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 members—Oculus from Facebook, Google, HTC VIVE, Microsoft, and Sony Interactive Entertainment—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 reality applications, including those not yet invented.

Virtual Reality (VR)

VR replaces or occludes a user's reality with a new virtual reality. This new reality can be fantastical, like a faraway galaxy, or practical, like a training warehouse.

Augmented Reality (AR)

AR layers virtual content, such as digital objects or information, onto real-world images captured from a device's camera.

Mixed Reality (MR)

MR blends the digital and physical worlds, empowering users to interact with both 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 across the spectrum from law enforcement and emergency medical services to firefighting and disaster management. First responders and other public safety professionals are leveraging XR technology to better equip trainees for the challenges they will face in the field. What's more, XR training programs are customizable, convenient, and cost-effective over time.

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. 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.

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. 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.

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. Software training programs are available that 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. 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.

Disaster Management

Disaster Management is a complex process 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. Researchers are also developing tools for disaster coordination in real time. At the University of Calgary, for example, a team explored the use of interactive 3-D AR maps to examine flood patterns, assess damage, and determine evacuation routes.