

Department of the Navy SBIR/STTR Transition Program

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NAVSEA #2020-0443

Topic # N03-202

Combat System Automation Management
STILMAN Advanced Strategies

WHO

SYSCOM: NAVSEA

Sponsoring Program: PEO IWS 1 / OPNAV 96 / AEGIS

Transition Target: Maritime Tactical Command and Control (MTC2) / C2X Micro-service based Experimentation Architecture

TPOC:

Other transition opportunities: - Adaptive, Multi and Cross-domain Kill Chain Analysis suitable for Wargaming and Planning and Analysis (USMC, MDA, US Army, SOCOM, USAF)



US Naval Institute Public Domain Image
(<https://news.usni.org/tag/spawar>)

- Artificial Intelligence (AI) based Course of Action Planning with Quantitative COA comparison capability and assessment metrics
- Manned and Unmanned Systems Planning and Assessment against a dynamic, reactive threat
- Explainable AI that is extensible to Human-on-the-Loop operation for manned / unmanned systems
- Adaptive, Dynamic Multi-Domain and Cross-Domain real-time allocation of sensors and assets in response to dynamic threats

WHAT

Operational Need and Improvement: FY18-14 Integrated Air & Missile Defense of Ships and Littoral Forces

FY18-19 C2 & Decision

FY18-24 Combating Asymmetric and Irregular Warfare Threats

FY18-35 Naval Platform and Systems Operational Availability

FY18-42 Training

Specifications Required: AEGIS Common Baseline / MTC2 / C2X Architecture Standards

Technology Developed: Maritime tactical fidelity decision aid that provides quick (seconds) Course of Action (COA) Analysis using Artificial Intelligence

Warfighter Value: Rapid creation and analysis of COAs and COA alternatives based on AI. Includes Most Likely and Most Dangerous Enemy Course of Action (ECOAs), applicable to complex mission spaces where the complexity of the threat and the allocation of resources far exceed the human ability to immediately plan

Reduces time to gain situational awareness and situational understanding (SA/Su), dramatically increases tactical proficiency

Enables single, multi and cross domain adaptive kill chain planning via AI-based recommended sensor, and weapon-target pairing

Provides a fully dynamic and scalable competency OPFOR that reacts and exploits weaknesses in the BLUFOR plan in faster than real time

COAs are displayed as an animation of the OPFOR plan that includes key events and time based coordination of assets to enable SA/SU

WHEN

Contract Number: N68335-19-C-0791 **Ending on:** December 31, 2021

| Milestone | Risk Level | Measure of Success | Ending TRL | Date |
|--|------------|---|------------|----------------|
| 1. Trial Runs 10/20 & 3/21 | Low | 1 CDR w/ RAID scores as well as 5 CDRs w/o RAID given the same tactical scenario, time to plan and estimate / assess ECOA (enemy location and intent) | 5/6 | February 2021 |
| 2 Trial Runs: 10/20, 3/21 End of Evaluation, 6/21: | Low | LG-RAID produces 4 distinct ECOAS within 1 min each on standard CPU for complex search space on the order of 10E20,000 nodes | 5/6 | March 2021 |
| 3 Integration (MTC2) YR 2 Evaluation 9/21 | Med | Reduced own ship detections, increased efficacy of sensor planning and weapon-target pairing | 6/7 | September 2021 |
| End of Year demos, 12/2021, (TW) 2021 (PS/TW) | Med | 10 to 1 reduction in time to generate ECOA, 2 to 1 reduction in time to train COA analysis skills | 7 | December 2021 |

HOW

Projected Business Model: Software License: SW is delivered under license to the end user.

Company Objectives: Develop and transition LG RAID Technology

Potential Commercial Applications: Control of Unmanned and Operator controlled Law Enforcement Unmanned Systems. STILMAN is thoroughly committed and focused on commercializing LG technology for the commercial (both defense and civil) markets. LG technology has been demonstrated to and funded by numerous major defense/aerospace companies and government organizations in the USA and abroad. These include but are not limited to Boeing, Rockwell, AMS, Thales, BAE Systems, ORINCON, DARPA, AFRL, ARL, and the MDA. Current advancements of LG serve as a catalyst for a continued and sustainable entrance into both defense and civil commercial markets using unmanned systems.

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