STATEMENT ON 25TH ANNIVERSARY OF THE AMERICANS WITH DISABILITIES ACT

ACM U.S. Public Policy Council
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The ACM U.S. Public Policy Council joins the country's celebration of the 25th anniversary of the Americans with Disabilities Act (ADA), a landmark law that has promoted innovation in technology to empower the full participation of people with disabilities and limitations in all aspects of society. We reaffirm our commitment to working with U.S. policy leaders, the computing community, and across all sectors of society to ensure a disability-inclusive policy agenda that expands access, promotes innovation, enables research and development, and continues efforts to fully implement the ADA.

Background

On July 26, 2015, we will celebrate the 25th anniversary of the signing of the Americans with Disabilities Act (ADA). The ADA has transformed lives by creating and expanding opportunities for people with disabilities to participate more fully in society.

"Accessibility and usability are crucial to an inclusive digital world," said Harry Hochheiser, the Chair of the USACM Accessibility Committee, and Assistant Professor of Biomedical Informatics at the University of Pittsburgh. "When the ADA was enacted in 1990, the Internet revolution was still a few years away. Although technological advances have allowed people with vision, hearing, mobility, and cognitive disabilities to participate in the richness of the web, mobile technologies, social media, cloud computing, and the Internet of Things, the ADA has been a vital tool for ensuring fair and equal access to these technologies and the opportunities they present."

Computing technology advances during the past 25 years have contributed to different dimensions in empowering people with disabilities. A few of the more impactful computing technologies include:

- **Internet** – The global growth of the internet as an enabling technology has fundamentally changed the way in which we live, learn, work, and participate in society. A continued commitment to making the internet more accessible and user-friendly will help fulfill its potential to provide access to information and opportunities for everyone.

- **Software and Applications –** Nearly all computers and mobile devices now include or integrate accessibility features to help make online and computer-based audio and text communications accessible to people with disabilities through speech recognition, speech-to-text or text-to-speech, captioning, and customization of text, contrast, colors, screen resolution, magnification, and audio volume**.**

- **Mobile Devices and Services –** Mobile and wireless technologies continue to expand and extend the benefits of the Internet and computing in ways that are helping people with disabilities to achieve greater independence and an improved quality of life. For example, mobile apps allow people with vision disabilities to identify and distinguish products, access product label information, navigate streets, and identify the value of paper money. Applications for the deaf or people with hearing limitations help users communicate with others, enjoy entertainment, and receive sensory alerts of sounds.

- **Assistive Information Technologies –** Screen readers, screen magnifiers, refreshable Braille displays, and optical scanners with optical character recognition software are simply a few examples of solutions to allow people with visual disabilities to meet specific needs as part of their everyday activities. Voice recognition software allows people who have visual or physical disabilities to use their voice rather than the keyboard or mouse to operate computers and devices.

- **Digital Hearing Aids and Cochlear Implants –** Advancements in multiple areas, such as chip technology, digital signal processing, and directional microphones, are bringing wider frequency ranges, better speech perception, and improved noise filtering in different listening environments to people with a range of hearing limitations. Multi-channel cochlear implants with sophisticated processors have brought sound to people without hearing and improved sound for people with severe hearing loss. Some hearing instruments can stream sound directly from devices using wireless technologies, such as Bluetooth.

- **Computerized Wheelchairs –** Continued improvements in computer modeling, sensors, wearable technologies, robotics, manufacturing, and lightweight materials are making wheelchairs more versatile, thus improving their potential for tackling more types of situations, terrains, and needs of individuals.

- **Robotics –** Computer hardware and software that drive bionic arms, hands, legs, and feet bring new freedoms and capabilities to people with mobility disabilities. Wearable robotic exoskeletons increasingly are being made available to provide upright, mobile, and independent walking for those that need them. Stand-alone robotic assistants help people with mobility disabilities remotely manipulate items, move objects, and perform tasks.

"In keeping with the vision of the ADA, we owe it to future generations to continue to innovate and to widen future possibilities for an inclusive digital world," said Eugene H. Spafford, Chair of USACM, and Professor at Purdue University. "Advances in computing will continue to expand the possibilities for everyone to interact, no matter their circumstances or physical world limitations."

A few emergent areas of transformative innovation include:

- **Internet of Things –** The emergent area of connecting a range of everyday objects to the Internet has the potential to empower people with disabilities to interact more easily, effectively, efficiently, and safely with the world using technology. Smart environments could allow people with disabilities to operate and control a variety of things in the world around them, from appliances to mobile robots, through accessible online interfaces activated by touch, gestures, speech, or eye movements. This next wave of technology could allow more individuals with disabilities to lead independent lifestyles.

- **3D Printing –** The ability of this technology to provide customized products has the potential to revolutionize the lives of people with disabilities. Early uses include high-quality personalized parts for hearing instruments, specially fitted and fabricated artificial limbs, and adaptive custom equipment to enable people with a wide range of disabilities to lead more independent lives. 3D printing also is creating new opportunities for people who are

blind or visually impaired to affordably print and interact with objects useful for education, business, and consumer purposes.

- **Artificial Intelligence –** Software can be written to seemingly make intelligent choices and solve problems. The software can help people with disabilities by predicting the next typed word, recognizing and interpreting the spoken word, creating intelligent assistants to help replace cognitive abilities, and making navigational and safety decisions in self-driving wheelchairs and cars**.**

- **Wearables –** Clothing and accessories embedded with computing capabilities give wearers another way to perceive and interact with the environment. They can be used for object sensing, geolocation, street-sign reading to aid navigation, sound sensing, communications, and control of other devices, often without requiring hands or vision to operate the wearable device. Wearables can provide unobtrusive and continuous health monitoring, which can bring significant benefits to people with health disabilities.

- **Brain-Computer Interfaces –** This early-stage technology could address important needs for people with a range of disabilities by enabling communications between the brain and external devices. Researchers currently are testing wireless brain-controlled prosthetic devices and brain-controlled interfaces, which could significantly benefit the lives of people with amputations, neuromotor impairments, and spinal cord injuries. Research also is demonstrating how brain signals can be used to generate synthesized speech, operate the equivalent of an on-screen keyboard, or experience the sensation of seeing light. Further research could lead to enhancements of considerable benefit to persons with auditory, visual, mobility, and cognitive impairments.

Conclusion

On this 25th anniversary of the Americans with Disabilities Act, the ACM U.S. Public Policy Council celebrates and recognizes the progress that has been made to advance and achieve the principles of equality and inclusion in the digital environment. We look forward to the next 25 years of exciting advances in computing technologies.

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Related ACM Resources

- SIGACCESS - Special Interest Group on Accessible Computing ([website](#))
- SIGCHI - Special Interest Group on Computer-Human Interaction ([website](#))
- SIGWEB - Special Interest Group on Hypertext, Hypermedia and the Web ([website](#))
- ACM Transactions on Accessible Computing (TACCESS) ([website](#))
- ACM Learning Webinar –Making the Digital and Physical Worlds Accessible for People with Disabilities (May 15, 2015) ([captioned video on YouTube](#))

Related ACM U.S. Public Policy Council Resources

- USACM Accessibility Committee ([website](#))