

Marines put ONR's augmented reality system to the test with live-fire testing

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A Marine is fitted with the Augmented Immersive Team Trainer from the Office of Naval Research during on-going testing at Quantico, Va. The AITT allows Marines to transform any location into a dynamic training ground by injecting virtual images, indirect fire effects, aircraft, vehicles, simulated people, etc. onto a real-world view of one's surroundings. Credit: US Navy photo by John F. Williams/Released

Marines enrolled in the Infantry Officer Course were able to use Office of Naval Research (ONR)-developed augmented reality technology for the first time as part of live-fire training exercises, ONR officials announced Aug. 31.

The Marines, as part of the Infantry Officer Course, had the opportunity to try out ONR's Augmented Immersive Team Trainer (AITT) system Aug. 5-6 at a test range on the southern edge of Marine Corps Base Quantico in Virginia. The AITT system-which is comprised of a laptop, software and battery pack, and a helmet-mounted display-can support a wide array of live, virtual and cutting-edge training scenarios. It uses augmented reality, which means that virtual objects are superimposed onto a real environment-like the yellow first-down lines added to television broadcasts of football games for the benefit of viewers at home. This differs from virtual reality, which is a wholly computer-generated environment in which users immerse themselves.

"The AITT system is like the Marine Corps itself: lean, agile and adaptable," said Brig. Gen. Julian Alford, vice chief of naval research and commanding general of the Marine Corps Warfighting Laboratory. "This affordable lightweight system can be taken anywhere-turning any environment into a training ground-and could be used to prepare Marines for real-world situations and environments they will face."

The field portion of the "call-for-fire" training included aircraft and munitions, which are costly and time-consuming to set up, staff and equip, but an important part of the training experience for the student officers. The wait time for a test range can be six to 12 months, rain can cancel the testing and it can be difficult to get assets in place, since equipment can break down.

The AITT completely bypasses these challenges by using virtual ground vehicles, aircraft and munitions.

"The system makes the training easier and eliminates the maintenance issues or weather-related restrictions that can pare down or cancel training," said Maj. George Flynn, director of the Infantry Officer Course. "For instance, this system can use virtual air support, so even if it's raining, the students can still be training, getting confidence and learning the points of employing aviation assets."

The system will enable the student officers to use virtual assets to complement live training or to get additional practice repetitions without having to use live assets, said Dr. Peter Squire, a program officer with ONR's Expeditionary Maneuver Warfare and Combating Terrorism Department who's leading the AITT effort. "And instead of using your imagination, now you can see virtual effects from the blasts, like smoke."

Flynn emphasized that seeing virtual effects makes it much easier for the student to picture the situation. "Rather than having the instructor paint a picture to the student without anything happening, now the student can get a visual of the aircraft they've been controlling in support of a maneuver on the deck," he said. Flynn envisioned more potential uses for AITT in the future: "For example, as part of a company [training](#) event, a rifle platoon could be conducting a live-fire attack on a range at the Marine Corps Air Ground Combat Center, while the Fire Support Team could be on the hill practicing employing fires in support of maneuver, using virtual effects."

The AITT program, part of the ONR Capable Manpower Future Naval Capability, will wrap up its fifth and final year with a large-scale demonstration at Quantico, scheduled for October. Pending the results of a Marine Corps assessment in October, the program will transition to the Marine Corps Program Manager for Training Systems for further testing and development.

Provided by Office of Naval Research

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