Universal access to technology

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Session Presenters

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IEEE SSIT TC UAT Member, Research Scholar
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Huazhen Fang
Associate Professor of Mechanical Engineering
Director, Information & Smart Systems Laboratory
University of Kansas

Ramneek Kaira
IEEE Impact Creator/Chair, History & Research S/C (IEEE CS DVP); Professional Development Coordinator, IEEE YP Delhi AG
Founding Chair, IEEE QT3 & IEEE WIE PBL School Camp
Chair, Engage Track (IEEE YESIST12-2022)

Organizers/Moderators

Bozenna Pasik-Duncan
Chair, SSIT TC Universal Access to Technology,
Member, SSIT Board of Governors
University of Kansas

Ralamatha Marimuthu
Secretary, CS and Member of CS Board of Governors,
Kumaraguru College of Technology

Scribe

Tanishi Naik
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***Program Description*—Universal digital access to technology can be as seemingly straightforward as providing electricity access to a remote location or as overwhelmingly complicated as developing a healthcare system that provides immediate and secure access to medical experts, insurance companies, and all of their accompanying infrastructure. This session, featuring members of the SSIT Technical Committee on Universal Access to Technology, discusses how scholars, researchers, practitioners, and educators can actively reduce this digital divide which separates communities and individuals on the basis of ethnicity, religious conviction, sexuality, gender identity, income, age and in many other ways. Drawing on their professional experiences, panelists will discuss strategies for placing humanitarian concerns at the centre of all we do as we strive towards universal digital access; they will demonstrate how to carefully and ethically balance social, cultural and technological dimensions of society to the benefit of all people, particularly those living in rural and underserved areas; and they will elaborate on the role of education, encouragement, and empowerment in the pursuit of these goals.**

Keywords*—*Community engagement, STEM education, access, digital equity, digital access

Before the presentations began, moderator Bozenna Pasik-Duncan overviewed the mission statement of the IEEE SSIT Technical Committee on Universal Access to Technology that underlaid the purpose of this session. That mission is centred on recognizing that universal digital access for all requires an embodied and humanitarian-centred, community-centred understanding of a digital society which actively benefits all human-beings. She noted primary challenges to digital access for all including the high investment costs necessary to build adequate electricity infrastructure, a lack of digital literacy, social and psychological factors that impact perceptions of 'new' technology, and a digital divide that surpasses geographical and political borders.

The first presenter, Iven Mareels, approached the topic by illustrating how mere access to technology is not sufficient for effective use of technology, viewing it through the lens of information asymmetry, citing education as its anecdote. Although Mareels acknowledged during the discussion portion that closing the gap of asymmetry will never occur completely, he provided three guidelines that serve as strides in the right direction:

1. Acknowledging that those with access to technology and information can exploit those with only the former
2. Access is not sufficient without tools to analyze data
3. Governance over access is required to protect technology's users

Next, Shally Gupta identified the importance of achieving digital equity in order to yield "inclusion," and this process begins by connecting more people to digital technology. Gupta addressed the fact that some people cannot access digital technology due to a lack of infrastructure and complex social and psychological factors, and that there are those who are genuinely disinterested

in connecting to technology at all. The solution to the latter, Gupta emphasized, is better educational resources that can increase awareness of the digital divide and the benefits of internet connectivity.

The third presenter, Huazhen Fang, delved into the educational implications of access to technology. Fang overviewed that providing high-quality access to technology for K-12 students, the next generation of innovators and users, will be important if students are to work through pressing social and economic of issues. Fang emphasized that millions of K-12 students in developing nations are currently being "left behind" precisely due to persistent economic gaps and social divisions that limit their access to technology.

Closing off the presentations, Ramneek Kalra illustrated how the "3E's"—enlight, educate, and empower—can be used as guidelines for advancing the IEEE's overarching social initiatives and making an individual impact through volunteerism.

During the discussion portion, Heather Love asked for some actionable items to achieve universal access to technology, to which Iven Mareels replied with rhetorical questions such as "is technological advancement benefitting humankind or taking more away from them? How do we create ethical technology without leaving people behind?" He stressed the importance of asking these questions within powerful organizations, and cited the example of a multinational technology corporation, like IBM, pledging to train 30 million people in digital skills by 2030 as a positive movement towards proficient media literacy.