Bridging the Gap: Towards Advancing Privacy and Accessibility

Rahaf Alharbi
University of Michigan
Ann Arbor, USA
rmalharb@umich.edu

Robin Brewer
University of Michigan
Ann Arbor, USA
rmalharb@umich.edu

Gesu India
Swansea University
UK
g.india.2132154@swansea.ac.uk

Lotus Zhang
University of Washington
USA
hanziz@uw.edu

Leah Findlater
University of Washington
USA
eahkf@uw.edu

Yixin Zou
Max Planck Institute for Security and
Privacy
Germany
yixin.zou@mpi-sp.org

Abigale Stangl
University of Washington
USA
astangl@uw.edu

ABSTRACT

The privacy dimensions of accessibility technologies are often understudied and overlooked. Very little prior research has investigated the privacy concerns of disabled people, and much less has studied the barriers of privacy-preserving techniques. In order to address this gap and bridge between two separate communities (accessibility and privacy), our one-day workshop explores how researchers might design and build technologies that are both accessible and privacy-preserving.

CCS CONCEPTS

• **Human-centered computing → Accessibility design and evaluation methods**; • **Security and privacy → Human and societal aspects of security and privacy**.

KEYWORDS

accessibility, disability, privacy, security

1 BACKGROUND

All technology, including accessibility tools, have privacy implications. Yet, in comparison to literature on non-disabled people, little

attention has been placed on understanding the privacy concerns of disabled people[1] [1, 11, 12, 20]. For instance, in the United States, disabled people are highly surveilled by ubiquitous systems that aim to determine access to healthcare, employment, and housing [5, 17]. As these technologies are widely deployed and used to make critical decisions, there are currently no avenues for disabled people to contest and refuse such interventions.

Additionally, emerging AI for accessibility applications is often applauded in the media (e.g., computer vision tools for Blind people to gain visual access). While such technologies provide accessibility improvements, they often lack transparency and impose significant privacy risks that could lead to data misuse and harm [4, 20, 22]. These issues mirror what disability and transformative justice activist, Mia Mingus, coined as 'Forced Intimacy' which is defined as "being expected to share (very) personal information with able-bodied people to get basic access [..]" [15]. As AI technologies continue to be interwoven into our lives for various reasons, including accessibility, it is critical that we investigate the specific privacy harms that disabled people experience.

Furthermore, in understanding disability and privacy concerns, we need to consider intersectionality [7, 8] as privacy negotiations are often informed by interlocking identity aspects along the lines of race, ethnicity, gender, and sexuality [2, 3, 9]. As accessibility researchers, it is important that we critically think and work towards addressing the diverse privacy concerns of people with disabilities in every stage of the design process.

Common privacy-preserving techniques are often visual and cognitively demanding, and therefore inaccessible to some disabled people [2, 18, 21]. For example, privacy and security practices for front-end design have placed a huge emphasis on visual elements such as lock icon, making it difficult for screen reader users to assess website credibility [16]. Online privacy and security measures are often inaccessible for people with intellectual disabilities given complex layouts and jargon [6]. Obfuscation methods, which aim to detect and hide private content, are often thought to be the

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[1] A note on language: there are mixed preferences on using identity first and people first language [13, 19]. In this proposal, we use both terms interchangeably.

state-of-art solution for addressing visual privacy because sighted people could visually confirm that their privacy needs are addressed. However, these techniques are inaccessible and misaligned with Blind and low-vision peoples' needs [2].

Based on this prior work, we argue that the accessibility and privacy communities are often distanced from one another. In order to address this gap, we will invite privacy and accessibility researchers in academia and industry, policy experts, disability community members and activists to explore how can we build accessible *and* privacy-preserving technologies. Inspired by the Symposium on Usable Privacy and Security (SOUP) and its Workshop on Inclusive Privacy and Security (WIPS)[2], which aims to broaden privacy research to include marginalized populations, our workshop focuses on motivating accessibility researchers and practitioners within the ASSETS community to incorporate and prioritize privacy considerations in their work. Primarily our workshop aims to explore the following questions:

(1) What new insights can be gained by identifying and examining the various types of accessibility and privacy issues that arise across emerging applications, such as generative AI and VR?

(2) How can privacy-by-design and accessibility-by-design frameworks be seamlessly integrated into the full-stack development of privacy-preserving features to prevent potential conflicts and address accessibility issues effectively?

(3) What potential unintended consequences may occur as a result of AI technologies designed for privacy preservation, and what measures can be taken to anticipate and prevent them?

(4) How might both accessibility and privacy researchers consider intersectional needs (e.g., race, gender, and sexuality) in their design process?

Through this workshop, we aim to create a sustainable online space to discuss accessibility and privacy. We will set up a Discord server for workshop participants prior to the workshop where will share updates and notes. The Discord will be available and maintained after the workshop to support participants in discussing accessibility and privacy. Additionally, we will work toward producing an accessible Zine, Call to Action, or Workshop summary in the ACM Interactions Magazine to critically bridge between privacy and accessibility, and archive the lessons learned from the workshop to the broader community.

2 WORKSHOP PLANS

2.1 Pre-Workshop Plans

We will announce the workshop in accessibility and privacy listservs (e.g., AccessSIGCHI, SOUPS), on social media (e.g., Twitter and Facebook groups), international and local disability organizations (e.g., American Federation for the Blind), and our personal and professional networks. In our recruitment call, we will use various hashtags such as #Privacy, #Accessibility, #A11y, and #Disability to encourage disability and privacy researchers to participate. Upon acceptance, we will share our workshop description and call for position papers on our website. We will ask potential participants to

complete a brief Google form that asks about their past experience with privacy and/or accessibility, and what would they hope to gain from participating in this workshop. Additionally, the Google form will ask participants to submit a 500-1000 word position paper describing their current or future interest in privacy and accessibility (disabled community members and industry professionals are exempt from this requirement). These responses will help us tailor the workshop to participants' interests. We will also inquire about access needs or concerns. We will work together with the accessibility chairs to incorporate sign language interpretation, real-time or automated captioning, or any additional access services. Finally, we will invite accepted participants to a Discord server to post an introduction activity, announcements, upcoming workshop activities, and answer any questions.

2.2 Workshop Strcuture

We anticipate this will be about three-hour virtual workshop held on Zoom with a series of breakout rooms for small group discussion and sharing with the larger group for cross-topic awareness. We are flexible and open to adjusting the schedule to more appropriate timings based on participant preferences and access needs.

Introductions (20 minutes): We will begin by introducing the organizers and sharing the workshop's agenda and motivation. We will also reiterate our commitment to access, discuss access norms, and provide space for participants to share access issues as they come up to us via Discord or email. Then, we will ask participants to introduce themselves, summarize their research interests, and share their expectations and desired outcomes from this workshop. These introductions may happen in small breakout rooms depending on the workshop size.

Activity 1: Speculative Design Activity (45 minutes) We draw from Casey Fiesler's Black Mirror Writers Room exercise [10] which prompts conversations around ethics and technology using speculative fiction. Specifically, we will invite participants to work in small groups to craft a Black Mirror episode summary by imagining a future or near-future technology that could create privacy *and* accessibility harms. We will encourage group members to think about technologies relevant to their research, but we will provide a list of emerging technologies (e.g., generative AI, virtual reality, wearables) if needed. We will ask that participants name and describe the technology, reflect on how might privacy conflict with accessibility needs, and encourage participants to think about identity nuances. We will instruct participants to not think about people with disabilities as a homogenous group, but rather consider how privacy negotiations might be informed by numerous factors such as race, ethnicity, gender, and sexuality. We will intentionally create breakout rooms that combine participants with privacy expertise and accessibility expertise.

Sharing Insights from Breakout Room 1 (20 minutes) Each group will share their Black Mirror episode, highlighting privacy and accessibility conflicts that could take place in the episode. We will allow participants the opportunity to switch to breakout rooms with topics that may be more aligned with their interests.

Access Needs Check & Break for 10 minutes

Activity 2: Understanding Accessibility & Privacy Concerns (30 minutes) Building from activity 1, we will ask participants to summarize: who uses this futuristic technology and why? Then we will invite participants to think about potential privacy concerns, risks, and trade-offs that disabled people might experience. *Break for 10 minutes*

Activity 3: Imaging Accessible Privacy Solutions (25 minutes) Building from activity 1 and 2, we will invite participants to reflect on potential privacy technologies or regulations for the futuristic technology discussed previously. What types of accessibility barriers might be introduced by this privacy solution? How might these accessibility barriers be addressed?

Break for 10 minutes

Sharing Insights from Activities 2 & 3 (20 minutes)

Break for 10 minutes

Next Steps (30 minutes): We will share closing remarks, brainstorm how to share our findings with the broader accessibility and privacy communities, and invite participants to continue the conversation on Discord.

3 DIVERSITY AND INCLUSION CONSIDERATIONS

Diversity and inclusion are core aspects of this workshop. We are committed to including participants across abilities, gender, ethnicity, location, and research background. Each workshop organizer has worked with disabled people or older adults for at least two years, researching various topics on privacy, information access, social support, and aging. Some organizers have close ties with disabled communities from being disabled themselves or having disabled friends and family members. We plan to incorporate access practices in every stage. Prior to the workshop: our website will be accessible, all linked resources on the website will be accessible PDFs or Google Docs, any visual content will include alternative text, and will use Google form to draft an application for submissions in which we will inquire access needs. During the workshop, we will 1) provide space in the beginning and in the middle of the workshop to check in about access needs, 2) implement access needs raised by a participant in the workshop application form, 3) use Zoom automatic captioning (CART and sign language interpretation provided upon request), 4) offer frequent breaks, 5) ask that participants say their names before speaking, and 6) request that participants avoid using moving backgrounds on Zoom.

ASSETS is an international conference, and we hope to recruit participants from numerous countries. All workshop organizers have Western-based affiliations, and we recognize that as a limitation. While all of us work in the Global North, some of the organizers were born and have lived the majority of their lives in the Global South. We will consider submissions from all participants, but we are especially interested in receiving submissions from the Global South as HCI research generally has a Western bias [14].

4 WEBSITE PLANS

We will create an accessible Google site website which will include workshop organizers, the workshop date and time, workshop goals, and open questions. We will also include our call for position papers

and instructions on how to make PDFs accessible. The URL is to be announced upon acceptance.

5 ORGANIZERS

Rahaf Alharbi: Rahaf Alharbi is a Ph.D. candidate at the University of Michigan. Her research is at the intersection of human-computer interaction, accessibility, and responsible artificial intelligence. In particular, Rahaf investigates how can we design explainable and accessible AI-enabled privacy techniques with and for Blind people.

Robin Brewer: Robin Brewer is an Assistant Professor at the University of Michigan in the School of Information. She studies how voice-based and screen-based technologies can be more accessible to older adults and blind and low-vision people.

Lotus Zhang: Lotus Zhang is a Ph.D. candidate at the University of Washington in the department of Human Centered Design and Engineering. Lotus researches the accessibility of digital content creation by blind and low-vision people, including their management of private visual content.

Yixin Zou: Yixin Zou is a tenure-track faculty member at the Max Planck Institute for Security and Privacy. Her research centers on understanding and supporting the privacy needs of diverse user groups, such as older adults and people living in the Global South

Gesu India: Gesu India is a Ph.D. researcher in the Computer Science department of Swansea University, with her research lying at the intersection of assistive technologies, artificial intelligence, and human-computer interaction. Gesu is exploring the disability-first methods for ethical collection of datasets with blind/low-vision people in low-income communities.

Abigale Stangl: Abigale is a research scientist working at the intersection of human-computer interaction, accessibility, creativity, privacy, and computer vision.

Leah Findlater: Leah Findlater is an associate professor in the department of Human Centered Design & Engineering (HCDE) at the University of Washington. Dr. Findlater is a founding co-director of the UW's Center for Research and Education on Accessible Technology and Experiences (CREATE). She also directs the Inclusive Design Lab, whose mission is to lower barriers to technology use and information access for users with a range of physical, sensory, and cognitive abilities.

6 CALL FOR PARTICIPATION

Participants will be recruited from various listservs, social media, and our professional and personal networks. We will encourage participants to join our Discord server to continue building community in privacy and accessibility research. The following call for participation will be included on our website and our recruitment messages.

Call for participation:

> Are you interested in designing technology that is both accessible and privacy-aware? Join our virtual ASSETS 2023 workshop! We aim to build community, unpack how identity affects disability and privacy, reflect on potential privacy and accessibility conflicts, and imagine accessible privacy-preserving solutions. We welcome submissions from research at the intersection of accessibility and privacy. We also invite

submissions that center a Global South perspective. Industry practitioners, policy experts, and activists are especially encouraged to apply! Please submit a 500-1000 word position paper to [Google Form Link]. If accepted, at least one author of each accepted paper must attend and register for the workshop. Visit our website for further information.

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