

Independence in the age of LLMs: Lived experiences of people with visual impairment leveraging LLM applications

Kartik Joshi*
Chandana Balabomma*
Venkatesh Deshpande*

*Centre for Accessibility in the Global South (CAGS), International Institute of Information Technology Bangalore
Bangalore, India

ABSTRACT

The advent of large language models and the ensuing innovations have brought about fundamental shifts in our everyday practices. For instance, OpenAI's LLM model, GPT4 has set new benchmarks with its text-generating capabilities. Similarly, with ChatGPT, information access has been contextualized towards specific use cases in everyday settings. Such applications that build on LLMs offer new possibilities to everyone, including people with visual impairment. In this workshop, we discuss two applications and its implications for interdependent living for people with visual impairment.

ACM Reference Format:

Kartik Joshi*, Chandana Balabomma*, and Venkatesh Deshpande*. 2025. Independence in the age of LLMs: Lived experiences of people with visual impairment leveraging LLM applications. In *Proceedings of ACM Conference (Conference'17)*. ACM, New York, NY, USA, 3 pages. <https://doi.org/10.1145/nnnnnnn.nnnnnnn>

1 INTRODUCTION

The advent of large language models and the ensuing innovations have brought about fundamental shifts in our everyday practices. For instance, OpenAI's LLM model, GPT4 has set new benchmarks with its text-generating capabilities. Applications that build on such LLMs offer new possibilities to everyone, including people with visual impairment. In this workshop, we discuss BeMyAI – an image to text generation tool that enables real-time sensemaking for people with visual impairment through the BeMyEyes application. By reporting on the lived experiences of people using BeMyAI, we unpack the dynamics of using BeMyAI in public spaces. While their use of BeMyAI signifies its potential in independently navigating public spaces without sighted assistance, its social context of use spotlights the value of interdependence in everyday sensemaking and communication. Next, we discuss ChatGPT for its ability to generate near-accurate code that could be used for programming software. This capability offers some unique affordances for people with visual impairment in engaging with wireframing, albeit with some validation with sighted peers. The inclusion of ChatGPT in the wireframing process encourages us to explore new work dynamics

Permission to make digital or hard copies of all or part of this work for personal or classroom use is granted without fee provided that copies are not made or distributed for profit or commercial advantage and that copies bear this notice and the full citation on the first page. Copyrights for components of this work owned by others than ACM must be honored. Abstracting with credit is permitted. To copy otherwise, or republish, to post on servers or to redistribute to lists, requires prior specific permission and/or a fee. Request permissions from permissions@acm.org.

Conference'17, July 2017, Washington, DC, USA

© 2025 Association for Computing Machinery.

ACM ISBN 978-x-xxxx-xxxx-x/YY/MM... \$15.00

<https://doi.org/10.1145/nnnnnnn.nnnnnnn>

involving collaboration between AI and teams comprising both sighted and people with visual impairments. Taken together, both BeMyAI and ChatGPT collectively surface the emerging theme of LLMs in everyday life of people with visual impairment.

2 OVERVIEW OF BEMYEYES AND BEMYAI

BeMyEyes is a free application that fosters a community of PVI seeking assistance for mundane tasks with a global network of sighted volunteers [1]. Be it selecting an outfit for the day or reading medication labels, BeMyEyes is instrumental in connecting PVI with a sighted volunteer for live assistance on important decisions. With the introduction of BeMyAI – PVI could directly use AI-powered LLM tool for real-time live assistance using its image to text generation. A user could use camera to capture an image through the app which would then prompt a response with a detailed description of the picture. The tool was launched with an aim to provide real-time assistance with minimum latency thereby improving independence of PVI.

3 BEMYAI AND INTERDEPENDENCE

In the sociocultural context of India, there has been growing emphasis on “social” accessibility [4, 6]. Rather than seeking complete independence, a “social” accessibility perspective recognizes and values social interactions and aims for interdependence [2]. With the turn towards “social” accessibility, how does an AI tool shape the sociality of everyday interactions? Firstly, BeMyAI enables PVI to navigate their surroundings independently without assistance from sighted people offline or online volunteers on BeMyAI. While conducting fieldwork for one of our studies exploring the use of technology in rural India, a participant highlighted how BeMyAI opened up opportunities for self-exploration as sighted peers around them were busy in their own activities. A couple of instances spotlight this:

“I am really enjoying it a lot! I use the mobile app and it does a great job at depicting the picture. When I went to a reception, I took photo of bride and groom. I was curious about what color suits they were wearing. We cannot ask everything to the escorts. They are busy enjoying taking their photos and selfies. I was sitting in front of the dais so I took the photo and it explained – two people are standing, looking like bride and groom. The bride has worn earrings and pink saree with a grand look. We can even take multiple photos. Otherwise, what I would do in the function – just sitting there. Instead of that, I enjoyed taking photos from different angles. It explained the decorations and arrangements of the flower pots and the garlands.”

She explained how BeMyAI became a companion during times when sighted people were unavailable for assistance and the capability to elaborately describe real-life settings contributed to an enriching experience of attending a wedding. In another instance, BeMyAI helped her in coping with loneliness during excursion when sighted people in the family were occupied with sightseeing.

"I even like to use it in my trip. I went to Nandi Hills with my family. They were all seeing everything. I felt lonely. Immediately, I opened BeMyAI and I started taking pictures in different angles. So, I enjoyed the nature. It explained very nicely and clearly. So, it helps a lot in overcoming loneliness. Those who are having vision, they are busy seeing their own sightseeing. We cannot ask them each and every moment, so this helps us. Earlier, I was asking lots of questions, but then they (sighted people) would get bored when they must take me with them because when I started asking questions. I am curious to know about the surroundings and they are curious to see those things. So, they felt bore. Now with BeMyEyes, they do not get bore and even I can use it for more context about the environment. In fact, they get curious about what output does the AI take and they start talking to me."

While BeMyAI application instilled a sense of companionship and independence, the context in which she used the app also invited attention from others, thereby opening up opportunities for conversations. Adding to her excursion experience, she said, "BeMyAI certainly helps in gaining more independence. And when I was using it, people around me were curious about the app. So, I explained them about the BeMyEyes and shared the app link which they then used it to register themselves as sighted volunteers to offer help. So, it helped in spreading awareness as well. They are not familiar with me; they were strangers but they asked me and then I explained them about the app and BeMyAI. I told them to become volunteer and they explored the app in front of me."

Thus, we see BeMyAI serving two critical aspects of everyday interactions for PVI. Firstly, it promoted independent sensemaking of environment, easing the carework load for sighted people accompanying them. And secondly, it mitigated exclusion in social interactions by being a cue for sighted people to include PVI in their everyday experiences. That said, the notions around privacy also emerged. One of the co-authors who identifies as a person with visual impairment noted,

"In BeMyAI, it will just read out all the information that is out there. So, we need to be careful while seeking help with sensitive information. But there are other apps such as Ally, which does not read aloud the confidential information such as debit card details. So, there is no uniformity in the way these different GenAI apps process visual description and therefore the privacy considerations vary significantly".

This highlights the need to develop a shared conventions around privacy to ensure that basic principles of privacy are upheld while the image to text descriptions seek to provide assistance to people with visual impairment.

4 OVERVIEW OF CHATGPT

ChatGPT has emerged as one of the top Generative AI applications used by millions of people across the world [5]. Through web and

mobile applications, it answers contextual questions and is particularly salient around specific tasks. With the range of data that is fed to the underlying algorithm, it enables information access across different genres A user can type or speak their queries and can easily get their answers along with suggestions for future queries and tasks to be done. This makes it a helpful collaborative agent while navigating complex tasks such as programming [3].

5 CHATGPT TO PATCH ACCESS GAPS IN EDUCATION

We now report the lived experience of one of the co-authors who identifies as a person with low vision. Trained with a Bachelors in Science with a focus in Statistics and Computer Science, she was familiar with HTML, CSS and Javascript. However, when she began facing issues and losing sight, she resorted to Generative AI applications for wireframing using ChatGPT.

"In my second semester, I gradually started to lose my sight. It was overwhelming initially...For assignments, when I came to know about ChatGPT, it was very useful...ChatGPT has significantly empowered me in coding HTML, CSS, and JavaScript for a graduate course, making my collaboration with sighted students much smoother. As a visually impaired student, I faced several challenges in working with design and development tools, especially for tasks like creating wireframes. Most wireframing tools are inaccessible with a screen reader, and manually arranging placeholders in PowerPoint is cumbersome without visual feedback. ChatGPT helped bridge this gap by allowing me to describe layouts in text and generate accessible HTML code for wireframes. This method enabled me to visualize and modify designs efficiently, ensuring that I could contribute equally to the project despite accessibility barriers...The AI's ability to generate formatted content, describe images, and provide mathematical solutions has significantly reduced my dependency on sighted assistance, giving me greater independence in coursework. While I still validate certain outputs, ChatGPT has been invaluable in making digital product design more inclusive and accessible."

It is noteworthy to highlight that the goal of using ChatGPT was not to get completely rid of any human support but to strategically seek validation only when absolutely necessary. This highlights how PVIs collaborate with LLMs to gain interdependence.

6 DISCUSSION

Applications such as BeMyAI and ChatGPT have undoubtedly made lives easier for people with visual impairment. The seamless integration of AI on BeMyEyes app has enabled the PVI to leverage it for independent sensemaking of environment. Similarly, ChatGPT, with its capability to understand the wireframing needs and generate appropriate accessible code has allowed students engage and delve into the world of user experience research in a more central way. The results are encouraging to think through a gamut of applications of LLMs for accessibility. In this paper, we reported lived experiences of people who use such applications in their everyday settings.

A notable aspect in their use is the persistence of interdependence and social accessibility. Moving forward, the use of GenAI

applications would not simply result in gaining complete independence. Instead, it would entail designing for new forms of interdependence.

REFERENCES

- [1] BeMyEyes. [n. d.]. Introducing BeMyAI for people who are blind or have low vision, powered by OpenAI's GPT-4. <https://www.bemyeyes.com/blog/introducing-be-my-eyes-virtual-volunteer>
- [2] Cynthia L Bennett, Erin Brady, and Stacy M Branham. 2018. Interdependence as a frame for assistive technology research and design. In *Proceedings of the 20th international acm sigaccess conference on computers and accessibility*. 161–173.
- [3] Emma Delaney. 2023. How to Create Your Own ChatGPT in HTML CSS and JavaScript. <https://emma-delaney.medium.com/how-to-create-your-own-chatgpt-in-html-css-and-javascript-78e32b70b4be>
- [4] Jonathan Grudin. 1990. The computer reaches out: The historical continuity of interface design. In *Proceedings of the SIGCHI conference on Human factors in computing systems*. 261–268.
- [5] OpenAI. [n. d.]. ChatGPT Overview by OpenAI. <https://openai.com/chatgpt/overview/>
- [6] Yvonne Rogers, Liam Bannon, and Graham Button. 1994. Rethinking theoretical frameworks for HCI: report on an INTERCHI'93 workshop, Amsterdam, 24–25th April, 1993. *ACM SIGCHI Bulletin* 26, 1 (1994), 28–30.