INCLUSIVE XR

XR ASSOCIATION

WHAT IS THE XR ASSOCIATION?

The XR Association promotes the dynamic growth of the XR industry. We convene and educate policymakers, thought leaders, researchers, developers, civil society, and the public on XR's infinite potential and serve as the premiere resource for anyone interested in learning about the applications of immersive technologies. Our member companies are united in our mission to champion the responsible development and thoughtful advancement of XR solutions that foster positive societal outcomes. Let us help you explore the endless potential of XR.

WHAT IS XR TECHNOLOGY?

XR is an umbrella term encompassing virtual, augmented, and mixed reality technology as well as other forms of alternate, expanded, or immersive technology applications.

Virtual Reality (VR)
VR replaces or occludes a user's reality with a new virtual environment like a factory floor or replication of the solar system.

Augmented Reality (AR)
AR layers digital content onto a user's view of the real world, thus providing a composite view.

Mixed Reality (MR)
MR allows users to experience simulated content within their physical worlds and to manipulate and interact with virtual elements in real time.

XR is changing the way we learn, do business, and provide essential human services. By delivering efficiencies in manufacturing, enhancing workplace safety, accelerating learning and job training, providing risk-free first responder training, improving healthcare and medical services, and providing rich experiences to individuals living with disabilities, XR is poised to become a part of daily life for users across the globe. XR is the technology of the future—today.

XR IS MAKING EXPERIENCES AND TECHNOLOGY ACCESSIBLE TO PEOPLE WITH DISABILITIES

XR developers are broadening the realm of the possible for users with disabilities, making once-inconceivable experiences available to users with limited mobility, sensory impairments, and cognitive disabilities. Beyond democratizing experiences, the XR industry is focused on ensuring XR technology is itself accessible. To that end, XRA published the "Accessibility & Inclusive Design in Immersive Experiences" Developers Guide—a set of best practices for platform and application developers on creating programs that can be enjoyed by all. XRA has also hosted a series of Community Discussions to bring together diverse stakeholders to explore leading topics in accessibility such as the use of haptics to drive accessible immersive experiences or use of audio cues in virtual environments.

CREATING EXPERIENCES AND ENHANCING LIVES

Expanding Access
Immersive technologies can make virtual services and experiences available to people who would otherwise be unable to access them due to lack of accommodations for accessibilities, lack of accessible transportation, or are limited by distance. Developers are beginning to incorporate cutting edge accessibility features in their applications. The sense of presence in immersive environments can benefit everyone, including individuals with disabilities, social anxieties, or mobility impairments. XR affords users the ability to expand their horizons, from touring a museum to exploring the Himalayas; from attending a concert to joining a sports game; and from meeting with a government official to receiving personalized medical care.

Sensory Impairments
XR is helping people overcome sensory barriers. AR can provide blind and visually impaired users with more unobtrusive and user-friendly ways to access the world around them. For visually impaired people, XR can also afford users with Text-to-Speech and audio-based interfaces as an alternative to visual interfaces. XR is also bridging the gap for the hard of hearing. Developers are perfecting VR experiences with captions and navigation for benefit of the hard of hearing community. Utilizing MR glasses can provide a holographic interpreter for translating speech into sign language in real time. These technologies are proving useful for education, job training, workplace collaboration and facilitating greater levels of independence.

Neurodivergence
XR can be used to help individuals with autism navigate social situations and develop life skills that can lead to secure employment and independent living. Michigan State University and the University of Michigan developed a training tool called Social Cognitive and Affective Learning for Work, that can teach young adults with Autism Spectrum Disorder to communicate effectively with customers and colleagues in the workplace. VR is also helping teachers to work more effectively with autistic students by providing sensory-friendly environments or the ability to customize lessons for individuals who learn differently.

Cognitive Disabilities
Immersive technology is being used to address many cognitive disabilities. As one example, XR has been shown to effectively treat patients suffering cognitive decline as well as seniors living with advanced dementia like Alzheimer's disease and Huntington's disease. VR has been shown to improve mood, reducing levels of anxiety, depression, confusion, and hostility, thus improving quality of life and social interaction. What's more, a review published in the Journal of Alzheimer's Disease found that VR is emerging as a viable method not only of therapy but may also help with early diagnosis.

ACCESSIBLE BY DESIGN

XR hardware is rapidly evolving, and while some facets are unique to individual manufacturers, all are working to maximize accessibility in conjunction with software development partners. The concepts of inclusive and ergonomic design provide a strong set of guiding principles for software developers building platforms for XR and creating programs across multiple platforms. Rather than creating a separate experience, tool, or plug-in specifically aimed at a particular disability, inclusive design aims to create a universal XR experience that integrates tools that all users can enjoy. Both hardware and software developers have a shared interest in and commitment to incorporating iterative practices and working closely with the disability community to test advancements at each stage of development.