Amping Up the Realism of Mixed-Reality Training

How MÄK helped create a hyper-realistic environment for Pararescue trainees

A US soldier is trapped under rubble from a damaged building in hostile territory. As a pararescuer, your team must get in, stabilize the situation, and get out – skins intact.

The rescue mission begins with a helicopter ride over to the site - the ride is bumpy and loud as combat zones dot the geography below. The war worn building comes into view and when you arrive, you fast rope out of the helo and into the rubble. You navigate to the trapped soldier and as you begin to address the situation and tend to the rock pinning him down, there's an explosion. Even more smoke, debris, and confusion fill the area; when the dust settles, you learn that more soldiers are injured, even a civilian is hurt.

What do you do? How do you react?

Quick reactions, clear thinking, and expert medical and rescue skills are what pararescuers are known for and it is in situations like this when they excel. With their medical and rescue expertise, alongside their deployment capabilities, pararescuers are able to perform life-saving missions in the world's most remote areas. But they don't gain those skills overnight. They must endure years of physical and mental training to ready themselves for conventional and unconventional rescue situations – that training must be the best.

The National Center for Health Care Informatics (NCHCI) is developing and creating an environment of unparalleled operational reality for mixed-reality pararescue training. The goal is to build an immersive training environment where pararescue trainees can experience all the elements of a rescue mission including mission orientation, transport ingress, paramedic training, self-protection, and transport egress. This mixed-reality setting combines static set elements like mock helicopters, rubble piles, and medical mannequins, with virtual simulation of the tactical situation and human characters, as well as live actors as victims.

The challenge is clear: make the simulated parts of the training just as realistic and believable as the static, real-life elements to build the most immersive training environment possible.

The simulated human characters must act and look as believable as possible in the virtual scenes to match the level of realism played by live actors.

To ensure top-notch quality and believability of the simulated humans, NCHCI chose MÄK's human simulation software, DI-Guy. DI-Guy's virtual human characters increase the operational complexity of the mission. As scenarios play out, pararescue trainees must beware of threats and are confronted with explosions of Improvised Explosive Devices (IED), which injure virtual soldiers and civilians in the scenes. The injuries to these DI-Guy characters include shrapnel wounds, leg gashes, and abdominal lacerations. NCHCI connected a high-fidelity, physiological-model-based control system to the DI-Guy characters to create additional behaviors to be consistent with their injuries. By incorporating accurate behavioral subtleties in the virtual humans, they are able to maintain the suspension of disbelief needed for effective training of the pararescuers.

To learn more about how we can help you create your ultra-realistic mixed-reality training environment, reach out today at info@mak.com!