Sailors Use Augmented-Reality Gear to Train for Combat

Sailors assigned to the Center for Security Forces detachment in Chesapeake, Virginia, demonstrate the TRACER system. U.S. Navy/John F. Williams

ARLINGTON, Va. – The Sailors file into the room, their weapons ready and their adrenaline flowing. They operate as a team in a seamless manner. Their mission: to secure an active-shooter situation and apprehend the holographic perpetrator. Commands are given to the shooter, within the augmented-reality (AR) headset. The shooter surrenders, and the Sailors' mission is accomplished.

The Office of Naval Research (ONR) Global TechSolutions program has teamed with Naval Surface Warfare Center (NSWC) Dahlgren, U.S. Army Combat Capabilities Development Command and two industry partners, Magic Leap Horizons and Haptech Inc., to develop an AR training environment.

The Tactically Reconfigurable Artificial Combat Enhanced Reality (TRACER) project was recently tested at the Center for Security Forces (CENSECFOR) Detachment Chesapeake, on Naval Support Activity Northwest Annex, in Currituck County, North Carolina.

TechSolutions is ONR Global's rapid-response science and technology

initiative that develops prototype technologies, to address problems voiced by Sailors and Marines, within about 12 months.

The TRACER system consists of a Magic Leap One AR headset, a backpack processor and a Haptech instrumented weapon, designed to deliver realistic recoil. TRACER uses software developed by Magic Leap Horizons as part of the U.S. Army's Augmented Reality Dismounted Soldier Training (ARDST) project, providing advanced weapons tracking and allowing trainers to create multiple and adaptable simulation scenarios for security personnel to experience.

"Our training system is built mostly from commercial-off-the-shelf products, so we are using widely available gaming gear," said Patrick Mead, TRACER project lead from the Human Systems Research and Development branch at NSWC Dahlgren.

"All of these technologies combine … to give us extremely accurate weapon and movement tracking capabilities as well as highly immersive simulation visual, auditory and haptic (relating to the sense of touch) feedback. Ultimately, TRACER provides Sailors with dynamic, engaging and less predictable training scenarios that would otherwise be too costly or time consuming to create in the real world."

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The mission at CENSECFOR is to train Sailors from divergent career fields in U.S. Navy security force fundamentals, code of conduct, anti-terrorism and expeditionary warfare training to achieve maritime-interdiction and irregular-warfare superiority.

“We can integrate this AR, virtual training environment into our existing curriculum, and it allows us to be very reconfigurable,” said Cmdr. Kim Littel, CENSECFOR’s director of training innovation. “We can go in and we can change the scenarios, or we can change the opposition forces and the threat that they pose.”

For Sailors who often must train and remain proficient while at sea, flexibility is crucial.

According to Littel, the necessary space required to conduct training operations on a ship is limited and the opportunity to conduct training without impeding on regular operations is scarce. TRACER will help mitigate those issues and help increase proficiency and currency in more expansive training scenarios.

“In an environment where we’re taking students from the fleet, from their primary jobs, to train them, we need to maximize the limited time we have to make them as proficient as possible,” Little said.

“This technology provides a huge advantage by being quickly adaptable to different scenarios, geographic locations and opposition forces. Using this technology, we can conduct training almost anywhere, anytime.”