1. Could you tell me a bit about you and your field?

As a research scientist and visiting scholar in the Center for Inclusive Design and Innovation, my primary focus is on the AT Network project. This project involves supporting, collecting, and analyzing qualitative data related to assistive technology (AT). Assistive technology refers to any devices, products, or systems that help people with disabilities overcome barriers and enhance their independence in various aspects of life. My role in the project includes conducting interviews and focus groups to gather insights and experiences from individuals who use AT, as well as from professionals and stakeholders involved in the field of disability support. By engaging in these qualitative research methods, we can gain a deeper understanding of the challenges and opportunities in the realm of assistive technology and inclusive design. Collaboration is a vital aspect of my work, and I actively engage with other members of the research project team to share knowledge, ideas, and findings. By working together, we can address complex issues and develop comprehensive solutions that cater to diverse needs.

1. What barriers or constraints as designers you have to take into account when designing a system for visually impaired users?

The readability of text is crucial for visually impaired users. Designers should use clear and legible fonts with appropriate size and contrast to ensure that text is easily readable by users with low vision. Proper color contrast is essential for users with low vision or color blindness. Designers should use color combinations that provide sufficient contrast to differentiate between text and background elements. Complex navigation structures or interactions based solely on visual cues can be challenging for visually impaired users. Designers should ensure that the system can be navigated using non-visual methods, such as keyboard shortcuts or screen readers. Screen readers are essential assistive technology tools for visually impaired users. Designers must ensure that the system is compatible with popular screen reader software and that the content is presented in a logical reading order.

1. Can you give me an example of how you apply different tools, applications, and methods to help users overcome?

To ensure screen reader compatibility, designers can use semantic HTML markup and provide text alternatives for non-text elements like images and buttons. Testing the website with popular screen readers like JAWS (Job Access With Speech) or NVDA (NonVisual Desktop Access) helps identify any issues and ensures a smooth user experience. Including a text-to-speech functionality on the website allows visually impaired users to have the content read aloud. Conversely, incorporating speech-to-text tools enables users to interact with the website by voice commands. Designers can use online contrast checking tools to ensure that the color contrast between text and background meets accessibility standards, making the content readable for users with low vision. Designers should ensure that all interactive elements on the website can be easily accessed and activated using keyboard navigation alone. This helps users with visual impairments who rely on keyboard controls and not a mouse. Adding descriptive alt text to images allows screen readers to convey meaningful information about the visual content to visually impaired users

1. Visual impaired users used different tools on their computers to aid themselves, how did this impact your design? And what did you do to accommodate this?

Visually impaired users rely heavily on screen readers to access content. These assistive technologies read the text aloud and provide navigation cues. To accommodate screen readers, the design must prioritize semantic HTML structure, include descriptive alternative text for images, and use ARIA attributes where necessary to convey additional information about interactive elements. Users with low vision often use magnification software to enlarge the content on the screen. Designers must ensure that the website layout is responsive and that all elements scale gracefully when the user zooms in. Proper contrast and legibility become even more critical for users who rely on magnification.Some visually impaired users may connect braille displays to their computers, which convert digital content into tactile braille characters. To accommodate this, designers should ensure that the website's structure and content are well-organized and easily interpretable when translated into braille. To cater to users who prefer TTS, designers can offer a built-in text-to-speech functionality or make sure the website is compatible with popular browser extensions that provide this feature.

1. What did you do to confirm that your designs were helping visual impaired users? And if your designs were intuitive?

I conducted user testing sessions with visually impaired individuals who represented the target user group. These sessions involved observing how users interacted with the designs, identifying pain points, and gathering feedback on the overall user experience.I performed thorough accessibility audits using automated testing tools and manual evaluations to ensure that the designs complied with accessibility standards, such as WCAG (Web Content Accessibility Guidelines). These audits helped identify any potential accessibility barriers and provided insights into areas that needed improvement.I sought input and feedback from experts in the field of assistive technology and inclusive design. Engaging with these experts allowed me to gain valuable insights into the tools and technologies commonly used by visually impaired users and how to optimize the designs to align with their needs.

1. What are the complications images and math equations give rise to?

Images, particularly those without appropriate alt text, can be inaccessible to users with visual impairments who rely on screen readers. Without descriptive alt text, visually impaired users are unable to understand the content and context of the images. Similarly, math equations in image format are often not readable by screen readers, hindering access for users with visual disabilities. Some complex images and math equations may not be properly recognized by screen readers or other assistive technologies, limiting their usability for individuals with disabilities.Utilize MathML (Mathematical Markup Language) for rendering math equations in accessible, machine-readable formats. Use HTML/CSS to create accessible diagrams, charts, and graphs, instead of relying solely on images.