Data Enabled Photogrammetry

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Topic Number: N193-A03-3

SYSCOM: Office of Naval Research (ONR)
www.onr.navy.mil

Program Sponsor: Naval Air Warfare Center, Lakehurst NJ

Other Potential Programs:
Joint Capability Area 2 (JCA2) Battlespace Awareness - Intel STO-1: "Big Data" Analytics and Infrastructure for Intelligence and Operations. Joint Capability Area 5 (JCA 5) – Command and Control C2 STO-1: Artificial Intelligence to Support Development of Knowledge and Situational Awareness.

Current TRL: 7
Projected TRL: 9 / During 2023
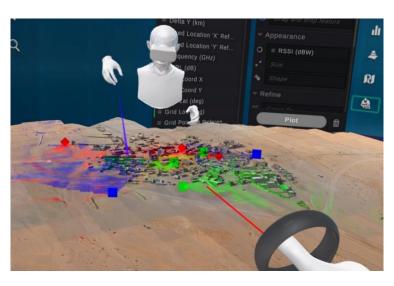*(assuming additional funding)*

Keywords:
Photogrammetry, Radio Frequency Propagation, Line-Of-Sight, Virtual Reality, Training

THE CHALLENGE

Naval Special Warfare (NSW) missions are increasingly dependent on understanding the Radio Frequency (RF) sensor environment and how it may be impacted by landscape and building features in the mission area. During mission planning, NSW personnel need a way to rapidly analyze, visualize, and understand this RF environment.

THE INNOVATION

Funding from NSW was used to enhance the Virtualitics Artificial Intelligence (AI) Platform to apply its machine learning techniques to incorporate photogrammetry data, geospatial data, combat unit data, and RF propagation data. The resulting automated analysis allows NSW personnel to see, interact with, train on, and understand the RF environment ahead of a mission. Personnel can interact with the platform via a laptop or with a commercial Virtual Reality headset. These personnel can be geographically distributed and interactively collaborate in real time.

THE NAVY BENEFIT

This capability provides the Navy with the ability to understand the RF environment in a mission area as well as the ability to train against this environment remotely. Fully understanding the RF environment allows NSW personnel to capitalize on terrain features and their impact on friendly and hostile RF equipment, thereby increasing lethality and reducing mission risk. Fully immersive remote training contributes to these two objectives while simultaneously reducing training costs.

THE FUTURE

The capability was built into the Virtualitics AI Platform, but it has not yet been migrated into the main baseline used by the rest of Virtualitics's DoD and commercial customers. This capability should be of interest to those involved in mission planning: special operators, unmanned aerial vehicle operators, humanitarian assistance, and strike planners. Virtualitics is looking to gauge interest and investment options to justify migration into the Virtualitics baseline. Once migration is complete, this key Navy capability will be a supported and maintained component of the Virtualitics AI Platform.