Department of the Navy SBIR/STTR Transition Program

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Topic # N211-088
Live, Virtual, and Constructive Cyber Battle Damage Assessment for Training
Dignitas Technologies, LLC

WHO

SYSCOM: ONR

Sponsoring Program: Office of Naval Research (ONR)

Transition Target: Initial transition target for our solution is the Navy Continuous Training Environment (NCTE) to support Navy Fleet Synthetic Training (FST) and similar distributed training events executed by Tactical Training Group Pacific (TTGP) and other Distributed Training Centers (DTC).

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Other Transition Opportunities: This technology can be transitioned to programs in the Navy and other Services to incorporate realistic cyberspace effects in modeling and simulation environments for warfighter training.

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Notes: Cyber Simulation TRaining for Impacts to Kinetic Environment (CyberSTRIKE) enables injection and automated monitoring of simulated cyberspace and electromagnetic warfare (EW) effects in the training environment. This technology provides a significant improvement over current training, during which cyberspace domain activities are communicated using out-of-game methods that are often ignored and do not affect shipboard systems, limiting training value.

WHAT

Operational Need and Improvement: Malicious cyberspace and EW activities are increasingly used by our adversaries to gain informational and tactical advantage in the modern battlespace. The Navy needs to improve its ability to train command staff to identify and mitigate these threats against shipboard systems. However, NCTE simulation systems, such as the Joint Semi-Automated Forces (JSAF) used during Navy FST and other distributed training events, do not adequately represent the cyberspace warfighting domain. During training events, threat cyberspace activities are not incorporated into the simulation and do not affect shipboard systems. CyberSTRIKE improves cyberspace training by providing realistic cyberspace effects on shipboard systems, so Navy command staff can train to protect their assets against threat cyberspace and EW operations.

Specifications Required: Implementation of realistic simulated cyberspace and EW effects on shipboard Command, Control, Communications, Computers and Intelligence (C4I) systems due to actions within the simulation environment. CyberSTRIKE integrates with Navy training systems within the NCTE to coordinate cyberspace and EW effects across the simulation environment and shipboard operational systems.

Technology Developed: Brokering architecture and user interfaces for injection and automatic monitoring of cyberspace effects within existing Navy training architectures to enable integrated cyber-kinetic training. CyberSTRIKE integrates with the Joint Bus (JBUS) to communicate effects using a variety of simulation and tactical messaging protocols. CyberSTRIKE injects, alters, or stops tactical messages communicated from the simulation to shipboard systems to produce realistic cyberspace and EW effects on operational systems.

Warfighter Value: This technology will significantly improve shipboard training for identification and mitigation of cyberspace domain activities on shipboard systems, improving fleet readiness in the current warfighting environment.

WHEN

Contract Number: N68335-22-C-0457 **Ending on:** Jan 31, 2024

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Initial Phase I Prototype Developed	Low	Integration and testing within Naval Simulation Center - Pacific (NSCPAC) Research, Development, Test, and Experimentation (RDTE) architecture	3	4th QTR FY22
Demonstration of cyber effects on representative Navy C4I systems	Low	Manifestation of several types of cyber effects on multiple shipboard C4I systems	4	1st QTR FY24
Demonstration of cyber effects on representative Navy C4I systems	Medium	Creation of realistic cyber effects to support training exercise objectives	5	3rd QTR FY24
Demonstration of cyber effects on representative Navy C4I systems	Medium	CyberSTRIKE maintained as software component of NCTE	6	4th QTR FY24

HOW

Projected Business Model: Dignitas plans to continue conducting test and evaluation of CyberSTRIKE to demonstrate the benefit of our solution to incorporate cyber effects into Navy training. We will pursue Phase II.5 and Phase III funding to explore additional transition to larger, distributed Navy exercises such as FST-Joint (FST-J) and LVC Composite Training Unit Exercises (COMPTUEX). We will also explore transition to training organizations of other DoD Services, the Joint community, and international organizations, which have requirements to incorporate offensive and defensive cyberspace and EW operations in their training scenarios.

Company Objectives: Dignitas aims to continue to grow our cyberspace training toolsets, capabilities, and expertise in order to gain additional competitive advantage on opportunities related to Department of Defense (DoD) training systems. Our business objectives include providing engineering services to research, develop, or modernize DoD training systems.

Potential Commercial Applications: Potential commercial markets include private sector training environments such as commercial aviation trainers, which have emerging need to include cyberspace threats in training scenarios.

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