DOI: doi.org/10.47363/JAICC/ICADCCS2026/2026(5)18

International Conference on AI, Data Science, Cybersecurity, Cloud Architectures, and Software Engineering

Conference Proceedings April 23, 2026 - (Virtual)

Building Partnerships in Participatory, User-centered Design of Artificial Intelligence Mediated Devices for People with Disabilities

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Abstract

One billion people, fifteen percent of the world's population, have experienced a disabling condition that impacts their physical or cognitive function according to the World Bank Group. Such disabilities can result in challenges that present major barriers to entering and persisting in the labor force. In the United States, at least 80% of persons with disabilities were not part of the 2024 labor force according to the US Bureau of Labor Statistics. This disparity has been particularly pronounced in technology-related employment. Only 3% of the science, technology, engineering, and math (STEM) workforce are people with disabilities and representation in STEM workforces remain relatively unchanged from a decade ago despite an increase in the number of people with disabilities across professions since 2011. Americans with disabilities earn only 66 cents for every dollar earned by their counterparts without disabilities. While employment opportunities world-wide in technology industries continue to grow, they are largely inaccessible to people with disabilities. This inaccessibility is primarily because standard computing interfaces are nearly impossible to operate for many people with disabilities.

This presentation will discuss the results of research on the role that artificial intelligence (AI) and machine learning plays on changing the outcomes on people with disabilities, by providing them with full accessibility to technology when it is mediated by AI powered, machine learning mediated accessibility devices. It presents a structure and process for obtaining information about the individual and collective needs of people with disabilities in designing accessible hardware and associated software wrappers to meet their needs and then working with them in technology design and use. Results reveal that people with disabilities play a significant role in designing, testing and developing accessibility tools for themselves and others associated with technology use in both education and employment.