

Artificial Intelligence (AI) and Accessibility Research Symposium 2023

Web Accessibility Initiative (WAI) | W3C

Introduction

Researchers, practitioners, and users with disabilities participated in an international online symposium exploring the positive and negative impacts of artificial intelligence (AI) in digital accessibility.

This online symposium took place on 10 and 11 January 2023 and brought together researchers, academics, industry, government, and people with disabilities, to explore one of the most pressing emerging technologies, artificial intelligence. The symposium aimed to identify current challenges and opportunities raised by the increasing use of AI regarding digital accessibility and explore how ongoing research can leverage and hinder digital accessibility.

Opening Keynote: Jutta Treviranus

****Jutta Treviranus**** is the Director of the Inclusive Design Research Centre (IDRC) and professor in the faculty of Design at OCAD University in Toronto.

Jutta established the IDRC in 1993 as the nexus of a growing global community that proactively works to ensure that our digitally transformed and globally connected society is designed inclusively.

Dr. Treviranus also founded an innovative graduate program in inclusive design at OCAD University. Jutta is credited with developing an inclusive design methodology that has been adopted by large enterprise companies such as Microsoft, as well as public sector organizations internationally.

In 2022 Jutta was recognized for her work in AI by Women in AI with the AI for Good - DEI AI Leader of the Year award.

First, Do No Harm

In this symposium, Jutta Treviranus delivers an opening keynote that sheds light on the harms of AI specific to people with disabilities.

She addresses ethical concerns surrounding AI, such as lack of representation, human bigotry, manipulative practices, unfair value extraction, exploitation, and disinformation. Jutta emphasizes the significance of considering the impact of AI on people with disabilities, as they are often at the margins of justice-deserving groups, making them more vulnerable to both existing and emerging harms.

She discusses the increasing complexity of decision-making processes and the growing appeal and usefulness of AI decision tools. Jutta also highlights the challenges of data diversity, predictive accuracy, data privacy, and the need for transparency in data usage. The discussion expands to include topics such as ethics, bias, and the efforts being made globally to address AI ethics.

Jutta concludes by exploring the potential of AI and the opportunity it presents to reassess what we want to automate, what we mean by concepts such as best, optimal, and fairness, and how we can include marginalized individuals in the development and use of AI technologies.

Media player

0:00 / 1:02:11 Speed: 1x

Transcript of Opening Keynote

CARLOS DUARTE: Now let's move to the opening keynote, for which we're delighted to welcome Jutta Treviranus. Jutta Treviranus is the director of the Inclusive Design Research Center and the professor in the faculty of design at the OCAD University in Toronto. The floor is yours.

Panel: Computer Vision for Media Accessibility

- Amy Pavel (University of Texas, US)
- Shivam Singh (mavQ, India)
- Michael Cooper (W3C, US)

This session began with panelists addressing the quality of automated image description, specifically focusing on how to define quality and train AI models to identify aspects like identity, emotion, and appearance in personal images.

Different viewpoints were shared, including the recognition of emotions and specific characteristics by current systems, the importance of considering the context and user preferences, and the need for diverse training data. Responsibility and agency were also discussed, highlighting the roles of content creators and users in generating and consuming media descriptions.

The impact of AI tools on user agency, the challenge of maintaining diversity in automated descriptions, and the role of the Web Accessibility Initiative (WAI) were examined. The legal and ethical issues related to AI-generated descriptions, including copyright, liability, and fair use, were explored. The potential uses of AI beyond generating alternative descriptions were considered, such as identifying functional and complex images and allowing authors to focus on those that require more attention. The challenges of explainable AI and the potential for improving augmented content were addressed, emphasizing the importance of ethics, transparency, and user understanding.

Finally, the panelists discussed the value of richer alternative descriptions, the risks of errors with more detailed descriptions, and the need for a balance between concise and explanatory information.

Media player

0:00 Speed: 1x

Transcript of Computer Vision for Media Accessibility

CARLOS DUARTE: Let's move on to our first panel. The topic for this panel will be computer vision for media accessibility, here we aim to foster a discussion on the current state of computer vision techniques and focus on image recognition, identification, recognition of elements and text in web images and media, and considering all of the different usage scenarios that emerge on the web. We'll be looking here at aspects of how can we improve quality, how do we define quality for this, the quality and accuracy of the current computer vision techniques, and what are the opportunities and what are the future directions for this, in this domain.

We'll be joined by three panelists for this first panel. Amy Pavel, from the University of Texas, Shivam Singh, from mavQ and Michael Cooper, from the W3C. Great. Everyone is online, sharing their videos. Thank you all for agreeing to join. I will ask you before your first intervention to give a brief introduction to yourself to let people know who you are and what you're doing.

Panel: Natural Language Processing for Media Accessibility

- Amy Pavel (University of Texas, US)
- Shivam Singh (mavQ, India)
- Michael Cooper (W3C, US)

- Shaomei Wu (AImpower.org, US)

During the second panel of the symposium, the focus shifted to media accessibility from a natural language processing perspective.

Shaomei Wu discussed the importance of accuracy and richness in these descriptions, emphasizing the need to provide more details, particularly about people. The challenge lies in sharing personal and physical attributes accurately and conscientiously.

Shivam highlighted the significance of data diversity and the quality of generated data, advocating for categorizing data carefully to ensure clearer descriptions.

Amy emphasized the role of context in improving description quality and suggested using language understanding and question-answering approaches.

The panelists also discussed the potential of Large Language Models (LLMs) in reducing bias and emphasized the need for inclusive workflows, careful handling of social identities, and considering the trade-off between providing comprehensive information and efficiency. They addressed biases in recognition, application, and the impact of disability bias.

The future perspectives included NLP for personalization, rewriting descriptions, and using NLP in academic textbooks, context sharing, augmenting media descriptions, and supporting visually impaired individuals in media creation.

- Willian Massami Watanabe (Universidade Tecnológica Federal do Parana, BR)

- Yeliz Yesilada (Middle East Technical University, TR)

- Chaohai Ding (University of Southampton, UK)

Future perspectives included the exploration of NLP metrics for accessibility, advancements in dialog systems, personalized communication, accessible modal communication, and AI assistant communication. Language simplification, data integration, and evolving apps were also mentioned as opportunities.

Closing Keynote: Shari Trewin

Shari is a Distinguished Scientist of the Association of Computing Machinery (ACM), where she has chaired the ACM Special Interest Group on Accessible Computing (SIGACCESS), sat on ACM's Diversity and Inclusion Council, and helped develop ACM's accessibility guidance for authors and conference organizers.

The symposium on AI and digital accessibility highlighted the potential of AI to enhance digital accessibility and empower stakeholders.

- Carlos Duarte (LASIGE, Faculty of Sciences of the University of Lisbon)

- Leticia Seixas Pereira (LASIGE, Faculty of Sciences of the University of Lisbon)

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