

A New [Sense of] Direction for Battlefield Awareness



The Virtual Environment Research, Interactive Technology, and Simulation Chamber enables investigations of advanced audio technology that could aid warfighter combat awareness. (Air Force image)



Soldiers in forward battlefield positions typically wear just the type of headphones required for the audio exchange between speaker and listener. (Air Force image)

An AFRL/academic team is experimenting with the use of audio cues for more quickly alerting battlefield troops as to the location of sniper fire. Theoretically, the capability assumes/relies on the existence of a speaker—an individual who knows more, has more information, than the soldier engaged in the fight. He or she could be watching the area through a network of electronic monitoring sensors or from a helicopter flying above the action, for instance. The technology enables this speaker to seemingly change the direction (or apparent point of origination) from which his or her voice comes to another person, via headphones worn by that listening individual. The researchers are testing whether the speaker—who in real-world combat situations would be a military colleague, one likely viewing the action from a distance and/or through electronic means—can use that audible change in voice direction as a kind of tool for helping the listener pinpoint a sniper’s position.

AFRL is funding the ongoing experimentation, which is taking place in a lab owned by Wright State University and operated at Wright-Patterson Air Force Base, Ohio. Visual “virtual reality” images, enhanced by battery-powered eyewear that creates a three-dimensional effect, flash both on wall screens and on the lab floor to give the subject a sense of patrolling through a city, wherein a sniper could be hiding in a building or around a corner. The state-supported daytaOhio center, located on Wright State’s campus, has similar video capabilities and is linked with the on-base lab so that avatars displayed in both locations can operate in the same imaginary visual world and interact with each other.

To obtain plausible suggestions for improving the technology, the researchers periodically consult with Air Force and Army personnel who have been on the ground in combat situations. Once refined to the extent possible, the technology will eventually deploy to ground-based military personnel for field testing.