My name is Roshni Poddar. I’m currently a research fellow at Microsoft Research India focused on accessibility research. I’m a 22-year-old female and have completed a B. Tech degree in Computer Science. I have no apparent disability. Here are my thoughts and reflections on conducting research in the accessibility space in the Global South. Even as an undergrad student doing some accessibility related projects and conducting the research around it, I noticed was that we received praise for our work since people were simply happy that "young talent" was thinking and working in this space. This might be because the situation of the education system in India for children with visual impairments is so dire. People were hesitant to give negative feedback or raise concerns while trying out our website. This issue is exacerbated when a massive company like Microsoft is conducting user studies on their research prototypes because there are several power dynamics at play. For our projects, our team tries to ensure that we have long-term relationships with NGOs who are actively working to create on-ground impact and aren't afraid to speak their mind. I spend a lot of time thinking about this and what I've tried to do is immerse myself more in the community. I teach/volunteer at a school for the blind weekly in Bangalore, I have started learning Indian Sign Language classes and plan to teach a few courses on Android programming in the near future. I will briefly talk about the first 4 accessibility projects I have been a part of and my reflection of each of them.

* **Isolated sign language recognition using machine learning(summer internship during B.Tech)**. I was super excited about computer vision and I wanted to apply it to sign language recognition to make a “positive social impact” project with my technical skills. There was a dataset of about 200 common words in Indian Sign language with varying numbers of instance videos per word. I worked enthusiastically on the project to decrease inference time, improve accuracy, and ensure that the model could run on mobile phones. While we did manage to get good numbers, there were no members of the Indian Deaf or hard-of-hearing community in this project. Moreover, after the model was ready, we did not brainstorm and implement any practical applications that used this model to carry out any tasks. Looking back, I feel like we should have taken the project further and included DHH members to co-design practical applications that could use the inference of this model.
* **Accessible website for blind and low-vision students for STEM (B. Tech capstone project)** : This project was called Insights. It was my final year undergraduate capstone project that I initiated with 2 friends. The idea was to build an accessible website for visually impaired students to take quizzes on topics in Science and Math. These quizzes were either randomly generated by the system or created by the teacher. We created this website using React.js and requested a visually impaired person who was an expert PC user and also an educational content creator for children with vision impairments to give us feedback. He gave us weekly feedback to improve the user flow for navigating using a screen reader. We quickly found that fulfilling the web accessibility checklist is simple but it took considerably longer to create a simple website with a good user flow experience designed for BLV children. We chose to include Physics, Chemistry, and Math questions from grades 6th to 10th. We manually ensured that these questions were accessible to the children. We found it difficult to follow along when the screen readers read out math equations such as quadratic equations. At the end of the project, we asked 2 students with visual impairment to try out a quiz and give us feedback. They were able to use the website effectively and liked the project. Reflecting on the project now after I have gained some perspective after teaching at schools for the blind in Bangalore and talking to many educators. There is a lack of STEM education after 7th grade in India. Moreover, a majority of students do not have access to a computer and do not have digital literacy. In summary, while I did make an effort to include the end user community to the best of our capacity, we had not spent enough time immersing ourselves in schools for the blind around us to gain a more in depth understanding of their curriculums and daily life. We gained a lot of learning from this project but there hosting this website would not reach many children due to many access and societal barriers.
1. **Qualitative research to understand the challenges faced by the Indian DHH community (internship):** We received 131 valid responses to a survey whose goal was to understand the current workplace challenges and technologies used by the Indian DHH community. A major drawback of the survey was that it was in English. We iterated over the survey multiple times with an interpreter to make the questions as simple and unambiguous as possible. However, we found that a large number of responses were unintelligible. For the interviews, we had an interpreter who facilitated the discussion between the researcher and the participant using English and ISL. We observed several instances where the participants signed a long response and the interpreter paraphrased a short sentence while informing the researchers. I am not current unsure how to best conduct surveys with the DHH community in India. If we have questions in ISL and allow participants to upload ISL video answers it may become too cumbersome for the participants and it would be prohibitively expensive to translate some responses to English. Alternatively, questions in ISL with text responses will necessitate basic English proficiency. For a small number of responses, an interpreter may accompany the participant and fill out the answers for them. With respect to interviews, we tried out some improvements but also faced some challenges. We will describe that in the next project.
2. **SignIt (First project at Microsoft Research):** SignIt! Is an Android sign language based quiz based platform for the DHH community. We involved teachers from the National Institute of Speech and Hearing from the early ideation process and had 6 DHH interns as part of the design and implementation of the app’s features. For our user study, our DHH interns conducted some interviews. While the conversation seemed more comfortable and free-flowing, the interns found it very challenging and time consuming to transcribe the interviews for analysis. They weren’t proficient in English and had a difficult time to find the appropriate words to convey the meaning. The translated sentences contained much less information than the interviews.