XR ASSOCIATION

XR TECHNOLOGY AND PUBLIC SAFETY

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 BOLSTERING PUBLIC SAFETY

XR is bolstering public safety across the spectrum, from emergency medical services to firefighting and law enforcement to disaster management. Often, public safety officials face environments that are difficult or dangerous to replicate in real life for training purposes. But first responders are leveraging immersive technology to experience the challenges they will face in the field to better equip trainees. What's more, XR training programs are customizable, convenient, and cost-effective over time.

Disaster Management

Disaster Management is a complex process often requiring swift action based on incomplete information. Several government agencies are exploring the unique advantages of VR-based training for disaster preparedness and response. Among them, the Centers for Disease Control and Prevention (CDC) is leveraging VR to offer laboratory professionals the opportunity to apply, assess, and improve their skills in a safe and controlled learning environment—allowing learners to make costly mistakes without suffering real-world consequences. Digital twins are also helping the United States government to understand, prepare, and mitigate the risks of climate change. After Hurricane Michael destroyed parts of Tyndall Air Force Base in Florida, the Department of Defense used a digital twin to redesign the base from the ground up and build a climate-resistant infrastructure. Further, researchers are developing tools for disaster mitigation and response. At the University Corporation for Atmospheric Research, for example, a team developed an AR app to map flood patterns, assess damage, determine evacuation routes, and evaluate the outcomes of different mitigation strategies.

Emergency Medical Services

Emergency medical personnel interact with a wide range of patients and environments, and many trainees are limited by too few training sessions covering too few topics. Virtual reality is helping EMTs overcome these limitations. XR programs offer instructors the ability to modify patient scenarios and immerse users in virtual clinical cases in which they can interview, assess, diagnose and treat patients in real-time. For example, Ohio State University has developed a program to train first responders to be prepared for mass casualty incidents such as a bombing. Participants learn how to practice SALT (sort, assess, life-saving interventions, treatment and/or transport) triage. VR is also helping non-professionals be prepared to play a lifesaving role. What happens during the time between an emergency's onset and the first responders' arrival can make all the difference. Researchers at the University of Pennsylvania have developed VR software that trains people who may be with a loved one who overdoses to administer naloxone, the lifesaving opioid-reversal medicine, while waiting for paramedics to arrive.

Firefighting

Training firefighters through live exercises is costly and dangerous. Virtual reality is allowing trainees to experience real-world simulations safely and effectively. What's more, VR allows training for those unusual incidents that cannot be easily replicated. VR training can even incorporate peripherals, like a suit that heats up and a hose that feels like it's spraying, to make the trainee's experience fully sensory. Northcentral Technical College in Wisconsin is using immersive technology to train firefighters on what protective equipment you need for different situations and how to assess and respond to scenarios. The training gives real-time and post-exercise feedback, so firefighters know how to improve their responses. AR is also becoming an important part of the firefighter's toolkit. Recently developed AR technology allows firefighters to see through smoke to identify the people and objects in a smoke-filled space, potentially saving lives—including the firefighter's own.

Law Enforcement

Law enforcement is vital to the health and wellbeing of our communities, but police encounters can be stressful and complicated, putting both officers and civilians at risk. VR is helping police officers hone the skills needed to de-escalate tense situations. By virtually putting officers in the shoes of their subjects, VR facilitates a perspective shift, imparting an understanding of how officers' body language and chosen commands influence outcomes. For example, the Los Angeles Police Department is using VR and a motion capture studio to train officers at the Police Academy on how to de-escalate police encounters from Santa Monica to Skid Row. These skills can be particularly impactful in situations involving subjects living with psychiatric or cognitive disorders. Through VR training, officers can learn to identify behavioral symptoms, understand how those symptoms might affect a subject's experience, and determine how best to proceed. Law enforcement can also use VR to learn specialized skills. INTERPOL recreated its General Secretariat headquarters in VR so officers can take immersive training courses in forensic investigation and other policing capabilities.