

**Title of Project:** STEM: 3D Visualization of RF Signals in Electronic Warfare (EW) to Enhance Warfighter Training (*Funded by US Navy – Office of Naval Research 2016-18*)

**Project Director:** Lauren Christopher

**Area:** 3D spatial virtual reality, RF signals

**Brief Description:** When done well, 3D data visualization has shortened training times, improved training recall, and improved task performance (speed, accuracy). The research objective is to enhance the Navy’s Electronic Warfare training environment, and deliver these 3D enhancements to NSWC (CRANE) for testing and validation of Electronic Warfare (EW) training improvements. A researcher at CRANE has identified a missing link in the current system: there is no representation of 3D RF signals in EW training simulations. We are using this proposed research to advance the knowledge of Science, Technology, Engineering and Math (STEM) students for potential careers in the Navy. Together, the research will create a meaningful 3D visualization of the RF signals in the warfighter’s training simulation environment and will introduce a new collaboration between Electrical Engineering and Informatics faculty and students. The research areas are: 1) develop an interface from the present environment to a 3D autostereoscopic display, 2) develop a meaningful visualization of RF signals for 3D viewing that enhances the warfighter’s understanding of battlefield environment and tactics, 3) combine the visualization of the RF on simulated moving assets (planes, ships, missiles), and finally 4) to create a meaningful visual indication when two assets are within reliable communication range (including atmospheric effects) with each other.



Prototype 3D Visualization of invisible antenna patterns

**Link:** TBD