, we get together.

Remember the W4A Camp is an unconference, so bring your demos, projects, half-baked research ideas, and your sense of inquiry. Don't have a project? No worries; we're looking for collaborators.

There will be a wall for post-its and a camp grid over the main W4A conference days and we'll post this on our social channels – so you can turn up even if you are not at the W4A .

You don't have to be a researcher to come. We're not just computer scientists – we're part of the Web4All. We encourage the work of practitioners, professionals, startup warriors, and academics in the humanities and political/social sciences. If you're interested in submitting work to a W4A conference next year, this is definitely the meetup for you.

## Camper Information

W4A Camp is an ad-hoc unconference born from the desire for people to share and learn in an open environment. It is an intense event with discussions, demos and interaction from attendees. Anyone with something to contribute or with the desire to learn is welcome and invited to join. When you come, be prepared to share with W4A Campers. When you leave, be prepared to share it with the world.



## No Spectators, Only Participants

Attendees must contribute in some way to support the event. All discussions are scheduled the day they happen. Prepare in advance, but come early to get a slot on the wall. The people present at the event will select the discussions they want to take part in. You are responsible for making sure that notes/slides/audio/video of their discussions are published on the web for the benefit of all and those who can't be present. Discussions promoting specific commercial products or companies are discouraged.

## The Rules of W4A Camp (taken from BarCamp and by Tantek Çelik)

- 1st Rule: You do talk about BarCamp.
- 2nd Rule: You do blog about BarCamp.
- 3rd Rule: If you want to present, you must write your topic and name in a presentation slot.
- 4th Rule: Only three word intros.
- 5th Rule: As many presentations at a time as facilities allow for.
- 6th Rule: No pre-scheduled presentations, no tourists.
- 7th Rule: Presentations will go on as long as they have to or until they run into another presentation slot.
- 8th Rule: If this is your first time at BarCamp, you **HAVE** to present. (OK you don't really **HAVE** to, but try to find someone to present with, or at least ask questions and be an interactive participant.)

# WWW/W4A Panel

## Joint W4A WWW 2012 Panel on Accessibility and its Definition

- Open to all WWW2012 and W4A2012 Attendees
- Wednesday April 18th 2012 – 16:00-17:30
- #w4apanel12 #w4a12

## Panelists

- Chieko Asakawa (IBM Fellow, IBM Research – Tokyo);
- Ricardo Baeza-Yates (VP of Research for EMEA & LatAm Yahoo! Research);
- Ed Chi (Research Scientist, Google);
- Georges Gouriten (Télécom ParisTech);
- Mike Paciello (Founder & Principal, TPG); and
- Bebo White (Departmental Associate – Emeritus, SLAC National Accelerator Laboratory);

## Defining Accessibility

We will be running a joint W4A WWW 2012 panel on accessibility and its definition at WWW 2012. Work suggests that there are many different views of web accessibility, and we see that there are many questions to be answered: what is the relationship between web accessibility and usability? Is web accessibility for all or is it strictly for disabled people? What kind of evaluation methods, ethos, and rationale are key? How important is context for web accessibility? Investigating these questions is important because they will help us to:

- Guide and help in better teaching web accessibility by solidifying ideas, concepts, and language into a more solid bedrock of understanding;
- Better communicate the meaning of the concept to people who are not in the field, and thereby making communication with the wider community, companies, and governments more harmonious and insightful;
- Advance web accessibility as a research field by providing a shared understanding, grammar, and lexicons; and
- Improve penetration of web accessibility into commercial and industrial settings by harmonizing the language and therefore the expectations of companies with regard to planning, budgeting, enacting policy, or conforming to accessibility requirements and legislation.

**We want the views of Web Engineers / Scientists / Developers / Accessibility Specialists.**

A major benefit of this panel is that it will bring together the W4A and WWW community; and make explicit the views that these communities have on web accessibility and its drivers – thereby creating a shared understanding. We see this more of a focus group in which audience participation will be vital, and so will confine each panelist to a 5 minute presentation followed by a 10 minute “brainstorming” discussion by all.

The panel will be very interactive and will make use of social networking sites such as twitter, Facebook, etc. Further, we will be making voice and video recordings of the session – sharing this information with the community for others to have the chance to interpret the data for their own purposes – and stream the panel for remote participation.

**Your participation is critical to the panel session; your views will make it into a research output which may help change the nature of the Web Accessibility field.**

*Organizers: Simon Harper, Yeliz Yesilada, Giorgio Brajnik, and Markel Vigo – in the interests of openness, this is related to work we are currently undertaking and we would expect to integrate the findings of this panel into an expanded report and paper (inviting panelists to be co-authors, and acknowledging the audience as a whole and by name – where required).*

# Conference Organisation

## Chairs:

**General Chair** - Markel Vigo (University of Manchester, UK) and Julio Abascal (University of the Basque Country, Spain).

**Programme Chairs** - Rui Lopes (Google, USA) and Paola Salomoni (University of Bologna, Italy).

**Challenge Chairs** - Jeffrey P. Bigham (University of Rochester, USA) and Yevgen Borodin (Stony Brook University, USA).

**Special Issue Chair** - Chieko Asakawa and Hironobu Takagi IBM Research, Japan.

**Google Student Award Chairs** - Shari Trewin (IBM TJ Watson, USA) and Anna Cavender (Google, USA).

## Programme Committee:

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**Margherita Antona**, ICS-FORTH, Greece.

**Myriam Arrue**, University of the Basque Country, Spain.

**Melanie Baljko**, York University, Canada.

**Armando Barreto**, Florida International University, USA.

**Giorgio Brajnik**, University of Udine, Italy.

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**Renata Fortes**, University of Sao Paulo, Brasil.

**Greg Gay**, Ontario College of Art and Design, Canada.

**Becky Gibson**, IBM Emerging Internet Technologies, USA.

**Simon Harper**, University of Manchester, UK.

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**Konstantinos Votis**, Centre for Research and Technology Hellas, Greece.

**Takayuki Watanabe**, Tokyo Woman's Christian University, Japan.

**Yeliz Yesilada**, METU NCC & University of Manchester, UK.

### **Microsoft Accessibility Challenge Judges:**

**Glenda Watson Hyatt**, Soaring Eagle Communications, Canada.  
**Jennison Asuncion**, Adaptech Research Network, Canada.  
**Jerry Randell**, Helen Keller Services for the Blind, USA.  
**Cynthia Shelly**, Microsoft, USA.

### **Google Student Award Judges:**

**Giorgio Brajnik**, University of Udine, Italy.  
**Vicki Hanson**, University of Dundee, UK.  
**Amy Hurst**, UMBC, USA.  
**Jonathan Lazar**, Towson University, USA.

### **Advocates**

**Tiago Guerreiro**, Technical University of Lisbon, Portugal.  
**Shaun K Kane**, UMBC, USA.  
**Sergio Sayago**, University of Dundee, UK.  
**Peter Thiessen**, eBuddy, Netherlands.

### **Steering Committee:**

**Chieko Asakawa**, IBM Research, Japan.  
**Leo Ferres**, Universidad de Concepcion, Chile.  
**Simon Harper**, University of Manchester, UK.  
**David Sloan**, University of Dundee, UK.  
**Hironobu Takagi**, IBM Research, Japan  
**Yeliz Yesilada**, METU NCC & University of Manchester, UK.