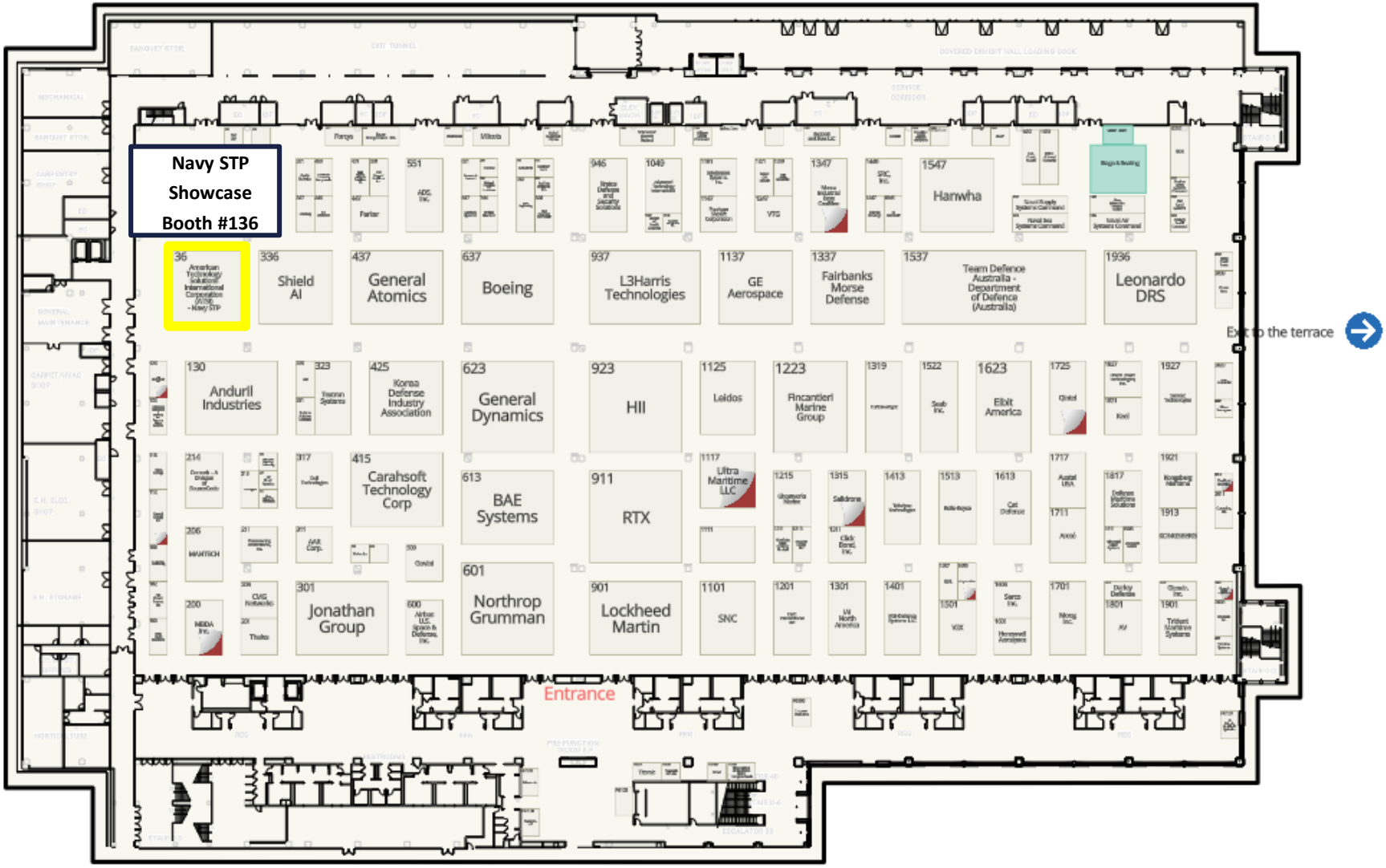
STP
NAVY SBIR TRANSITION PROGRAM

Navy STP Showcase Technology Guide

Sea Air Space 2026

Navy STP Showcase Booth
Prince George's Exhibition Hall #136

NAVY SBIR TRANSITION PROGRAM



Navy SBIR/STTR Transition Program (STP) at Sea Air Space 2026

At Sea-Air-Space 2026, Navy STP will showcase 52 projects at the Navy STP booth (#136) in the main conference exhibition hall. 26 projects will be displayed on 20 April giving participants a chance to meet the experts one-on-one while the next 26 projects will be displayed the next day on 21 April.

Featured SBIR/STTR Technologies at the Navy STP Showcase:

<u>20 April</u>

- Advanced Electronics (1 Project)
- Air Platforms (2 Projects)
- Autonomy (1 Project)
- C4I (3 Projects)
- Electromagnetic Warfare (2 Projects)
- Energy & Power Technologies (1 Projects)
- Engineered Resilient Systems (1 Project)
- Ground and Sea Platforms (2 Projects)
- Human Systems (1 Project)
- Materials and Manufacturing Processes (7 Projects)
- Sensors (4 Projects)
- Sustainment (1 Project)

<u>21 April</u>

- Advanced Electronics (1 Project)
- Air Platforms (2 Projects)
- Autonomy (1 Project)
- C41 (3 Projects)
- Electromagnetic Warfare (1 Project)
- Energy and Power Technologies (2 Project)
- Ground and Sea Platforms (2 Projects)
- Human Systems (1 Project)
- Materials and Manufacturing Processes (4 Projects)
- Modeling and Simulation Technology (4 Projects)
- Sensors (4 Projects)
- Weapons Technologies (1 Project)

NAVY SBIR TRANSITION PROGRAM

Quad Chart Index
20 April 2025

Company	Topic	Project Title	Tech Category
3DFortify Inc.	N231-063	Advanced Hybrid Gradient Index Lenses via Additive Manufacturing of Low-Loss Materials	Electromagnetic Warfare (EW)
Advanced Cooling Technologies, Inc.	N221-083	Conformal Two-Phase Switch for Sensor Thermal Control	Sensors
Aspen Consulting Group, Inc.	N232-108	Autonomous, Low-Cost Emitter for Electronic Warfare Training	Electromagnetic Warfare (EW)
Beacon Interactive Systems	N192-124	Operational Ship Data for CBM+ Analytics for Bridge-Based Decision Support	C4I
Boston Engineering Corporation	N231-031	Underwater Cavitating Jetting Antifouling System	Sustainment
Cornerstone Research Group, Inc.	N231-D02	Rapid, Randomly Oriented SiC/SiC Composites	Materials & Manufacturing Processes
DeepFlow LLC	N232-084	Advanced Turbulent Combustion Model for Scramjet Unstart Predictions	Air Platforms
Diversified Technologies, Inc.	N171-075	Electromagnetic Vertical Launch System	Ground and Sea Platforms
Etegent Technologies, LTD	N221-036	Exploitation of Ephemeral Features in Sonar Classification Algorithms	C4I
Faraday Technology, Inc.	N22A-T015	Additive Manufacturing Method for High Performance Copper Electronic Components	Materials & Manufacturing Processes
Fathom5	N231-053	Improved Electromechanical Actuators for Aircraft Carrier Flight Deck Applications	Energy & Power Technologies
Fuse Integration, Inc.	N231-015	Back End Data Lake and Microservices	Engineered Resilient Systems
GIRD Systems, Inc.	N211-080	Domain Optimized Tactical Line of Sight Communications	C4I
InnoVital Systems, Inc.	N232-083	Helicopter Seat-Integrated Power Assist Device	Human Systems

NAVY SBIR TRANSITION PROGRAM

Quad Chart Index
20 April 2025

Company	Topic	Project Title	Tech Category
IRFLex Corporation	N231-011	Optical Additive Manufacturing in the MWIR and LWIR Bands	Materials & Manufacturing Processes
Kitware	N222-117	AI/ML for In-Situ Additive Manufacturing Defect Detection	Materials & Manufacturing Processes
Knexus Research LLC	N181-079	Augmenting CILEMP to Enable Fleet Autonomy with Generative AI	Autonomy
LeWiz Communications Inc	N221-080	Development of a Time-Triggered Ethernet Intellectual Property Block	Advanced Electronics
PacMar Technologies LLC	N192-101	Capture and Deploy Device using Inflatable Elements (CaDDIE)	Ground and Sea Platforms
Physical Sciences Inc.	N193-144	A Hypersonic Environmental Testbed for Affordable and Standardized Materials Strength Testing	Materials & Manufacturing Processes
Physical Sciences Inc.	N23A-T006	Low-Cost Microwave Curing of Aerospace Composite Materials	Materials & Manufacturing Processes
Scientific Systems Company, Inc	N111-025	SAFEPASS: Safe Encounter Resolution using Passive Sensing	Sensors
Surface Optics Corporation	N231-020	Detection and Tracking of Hypersonic Missiles Using EO/IR Sensors	Sensors
TDA Research, Inc.	N222-116	Tunable, Repeatable, Calcium Lanthanum Sulfide Ceramic Powder Development	Materials & Manufacturing Processes
Triton Systems, Inc.	N221-083	Variable Conductance Thermal Management Technology	Sensors
Wolf Technical Services, Inc.	N231-017	Mechanical Solution to Enable Individual Blade Control for Rotorcraft	Air Platforms

NAVY SBIR TRANSITION PROGRAM

Quad Chart Index
21 April 2025

Company	Topic	Project Title	Tech Category
Advanced Technology & Research Corp.	N202-109	Launch System for Group 3-5 Unmanned Aerial Vehicles for Land- and Sea-Based Operations	Ground and Sea Platforms
CFD Research Corporation	N232-084	Reduced-Order Modeling of Unstart in Liquid Fuel Scramjets	Air Platforms
Charles River Analytics Inc.	N221-024	Communications with Operational Context and Knowledge for Target Audio Identification Learning (COCKTAIL)	Human Systems
Combustion Research and Flow Technology, Inc.	N23A-T003	Advanced Physics Modeling for Gas Turbine Particulate Ingestion	Modeling and Simulation Technology
Continental Controls and Design, Inc.	N171-028	Lightweight Self-Start System Demonstration for T56 Engine Driven Aircraft	Energy and Power Technologies
Corvid Technologies, LLC	N221-081	Development of an Aerothermal Modeling and Simulation Code for Hypersonic Applications	Modeling and Simulation Technology
Crown Point Technologies, LLC	N221-077	Semantic-Driven Data Integration Software Solution	Modeling and Simulation Technology
Dirac Solutions Inc.	NSF11-561	Software-Defined Noise Cancellation for Wireless Pulse Based Communications	C4I
Diversified Technologies, Inc.	N221-064	Medium Voltage Direct Current Disconnect Switches	Energy & Power Technologies
Dragonfly Pictures, Inc.	AF131-132	Real-Time Sensor Data Processing and Compression Performed On-board Unmanned Multirotor Aerial Relay (UMAR)	Air Platforms
EPIR, Inc.	N231-065	MWIR TPA Notch Filter	Sensors
Faraday Technology, Inc.	N23A-T019	Improved Electrochemical Machining of Next-Generation Alloys for Turbine Engine Components through Enhanced Tool Design	Modeling and Simulation Technology
First RF Corporation	N231-003	Broadband Antenna Solution for Vehicle-Mounted EW Systems	Electromagnetic Warfare (EW)

NAVY SBIR TRANSITION PROGRAM

Quad Chart Index
21 April 2025

Company	Topic	Project Title	Tech Category
GoHypersonic Inc.	N23A-T029	Non-Intrusive Aerodynamic State Sensing for Hypersonic Flight Control	Sensors
Luna Labs USA, LLC	N231-043	Ultra-Low Temperature Gaskets & Seals for Extreme Environments	Materials & Manufacturing Processes
Opterus Research and Development, Inc.	N221-072	High Strain Composite Boom Deployed Volumetric Sonobuoy Array	Sensors
Pacific Engineering, Inc	N192-108	Lightweight Composite Launcher Components	Materials & Manufacturing Processes
Parraid, LLC	AF203-DCSO1	Parraid Outsourcing Workload (O.W.L) Linux Power and Data Hub	C4I
Physical Sciences Inc.	N161-054	Compact Lidar for Environmental Sensing in Support of Electromagnetic Maneuver Warfare	Ground and Sea Platforms
SciX3, LLC	N244-D04	Next-generation Autonomy for Unmanned Maritime Vehicles (UMVs)	Autonomy
SNOChip Inc.	N23A-T008	Discrete Axial Symmetry Accelerated Inverse Design for LWIR Large-diameter Metalenses	Advanced Electronics
Solid State Scientific Corporation	N221-061	EO/IR Raid Count and Kill Assessment for CSO threats	C4I
SpaceWorks Enterprises, Inc. (SEI)	N231-006	Next Generation Toolset for Weapons Separation Evaluation	Weapons Technologies
SURVICE Engineering Company	N231-047	Composite Navy Propulsor Shaft Design Validation	Materials & Manufacturing Processes
TDA Research, Inc.	N231-012	Technology Development Strategy for the Design of Passive and Semi-passive Underwater Acoustic Metamaterial Filters	Materials & Manufacturing Processes
Texas Research Institute Austin, Inc.	N211-062	Nondestructive Detection of Flaws through Thick Polymers using Electromagnetic Imaging Technologies	Sensors

NAVY SBIR TRANSITION PROGRAM

Advanced Electronics

Company	Topic	Project Title	SYSCOM
LeWiz Communications Inc	N221-080	Development of a Time-Triggered Ethernet Intellectual Property Block	SSP
SNOChip Inc.	N23A-T008	Discrete Axial Symmetry Accelerated Inverse Design for LWIR Large-diameter Metalenses	NAVAIR

Department of the Navy SBIR/STTR Transition Program

DISTRIBUTION STATEMENT A. Approved for public release. Distribution is unlimited.
10/14/2025

Topic # N221-080
Development of a Time-Triggered Ethernet Intellectual Property Block
LEWIZ COMMUNICATIONS INC

WHO

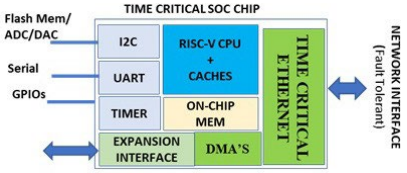
SYSCOM: SSP

Sponsoring Program: Strategic System Program (SSP)

Transition Target: Hypersonic systems

TPOC: SSP.SBIR@ssp.navy.mil

Other Transition Opportunities: Aircraft, space systems, weapon systems, ground/sea vehicles, sensor networks



RISC-V based SOC with time-triggered Ethernet and time-sensitive network support - fault tolerant, rad-hard

Notes: New network standards (time-triggered Ethernet/TTE, time-sensitive networks/TSN) from SAE and IEEE for aerospace enable data transmission with high speed (>10x), low latency, on-time delivery, fault-tolerant capabilities required for aircraft and space systems. Boeing, Airbus used TTE in aircraft. Other companies also applied to industrial control. TTE can carry time-critical info as well as rate-controlled or normal traffic – eliminates the need for multiple networks, reduces size, weight, power. TTE solutions are primarily supplied by a foreign company. The Navy, DoD, NASA require US designed/manufactured solutions. LeWiz is working with NASA to develop high speed, multi-port, FPGA based solutions for TTE switching and endpoint solutions. LeWiz also develops system-on-chip for the Navy. Together with NASA solutions, we offer comprehensive, end-to-end solutions for government applications

WHAT

Operational Need and Improvement: Orders of magnitude improvement in speed over legacy aerospace networks.
Fault-tolerant - continuous operation in case of error,
radiation hardened - suitable for space and crafts that operate in harsh environment,
low latency - unimpeded data delivery,
deterministic - guaranteed data delivery at pre-determined time
time precision - on-time delivery but also offer security
Support time-based sensors as well as Web/video/audio data over a single network - unified, mixed traffic
US based design and manufacturing
RISC-V based SOC - open architecture adopted and supported by the industry

Specifications Required: >1Gbps speed, fault tolerant, RISC-V technology, US trusted fab sub-20nm process, radiation hardened, time based networking

Technology Developed: Complete emulation of product on FPGA - proven in hardware,
Complete software support with by-pass capability - low latency in hardware and software,
Tools for ease of use - easy deployment and support,
Completed mock tape out of device using GF12LP process - reduced risk in development

Warfighter Value: >>10x higher speed than legacy, low latency, deterministic/guaranteed data delivery, fault tolerant, radiation hardened, resilience

WHEN

Contract Number: N64267-24-C-0081 **Ending on:** Nov 07, 2025

Milestone	Risk Level	Measure of Success	Ending TRL	Date
PROTOTYPE EMULATION COMPLETE	Low	Demonstrated to multiple government teams	4	1st QTR FY25
PROTOTYPE EMULATION COMPATIBILITY TEST	Low	Demonstrated compatibility with NASA network systems	5	1st QTR FY25
COMPLETED MOCK TAPE OUT	Low	Demonstrated to Navy team	5	3rd QTR FY25

HOW

Projected Business Model: To provide chips, electronic sub-modules and services to government and Primes

Company Objectives: The primary goal is to quickly transition the technology to the Navy and other US military or commercial end users. A key element of our transition approach is a Phase II demonstration of our Time-Triggered Ethernet Intellectual Property Block in a System-on-Chip device to the Navy's complex data/network management groups. Once the technology has been demonstrated, we will work with the Navy under a Phase III program to transition the technology into the commercial marketplace

Potential Commercial Applications: Many potential applications including man/unmanned aircraft, space systems, ground/sea systems, sensor/advanced networks for monitoring and security (commercial and defense environments)

Contact: CHINH LE, CEO
CHINHL@LEWIZ.COM (408) 836-4226

Department of the Navy SBIR/STTR Transition Program

Topic # N23A-T008
Discrete Axial Symmetry Accelerated Inverse Design for LWIR Large-diameter Metalenses
SNOChip Inc.

WHO

SYSCOM: NAVAIR

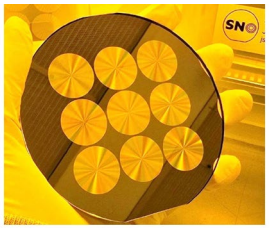
Sponsoring Program: Naval Air Warfare Center Aircraft Division (NAWCAD)

Transition Target: Imaging and sensing systems with sensitivity in Mid-Wave Infrafred (MWIR) and Long-Wave IR (LWIR) regions

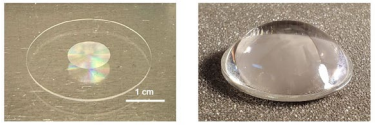
TPOC: (301) 342-3728
Richard.LaMarca.civ@us.navy.mil

Other Transition Opportunities: SNOChip's metasurface optics have potential uses in applications that require compact and lightweight lenses, such as satellite communication, drone cameras, spectral imaging, polarization imaging, integrated optics for LiDAR systems, beam shaping optics for high energy lasers, miniaturized optics for eye tracking and advanced Augmented Reality / Virtual Reality displays, etc.

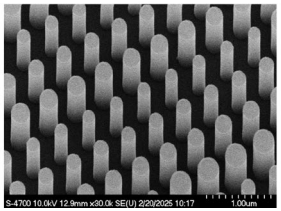
Notes: Metasurface based flat optics offer an innovative solution for not only significant reduction of SWaP-C (size, weight, cost and power) of optics, but also effective mitigation of supply chain risk for thermal imaging and sensing manufacturing, which frequently require germanium and rare earth element materials.



Metalens wafer (SNOChip)



A metalens (SNOChip) vs a refractive lens.


Nanostructure of metasurface (SNOChip)

WHAT

Operational Need and Improvement:
Traditional lenses are costly, bulky and possess limited aperture size in the infrared region. Developing compact optics for thermal imaging and sensing (both MWIR and LWIR) is of great interest, especially for tactical surveillance and reconnaissance in this special range. Optical metasurfaces are 2D arrays of dielectric structures manufactured to effectively control light's phase, polarization and amplitude. However, metastructure complexity means that prior to manufacture, surfaces must be simulated to ensure that the right optical properties emerge. Simulation of metasurface structures requires enormous computation resources, especially for metalens of several centimeter aperture sizes. SNOChip developed the advanced design algorithm addressing the time-consuming computation and accuracy of the modeling and simulation issues simultaneously. SNOChip also developed the proprietary process to fabricate metalenses, especially large format metalenses.

Specifications Required:
Typical specifications for imaging optics include focal length, f-number, field of view (FOV), modulation transfer function (MTF), distortion, spectral range, etc. All of these can be finely tuned in SNOChip's design agorithm.

Technology Developed:
SNOChip's novel, ultra-fast simulation algorithm is capable of speeding up full-wave electrodynamic simulation by >5,000 times. This ultra-fast simulation technology will be used to design large aperture MWIR and LWIR metalenses that are 100 times thinner and lighter than today's state-of-the-art refractive optics, with fully customizable aperture sizes and focal length. At the same time, a scalable and cost-effective fabrication process will be established for building large aperture MWIR and LWIR metalenses using silicon as the base material.

Warfighter Value:
SNOChip's simulation and fabrication technology will provide a significant reduction of SWaP-C (size, weight, cost and power), effective mitigation of supply chain risk of germanium and REE (rare earth element) materials, enhanced imaging capabilities, multi-spectral and polarization imaging, high thermal stability, enhanced robustness and durability.

WHEN

Contract Number: N68335-25-C-0011 **Ending on:** Oct 10, 2026

Milestone	Risk Level	Measure of Success	Ending TRL	Date
POC (proof of concept) prototype of LWIR metalens	Medium	design, fabrication and test of 2cm diameter metalens	4	4th QTR FY25
POC (proof of concept) prototype of MWIR metalens	Medium	design, fabrication and test of 5cm diameter metalens	4	1st QTR FY26
Product prototype of LWIR metalens	Low	design, fabrication and test of 5cm diameter metalens	6	2nd QTR FY26
Product prototype of MWIR metalens	Low	> 50% weight reduction comparing to the conventional lens assembly	6	3rd QTR FY26
Product prototype of MWIR metalens	Low	10cm telescope metalens	6	4th QTR FY26

HOW

Projected Business Model:

SNOChip Inc. will offer metasurface based optical components and assemblies for thermal imaging and sensing applications.

Company Objectives:

SNOCHIP INC is seeking paths to supply MWIR/LWIR metaoptics to FPA (focal plane array), camera and imaging system manufacturers, as well as opportunities to collaborate with prime contractors on high impact projects.

Potential Commercial Applications:

SNOCHIP's technology and products bring great value proposition to commercial applications on industrial, automotive and consumer markets, including LiDAR, thermography, night vision devices, and sensors. Wide use of these types of cameras/sensors exists for critical national security applications, firefighting, building inspection, aerial vehicle/drone, automotive, healthcare, oil and gas industry, manufacturing, precision farming, and recreational uses.

Contact: Qing Wang, CEO
qingwang@snochip.com (609) 672-9733

NAVY SBIR TRANSITION PROGRAM

Air Platforms

Company	Topic	Project Title	SYSCOM
DeepFlow LLC	N232-084	Advanced Turbulent Combustion Model for Scramjet Unstart Predictions	NAVAIR
Wolf Technical Services, Inc.	N231-017	Mechanical Solution to Enable Individual Blade Control for Rotorcraft	NAVAIR
CFD Research Corporation	N232-084	Reduced-Order Modeling of Unstart in Liquid Fuel Scramjets	NAVAIR
Dragonfly Pictures, Inc.	AF131-132	Real-Time Sensor Data Processing and Compression Performed On-board Unmanned Multirotor Aerial Relay (UMAR)	NAVSEA

Department of the Navy SBIR/STTR Transition Program

DISTRIBUTION STATEMENT A. Approved for public release. Distribution is unlimited.
NAVAIR SPR-2025-0542

Topic # N232-084
Advanced Turbulent Combustion Model for Scramjet Unstart Predictions
DeepFlow LLC

WHO

SYSCOM: NAVAIR

Sponsoring Program: PEO Unmanned Aviation and Strike Weapons (U&W)

Transition Target: PMA-201 Precision Strike Weapons, PMA-208 Aerial Targets, other Navy and DoD agencies developing and evaluating hypersonic weapons/vehicles.

TPOC: (240) 572-9856

Other Transition Opportunities: Establish the state-of-the-art in design-oriented combustion modelling for defense agencies and commercial engine OEMs. License a single software plugin capable of interfacing with all major commercial simulation and Computational Fluid Dynamics (CFD) software.

Notes: The proposed technology has extensive commercial applications and seeks to address an existing limitation currently experienced by Computational Fluid Dynamics (CFD) engineers in hypersonic engine design. Deep flow's objective is to license, support, and develop the combustion model plugin for use within existing CFD solvers and interfaces. The CFD plugin model can also support power generation, internal combustion engines, and air-breathing cross subsonic and supersonic propulsion applications. This innovative Machine Learning (ML) inspired solution can reduce by orders of magnitude the memory and access times of tabulated data required by the solver, providing increased model fidelity at a lower computational cost.

WHAT

Operational Need and Improvement: Accurate and efficient simulation of unsteady reacting flow phenomena within liquid fuel burning hypersonic engines is an extremely challenging simulation. There is a critical design need to simulate complex combustion processes more accurately and in shorter simulation times. DeepFlow LLC has developed a novel plugin solution for high-fidelity Computational Fluid Dynamics (CFD) combustion modelling capabilities at a lower cost than traditional computational methods. The proposed technology has extensive commercial applications and seeks to address an existing limitation currently experienced by CFD engineers in hypersonic engine design.

Specifications Required: The combustion model plugin must interface efficiently with three popular commercial CFD solvers, namely US3D, CharLES, and StarCCM. The plugin is intended to efficiently leverage both CPU and GPU compute resources on high-performance computing platforms.

Technology Developed: The combustion plugin model allows for higher hydrodynamic, thermodynamic, and chemical fidelity in the combustion model, while reducing the simulation time to be on the same order as non-combustion simulations. This allows the Navy to perform more design iterations within existing design cycles, and do so with higher confidence in the simulated design performance predictions.A fully functional plugin for the combustion model has already been developed and interfaced with the US3D solver. Validation cases have been performed on challenging simulations of both steady-state and transient combustion phenomenon for scramjet engine design.

Warfighter Value: With a significant reduction in simulation time and added model fidelity, engineering design teams will be able to perform larger design sweeps with more certainty in the predictions, resulting in more optimal engine hardware designs with a reduced risk of design failure. This technology is expected to eliminate a technological barrier in hypersonic propulsion engine design, allowing for a significant competitive advantage in the design of the next-generation propulsion defense systems.

WHEN

Contract Number: N68335-25-C-0180 **Ending on:** Jul 02, 2027

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Combustion model account for turbulence	Medium	Simulation validation to two experiments	8	3rd QTR FY25
Smart Table Optimization for N-Dimensional Combustion Tables	Medium	Simulation validation to two experiments	8	1st QTR FY26
Porting CPU Plugin to GPU hardware	Medium	Compare to CPU performance	8	1st QTR FY26
Porting CPU and GPU plugin to CharLES	Medium	Simulation validation to two experiments	8	3rd QTR FY26
Porting CPU and GPU plugin to StarCCM	Medium	Simulation validation to two experiments	8	1st QTR FY27
Integration into 0-D combustion model for Reduced Order Modelling	Low	Compare to known analytical solutions	8	3rd QTR FY27

HOW

Projected Business Model: DeepFlow LLC plans to commercialize the resulting software from the Phase II SBIR program. This will be accomplished by licensing the software to commercial users and defense agency design groups. Technical support, training, software development, and engineering combustion design services are provided separate or in addition to the software license.

Company Objectives: Become a leading member among the commercial combustion simulation design community and provide state-of-the-art combustion simulations and design solutions for power generation, air-travel, space-travel, and defense propulsion applications.

Potential Commercial Applications: Commercial applications include, but are not limited to, the use of the simulation software to improve combustion design hardware in industrial chemical processes, power generation, internal combustion engines and propulsion systems for subsonic, supersonic, and hypersonic engines. Large companies such as gas turbine engine OEMS, rocket engine developers, and US military engineering design groups would be the primary customers and user base. The existing technology can be interfaced with a range of low-to-high fidelity simulation tools, allowing engineering teams to leverage the technological advantages across the entire of the design's technology readiness level (TRL).

Contact: Carlos Velez Ph.D., Chief Executive Officer
carlos.velez@deepflowusa.com (908) 251-3331

Department of the Navy SBIR/STTR Transition Program

Topic # N231-017
Mechanical Solution to Enable Individual Blade Control for Rotorcraft
Wolf Technical Services, Inc.

WHO

SYSCOM: NAVAIR

Sponsoring Program: PMA-276

Transition Target: Wolf Technical Services' Independent Blade Control (IBC) technology is targeted to Navy and Marine Corps rotorcraft, including Group 3 UAV Systems

Other Transition Opportunities:

Wolf's IBC performance advantages can be realized in both conventional rotorcraft markets as well as the fast-growing electric vertical takeoff and landing (eVTOL) aircraft market, to include unmanned systems of all sizes.

Photo courtesy of DVIDS, photo ID 5086365. The appearance of U.S. Department of Defense (DoD) visual information does not imply or constitute DoD endorsement.

Notes:

Founded in 1977, Wolf Technical Services, Inc. (Wolf) has applied engineering expertise to safety-related technical challenges in aviation, motorsports, ground transportation, medical and electrical design, biomedical design and systems engineering. Wolf design engineers have a broad range of experience in several consumer, medical and defense industries, making us an ideal product development partner. Teaming with Wolf results in an innovative product ready for manufacturing that meets or exceeds performance criteria while minimizing cost and complexity.

WHAT

Operational Need and Improvement: Existing Independent Blade Control (IBC) technology has been primarily implemented in experimental settings with actuators placed in the rotating system in series with a conventional swashplate mechanism. Utilizing these actuators in the rotating portion requires hydraulic/electric sliprings which contributes to increased technical complexity and risk. Challenges of practical implementation of the existing technologies include reliability, lack of redundancy, failure modes, system performance, packaging, production, cost, and maintainability.

Specifications Required:
Blade pitch authority:
+/- 15° (Threshold)/ +/- 20° (Objective) of blade pitch authority at 1P (1x primary rotor frequency)
+/- 2° (Threshold) / +/- 5° (Objective) of blade pitch authority at 2P (2x primary rotor frequency)
+/- 1° (Threshold) / +/- 2° (Objective) of blade pitch authority at 7P (7x primary rotor frequency)
Reliability (Probability—Loss of Control (PLOC) of the rotor head of 1 E-8 or less per flight hour)
Rotor Speed from 200-600 RPM
Blade Count from 2-8
Dual redundancy on each blade (Threshold), triple redundancy on each blade (Objective)
Environmental resistance to military standards(MIL-STD-810) (corrosion, altitude, vibration, abrasion, humidity, temperature, EMI/EMC, water resistance, sand/dust, etc.)

Technology Developed: Wolf Technical Services' solution is a mechanical power transmission system which places actuators in the stationary portion and transfers power through a mechanical system as is done in conventional helicopter rotor systems. This approach offers a more similar technical risk profile to conventional swashplate systems and lowers overall risk of implementing this technology.

Warfighter Value: Implementation of IBC offers benefits such as increased performance, improved handling qualities, extended component life, improved ride quality, reduced noise, and more. These performance advantages can be realized in both conventional rotorcraft markets as well as the fast-growing electric vertical takeoff and landing (eVTOL) aircraft market.

WHEN

Contract Number: N68335-25-C-0003 **Ending on:** Apr 14, 2027

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Complete development testing of small-scale protype	Medium	Demonstrate successful individual blade control with required blade pitch authority on proof-of-concept prototype	3	4th QTR FY25
Complete development testing of full-scale protype	Medium	Complete performance testing of full-scale prototype	4	3rd QTR FY27

HOW

Projected Business Model:

Business objectives are to develop a novel, platform-agnostic technology that can be licensed by a helicopter manufacturer for integration into helicopter rotor systems utilizing Independent Blade Control. Current Commercialization partner is Lockheed Martin/Sikorsky Corp.

Company Objectives:

Transition plan:

Obtain intellectual property (utility patent(s)) for system design/configuration
License/sell intellectual property to aircraft manufacturers for integration into their platforms

Potential Commercial Applications:

Current commercialization partner: Lockheed Martin/Sikorsky Corp
Military and commercial helicopter manufacturers
Vertical Take-Off and Landing(VTOL) and Electric Vertical Take-Off and Landing (eVTOL) manufacturers

Contact: Aaron Tolly, Principal Engineer
atolly@wolftechnical.com (317) 842-6075

Department of the Navy SBIR/STTR Transition Program

Topic # N232-084
Reduced-Order Modeling of Unstart in Liquid Fuel Scramjets
CFD Research Corporation

WHO

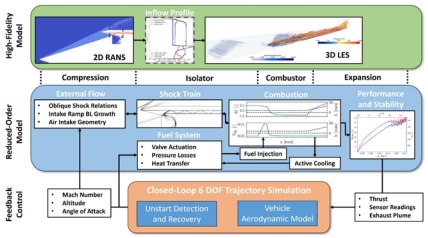
SYSCOM: NAVAIR

Sponsoring Program: PMA-201, NAWCAD

Transition Target:

TPOC: (240) 572-9856

Other Transition Opportunities: Air Force Hypersonic Attack Cruise Missile (HACM) and Expendable Hypersonic Air-Breathing Multi-Mission Intelligence, Surveillance, and Reconnaissance, and Strike program ("Project Mayhem"), TRMC Multi-Service Advanced Capability Hypersonics Test Bed (MACH-TB), NAWCWD Advanced Solid Fuel Ramjet (ASFRJ), and DARPA's proposed More Opportunities with Hypersonic Air-breathing Weapon Concept (MoHAWC).



Notes: Our system-level Reduced-Order Model (ROM) of scramjet propulsion is highly modular and extensible. Each component of the model is supported by high-fidelity CFD simulations which provide fundamental insights into the key physics and validation of the model accuracy. The model is capable of predicting unstart and has been coupled to trajectory simulations for use in mission planning and feedback control algorithms.

Acronyms: DOF: Degree of Freedom, RANS: Reynolds Averaged Navier Stokes, LES: Large Eddy Simulation

WHAT

Operational Need and Improvement: Current need exists for advanced, fast running reduced order models to simulate multi-phase, supersonic mixing, and combustion for air-breathing hypersonic flight vehicles to accurately predict engine operability and unstart in different flight regimes. Increased speed and accuracy enables rapid iteration over designs in a typical conceptual design cycle.

Specifications Required: Navy desires tools which capture the complex physics which can lead to unstart in scramjet engines, including supersonic turbulent mixing and combustion of advanced hydrocarbon fuels under supercritical/transcritical conditions, and which support realistic 3D Navy-relevant geometries. High-fidelity CFD approaches such as reactive LES should be leveraged to identify the mechanisms of unstart and drive the development of reduced-order models which quickly and accurately predict engine operability and unstart in different flight regimes.

Technology Developed: The core technology is a fast-running system-level model of scramjet propulsion, which can predict key performance metrics and unstart events for gas- and liquid-fueled configurations. This model is validated against high-fidelity CFD and experimental data and has been coupled to 6-DOF trajectory simulations for closed-loop feedback control. The framework of the model is designed to be modular and extensible – accommodating both physical and empirical models of varying fidelity – and take advantage of hardware accelerators such as GPUs, enabling real-time simulation of transient phenomena.

Warfighter Value: The predictive capability developed will improve scramjet engine performance and reliability, thus contributing to greater mission effectiveness. The ability to run fast running physics based reduced-order models will accelerate the design cycle, allowing faster deployment of high-speed weapons systems that maintain superiority in future naval warfare scenarios. The unstart prevention and recovery techniques which can be verified using this technology would substantially reduce in-flight risk and loss of vehicles.

WHEN

Contract Number: N68335-25-C-0132 **Ending on:** Jul 27, 2027

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Improve scramjet ROM with relevant physics submodels and modern programming practices.	Low	Model accurately predicts key performance metrics and unstart over a range of configurations.	3	2nd QTR FY27
Develop coupling API to use ROM within trajectory simulations.	Low	Successfully demonstrate ROM operation within a representative vehicle on a range of missions.	3	3rd QTR FY26
Predict in-flight unstart events and evaluate feasibility of recovery via feedback control.	Medium	Demonstrate triggering of unstart within trajectory simulations. Document unstart recovery attempts and assess feasibility.	3	4th QTR FY27
Verify ROM accuracy against high-fidelity simulations of gas- and liquid-fuel scramjet configurations.	Medium	Produce a set of RANS + LES solutions which are validated against experimental data. Benchmark ROM against results.	3	2nd QTR FY27

HOW

Projected Business Model: Our commercialization strategy and anticipated Phase II activities from the current SBIR project will include: 1) Provide R&D and engineering services to DoD and commercial industry to couple and integrate our ROM prediction capabilities in their scramjet design cycle. 2) Provide software maintenance, support, and licensing to distribute and support software components developed under this project. 3) Further contract research to adapt our technology for relevant applications.

Company Objectives: The development of high-fidelity CFD and ROMs for unstart prediction in scramjets is of strategic value to CFDRC in its bid to be a major provider of R&D solutions and analysis support to Government's high-speed propulsion and hypersonic programs. The ultimate goal is to transition this technology into DoD design and mission planning workflows for air-breathing hypersonic vehicles to enhance weapon capabilities and reduce the time and cost required for hardware design iterations. We're seeking ongoing funding of tool development and technical support to increase the tool's capabilities and better support the targeted defense applications. Prime contractors such as Raytheon and Lockheed Martin Missiles and Fire Control could help us define test conditions and requirements and provide further validation of the modeling approaches.

Potential Commercial Applications: Commercial applications include aerospace transport and defense companies, especially those involved in the development and fielding of next generation hypersonic transport and offensive and defensive programs, including Hermeus, Lockheed Martin, Raytheon Technologies, Boeing, and Northrop Grumman. The modeling capability can also be readily integrated with and make use of the High-performance computing modernization program (HPCMP) Computational Research and Engineering Acquisition Tools and Environments (CREATE) framework. The foundational digital engineering framework has applications in various DoD modernization efforts such as the Digital Engineering campaign.

Contact: Tim Dawson, Senior Research Engineer
tim.dawson@cfd-research.com (256) 715-6933

Department of the Navy SBIR/STTR Transition Program

DISTRIBUTION STATEMENT A. Approved for public release. Distribution is unlimited.
NAVSEA #2025-072

Topic # AF131-132
Real-Time Sensor Data Processing and Compression Performed On-board Unmanned Multirotor Aerial Relay (UMAR)
Dragonfly Pictures, Inc.

WHO

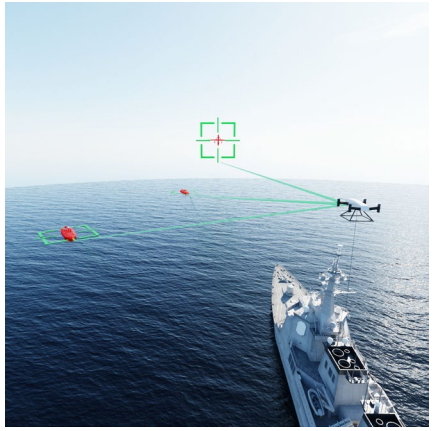
SYSCOM: NAVSEA

Sponsoring Program: PEO USC - PMS 420

Transition Target: PEO USC - PMS 420

TPOC: (850) 851-9502

Other Transition Opportunities: PMS 406 Unmanned Surface Vessels (USV Medium, Large, Future), PMS 495 Mine Warfare Programs, Naval Undersea Warfare Center (NUWC) Keyport, Naval Surface Warfare Center (NSWC Panama City), Naval Air Warfare Center Aircraft Division (NAWCAD), Navy and Coast Guard Patrol Craft (Search and Rescue), US Army for Intelligence, Surveillance, and Reconnaissance (ISR). Commercial & Civil Applications: firefighting, law enforcement, news agencies, etc.



Dragonfly Pictures, Inc. 2025

Notes: The VULTURE tethered Unmanned Aerial Systems (UAS), as compared to balloons and kites, has a wider wind envelope for operations ranging from 0-45 kt relative wind in any direction. The system can operate in wind, rain, salt spray and higher sea states, which enables the UAS to remain aloft during all ship maneuvers and headings. Tethered UAS can lift electro-optical and infrared (EO-IR) cameras and other sensors, which are maritime operational capabilities unachievable via satellite communications. The VULTURE system is derived from the Unmanned Multirotor Aerial Relay (UMAR) system. VULTURE and UMAR have flown from various US Navy, Maritime Sealift Command, British Royal Navy ships including EPF-10, ESB-4, Overlord Unmanned Surface Vessel-4 (OUSV-4) Mariner, and RFA Cardigan Bay.

WHAT

Operational Need and Improvement: Communications range at sea is dependent on antenna height. VULTURE tethered unmanned aerial system lifts line-of-sight radio gear to extend the effective range of offboard assets for various missions. The system can stay aloft at several hundred feet of altitude with days of endurance. This extends the range of communications several times. All power, command, and control are delivered through the tether. VULTURE automatically takes off, follows, and lands on the ship with simple commands. No special ship motion is required for operation.

Specifications Required: Full shipboard containerized system including tether management: L x W x H (ft): 8 x 6.5 x 14. Weight: 10,000 lbs. Power: 440 VAC 3 phase at 30 kW. Relative wind speed range: 0 to 45 kts. Altitude: up to 500 ft. Payload Capacity: up to 15 lbs. Integrated Uninterruptible Power Supply. International Organization for Standardization (ISO)-based containers employ ISO-corner castings for container interconnects, allow easier handing for forklift, crane, and ship integration.

Technology Developed: VULTURE is a mobile, electrically powered, tethered UAS designed to fly at hundreds of feet above a host ship to extend the effective range of high bandwidth radios communicating with offboard unmanned surface vessels. Minimal operator control is required as the VULTURE performs automatic takeoff, flying/following, and landing on the host vessels at speeds from 0 kts to 45 kts. All command/control is through a fiber-optic in the tether. With eight independent motors/propellers VULTURE has drivetrain redundancy. Automatic Pre-Flight system checks and failsafe architecture that increases system reliability.

Warfighter Value: Our VULTURE UAS is engineered to provide persistent extended-range communications for various missions, including real-time intelligence, surveillance, and reconnaissance (ISR), and enhanced situational awareness in complex, contested maritime environments in all weather — from littoral waters to open ocean environments. Our systems address critical mission needs by increasing stand-off range, thus protecting the ship, sailors, and increasing ship maneuverability. Other critical mission payloads increase ship safety by providing early threat detection. Simple operation reduces training time, cognitive load, and fatigue. Integrated failsafe systems and redundancies ensure safe operation.

WHEN

Contract Number: N68335-22-C-0128 **Ending on:** Jul 17, 2022

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Flight from ESB-4	Low	Demonstrate flights & radio tests from host ship to USV	8	3rd QTR FY20
Flight from RFA Cardigan Bay	Low	Complete flights & radio tests from host ship to USV	8	2nd QTR FY23
Flight from USV	Low	Complete flights & radio tests from USV to shore site	9	3rd QTR FY24
Flight from US Navy Ship	Low	Integrate, Takeoff, Flight, Recovery from US Navy ship	9	1st QTR FY26

HOW

Projected Business Model: We will design, produce, field, train, and sustain VULTURE tethered UAS systems for the U.S. Navy. We plan to deliver these capabilities through direct government contracts or as a subcontractor supporting major defense primes. Our revenue model includes system sales, training, field support, and long-term sustainment services such as parts, maintenance, and software updates. By offering modular upgrades and lifecycle support, we ensure VULTURE systems remain mission-ready and cost-effective over time. DPI's goal is to provide the Navy with reliable, persistent extended range comms and ISR capabilities while building lasting customer partnerships based on performance and trust.

Company Objectives: Our objective is to advance U.S. Navy and allied naval forces maritime operational capability through the design, production, and deployment of reliable, mission-tailored tethered UAS. By integrating radios, EO-IR payloads, our tethered UAS platforms deliver unparalleled operational endurance and data security for shipboard and coastal defense applications. We aim to be a trusted partner to the U.S. Navy by aligning our product development with DoD requirements, MIL-STD certification, while driving innovation that enhances force protection, threat detection, and decision superiority.

Potential Commercial Applications: Disaster response and emergency management to increase situational awareness during wildfires, floods, or industrial accidents where airspace is restricted. Critical infrastructure protection at power plants, oil & gas refineries. Border security. Telecommunications and comms relays for disaster recovery, remote area coverage, special events. Event Security & Crowd Monitoring at concerts, festivals, sports venues. Traffic and highway monitoring.

Contact: Joe Pawelczyk, VP of Operations
joe@dpiuav.com (610) 521-6115

Autonomy

Company	Topic	Project Title	SYSCOM
Knexus Research LLC	N181-079	Augmenting CILEMP to Enable Fleet Autonomy with Generative AI	ONR
SciX3, LLC	N244-D04	Next-generation Autonomy for Unmanned Maritime Vehicles (UMVs)	ONR

Department of the Navy SBIR/STTR Transition Program

DISTRIBUTION STATEMENT A. Approved for public release. Distribution is unlimited.
ONR Approval #2025-9-2-1347

Topic # N181-079
Augmenting CILEMP to Enable Fleet Autonomy with Generative AI
Knexus Research LLC

WHO

SYSCOM: ONR

Sponsoring Program: ONR Code 31

Transition Target: Program Executive Office Command, Control, Communications, Computers and Intelligence (PEO-C4I) - Naval Command and Control Systems (PMW 150)

TPOC: Behzad Kamgar-Parsi
behzad.kamgarparsi.civ@us.navy.mil

Other Transition Opportunities: N/A

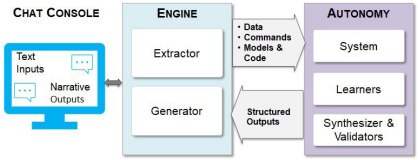


Image courtesy of Knexus Research LLC, 2024

Notes: CILEMP-FLAG leverages Generative Artificial Intelligence (AI) to streamline and simplify how users create, modify, and update knowledge used by automated planning systems. It automates the understanding and conversion of natural language inputs used by users into the structured formats used by automated planning systems during their operation. Similarly, it can convert the structured data used by various autonomy components into natural language descriptions that can be easily understood and inspected by humans.

WHAT

Operational Need and Improvement: Automated planning systems can significantly reduce planning time compared to manual planning, serving a critical role across the Navy and DoD. However, automated planning systems typically rely heavily on external knowledge which can be difficult, costly, and time consuming to encode. This makes it difficult to adapt to changing use cases, operational environments, and adversaries as even minor changes require time and technical expertise to update planning knowledge. CILEMP-FLAG simplifies how users are able to configure, update, and modify planning systems using natural language interactions rather than planner-specific structured encodings.

Specifications Required: Development of a human-in-the-loop system that allows non-technical users to configure, update, and modify knowledge used by automated planning systems using natural language inputs. The system should convert unstructured natural language descriptions of the desired planning knowledge into structured representations that are compliant with the underlying automated planning system. The entire process should be iterative, allowing users to refine their descriptions, ask clarifying questions about the outputs of the system, and receive key performance metrics.

Technology Developed: CILEMP-FLAG allows users to use free-form natural language inputs to configure, update, and modify the information used by planning systems. Unstructured natural language is converted using Generative AI models to the appropriate structured knowledge representation used by the underlying planning system. CILEMP-FLAG performs automated validation and simulation using the generated information, ensuring valid outputs that meet user specifications and may be iteratively refined by the user. Additionally, users can use natural language queries to ask for explanations of produced outputs from CILEMP-FLAG, the planning process, or simulation results and metrics.

Warfighter Value: CILEMP-FLAG will allow warfighters to configure, update, and modify the information used by planning systems using intuitive natural language. This will not only increase the potential use cases of existing planning and scheduling technology by allowing a simplified reconfiguration method but will also greatly reduce the technical skills required of warfighters to perform the reconfiguration. This will significantly reduce the time required to perform these tasks (e.g., days to minutes), the training necessary to perform the tasks, and the long-term maintenance effort required for automated planning systems.

WHEN

Contract Number: N68335-25-C-0019 **Ending on:** Oct 21, 2026

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Automated plan knowledge learning via demonstration using traditional AI methods	N/A	Empirical evaluation showing action model and hierarchal decomposition learning in a simulated logistics domain	4	2nd QTR FY24
Planning knowledge conversion from natural language human descriptions into structured planner-specific formats using Generative AI	Low	Ability to create structured planning knowledge in logistics environments such that planning can be performed	4	4th QTR FY25
Ability to explain the planning knowledge produced, planner and simulation outputs, and key performance metrics to users in natural language based on queries	Low	Improved user understanding of the system and its outputs using natural language descriptions and explanations	4	1st QTR FY26
If option exercised, automated extraction of relevant planning knowledge from external sources including training manuals, platform specifications, and intelligence sources	Low	Improved planning knowledge creation and reduced interactions required by users	5	1st QTR FY27

HOW

Projected Business Model: Knexus intends to sell the CILEMP-FLAG technology directly to the government. CILEMP-FLAG incorporates Google's Generative AI infrastructure and models, allowing us to leverage their distribution channels, including their primary distributor, Carahsoft. We have the capabilities to package documentation and marketing material such that the Carahsoft team can appropriately market the product to potential customers.

Company Objectives: Knexus intends to develop multiple CILEMP-FLAG use cases, allowing us to position it as a leading planning and scheduling technology within the DoD. Given the widespread use of planning and scheduling within the DoD and CILEMP-FLAG's ability to support multiple domains and underlying planning systems, we believe it has the ability to be high-impact technology that supports multiple branches of the DoD.

Potential Commercial Applications: CILEMP-FLAG's use cases have focused on DoD applications but it also has significant potential impact in the commercial sector. Any commercial applications that use planning and scheduling (e.g., logistics) can benefit from CILEMP-FLAG's ability to simplify the configuration and knowledge engineering required by such systems.

Contact: Adam Lurie, CEO
adam.lurie@knexus.ai (202) 306-0806

Department of the Navy SBIR/STTR Transition Program

DISTRIBUTION STATEMENT A. Approved for public release. Distribution is unlimited.
ONR Approval #2025-8-19-1290

Topic # N244-D04
Next-generation Autonomy for Unmanned Maritime Vehicles (UMVs)
SciX3, LLC

WHO

SYSCOM: ONR

Sponsoring Program: ONR Code 33

Transition Target: PMS 406 (Unmanned Maritime Systems), PMS 495 (Mine Warfare Programs), PMS 394 (Advanced Undersea Systems), Naval Surface and Undersea Warfare Centers (NSWC & NUWC), Navy Unmanned Maritime Vehicles (UMVs) including small, medium, and large surface and undersea vehicles.

TPOC: Bob Brizzolara
robert.a.brizzolara.civ@us.navy.mil

Other Transition Opportunities: Teaming Unmanned Maritime Vehicles (UMVs) Prime Contractors

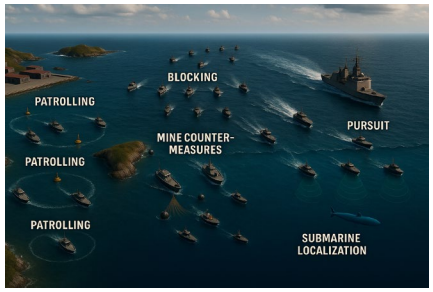


Image courtesy of SciX3, LLC. 2025.

Notes: SciX3, LLC (dba CSLabs) has been in business for over 12 years (surpassing the 10-year survival benchmark that most small businesses fail to reach), has never carried debt, and maintains sufficient financial reserves to sustain operations for well over a year without external funding. We currently hold two active Navy SBIR contracts, including this Phase II effort and a Phase I project focused on developing a mixed-reality (MR) system (MR blends physical and digital worlds to enable interactive, physics-aware visualization) that ingests and preprocesses LiDAR and photogrammetry-based 3D models, performs AI-driven segmentation, alignment, and anomaly detection against reference datasets, and enables GPU-accelerated rendering with adaptive level-of-detail. CSLabs has been awarded over 10 SBIR contracts across the Navy, Army, Air Force, DARPA, and DMEA, including an Air Force Phase III transition, a DARPA Phase II, and a Phase II with the DMEA, among others. CSLabs also invests internal research and development (IR&D) into custom technologies that are near a final product release such as DeltaX, a modular system for managing and processing large-scale data with interchangeable algorithms with checkpoint & restart, and Image Processing Xpert (IPX), an advanced computer vision platform offering customizable plugins and tools for image processing & analysis, object detection, and classification.

WHAT

Operational Need and Improvement: The Navy is seeking to enhance its ability to execute complex maritime missions using UMVs across both surface and subsurface domains. These missions include unmanned transport of heavy payloads, surveillance, force protection, search and rescue, blockading, mine countermeasures, and Anti-Submarine Warfare (ASW). Next-generation UMVs with swarm capabilities are needed to complement manned platforms and expand operational reach. Autonomy that enables predictive behaviors and collaboration among diverse UMVs will improve mission effectiveness in highly dynamic and uncertain environments.

Specifications Required: Our technology requires UMV platforms with sensors that enable spatial awareness for navigation and the detection and classification of friendlies, adversaries, or neutral vessels. The platforms can also have heterogeneous capabilities, such as different sensor packages or different maneuvering capabilities. It is assumed that a communication system exists between the platforms (e.g., satellite communication) to share their state information with their teammates; however, the system accounts for the possibility of limited communications between platforms.

Technology Developed: This technology is an autonomy framework that enables a UMV swarm to coordinate and adapt their actions based on mission objectives, environmental context, and shared situational awareness. The system supports behaviors such as patrolling, blockading, pursuing, and intercepting. Each platform adjusts its behavior dynamically, enabling effective multi-vehicle collaboration with minimal operator input and improving mission performance across a range of operational scenarios. In-water testing will be conducted to demonstrate core behaviors, with additional testing planned to support integration and transition.

Warfighter Value: If successful, this technology enables collaborative autonomous UMV teams to support a wide range of Navy missions while reducing the need to place personnel in harm's way. Swarm-based behaviors such as carrying heavy payloads, search and rescue, surveillance, and blockading can be conducted without direct operator control, increasing responsiveness and reducing risk.

WHEN

Contract Number: N00014-24-C-1332 **Ending on:** Mar 01, 2026

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Development and internal testing of AI-Routes A* and A*NN algorithms, demonstrating basic functionality and resilience in low-bandwidth scenarios	Low	Algorithm produces expected results in software development testing environment	3	4th QTR FY25
Successful demonstration of the software's capability to navigate complex simulated environments and perform diverse tasks autonomously	Medium	UMV swarm success rate in completing several targeted mission scenarios in high-fidelity simulation environment	4	2nd QTR FY27
Confirmation of software's real-world effectiveness and cooperative operation among UMVs in diverse tasks	High	Scale-model UMV swarm success rate in carrying out mission scenarios in real-world in-water testing	5	2nd QTR FY27
Completion of the autonomy software development project, with all objectives met, deliverables finalized, and readiness for deployment assessed	Low	Completion of project, meeting all objectives, and successful finalization of deliverables	6	4th QTR FY27

HOW

Projected Business Model: CSLabs is an AI-focused software company that develops autonomy, computer vision, and decision-support solutions for complex operational environments across defense and commercial sectors. By leveraging our expertise in AI/ML and systems integration, we deliver modular, platform-agnostic software that enables autonomous operations, real-time analytics, and mission planning within larger system-of-systems architectures. Initial sales to the Navy for use on vessels will be followed by partnerships with prime contractors to integrate our autonomy software into current and future UMV platforms.

Company Objectives: CSLabs' objective is to transition its AI-powered software into operational systems that reduce cost, increase mission effectiveness, and help safeguard warfighter lives. We are actively seeking vehicles to test our software on (such as the M-80 "Stiletto" at the Naval Surface Warfare Center (NSWC) Carderock Division) as well as transition partners from both government UMV program offices and industry platform providers to help integrate our AI autonomy stack into fielded systems.

Potential Commercial Applications: Our next-generation UMV autonomy stack is designed for rapid integration with most UMV platforms, showcasing its ability for broad commercial applications in commercial maritime industries, including port and harbor services (tug-assist, vessel escort, and pilot transfers); offshore energy inspections of platforms and subsea cables; subsea mapping; wind-farm maintenance support; environmental monitoring for water-quality sampling and research; aquaculture management tasks (feed delivery and net checks); disaster-response logistics (supply delivery, oil-spill containment, and debris clearance); search-and-rescue operations; and shipping escort/port security.

Contact: John Tan, Principal Investigator / Chief Executive Officer
jtan@scix3.com (703) 982-7777 x801

NAVY SBIR TRANSITION PROGRAM

Command, Control, Communications, Computers, and Intelligence (C4I)

Company	Topic	Project Title	SYSCOM
Beacon Interactive Systems	N192-124	Operational Ship Data for CBM+ Analytics for Bridge-Based Decision Support	ONR
Etegent Technologies, LTD	N221-036	Exploitation of Ephemeral Features in Sonar Classification Algorithms	NAVSEA
GIRD Systems, Inc.	N211-080	Domain Optimized Tactical Line of Sight Communications	NAVWAR
Dirac Solutions Inc.	NSF11-561	Software-Defined Noise Cancellation for Wireless Pulse Based Communications (CONVERTED FROM STTR TO SBIR)	NAVAIR
Parraid, LLC	AF203-DCSO1	Parraid Outsourcing Workload (O.W.L) Linux Power and Data Hub	NAVAIR
Solid State Scientific Corporation	N221-061	EO/IR Raid Count and Kill Assessment for CSO threats	NAVSEA

Department of the Navy SBIR/STTR Transition Program

DISTRIBUTION STATEMENT A. Approved for public release. Distribution is unlimited.
ONR Approval #2025-10-8-1582

Topic # N192-124
Operational Ship Data for CBM+ Analytics for Bridge-Based Decision Support
Beacon Interactive Systems

WHO

SYSCOM: ONR

Sponsoring Program: ONR Global

Transition Target: PMS 443 Bridge Integration

TPOC: Nicholas Minovich
nicholas.s.minovich.civ@us.navy.mil

Other Transition Opportunities: Continued use throughout Navy maritime assets as well as with global partners.

US Navy Image

Notes: Operational CBM+ provides the Bridge with AI-driven actionable insight analyzing real-time operating conditions, equipment state, and human actions in real time at the edge. This digital infrastructure becomes the basis for a bridge simulator to demonstrate and test evolving innovative digital capabilities. By leveraging SEAS and eLogBook, Beacon's existing bridge system Programs of Record, as well as by partnering with both ONR Global and UMass Lowell's Applied Research Center, this project efficiently scales the impact for both the US Navy and our global Allies & Partners.

WHAT

Operational Need and Improvement: New approaches are required to sustain ships for their 45-year service lives in a rapidly changing threat environment with an accelerating pace of technological change and data generation. This increase in data represents a challenge and an opportunity. In a novel approach, Operational CBM+ framework combines sensor and physical asset data with human asset condition to derive an actionable insight and inform operational readiness. Additionally, the US Navy is actively investing in ways to increase interoperability and improve collaboration with allies and partners. The shared CBM+ analytics capability gives the US Navy and our Allies a vetted solution that greatly enhances interoperability and promotes mutual trust and reliability in the area of asset readiness and sustainment.

Specifications Required: Collects and analyzes data to predict the remaining useful life of platforms, systems, and components; Leverages ship digital assets from operations and maintenance; Conforms to DoD cybersecurity requirements; Benefits from but does not require connection to sensors; Provides integrated CBM+ data for maintainers, planners and decision-makers to better prioritize and plan maintenance, extend life, and increase availability; EAR99 classified (non-ITAR); Enhances battlegroup awareness and interoperability.

Technology Developed: The Operational CBM+ platform is an advanced data fusion technology that combines sensor data, real-time analytics, and AI algorithms with a modular visual display on the ship bridge. The platform blends physical asset and human asset condition in an integrated picture of operational readiness. It ensures the human actor (CO, XO, sailor, maintainer, planner, decision maker) receives critical insights in the quickest, most suitable, and actionable manner.

Warfighter Value: Improves real-time understanding of equipment failure and its impact on mission success; informs corrective actions by adjusting inputs and outputs based upon sailor capability; and provides a pathway to greater interoperability and interchangeability between Allies and Partners.

WHEN

Contract Number: N64267-24-C-0070 **Ending on:** Sep 20, 2027

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Needs & Requirements Analysis	Low	A series of requirements and capabilities to be provided	6	3rd QTR FY27
Data Identification & Collection	Medium	Access to relevant real or synthetic equipment data	6	3rd QTR FY27
System Development	Low	Successfully enabled third party integration and data usage	6	3rd QTR FY27
Test, Delivery & Demonstrations	Low	Virtual demonstrations and actionable end user feedback	6	3rd QTR FY27

HOW

Projected Business Model: The digital platform matured by this investment is EAR99 classified and licensable for both defense and industry organizations. Beacon supports deployment, data conversion, training, and ongoing upgrades and maintenance of software. The platform can be hosted in the Cloud or installed onsite locally.

Company Objectives: Identify additional partners and customers to both scale the existing offering across defense and industry organizations as well as to identify new opportunities for engagement.

Potential Commercial Applications: Digital condition-based maintenance (CBM+) solution is of significant interest in many markets where equipment maintenance is a crucial component of continuous operations, especially Maritime, Manufacturing, Telecommunications, Transportation, MRO, and Power Generation.

Contact: Brad Peck, Navy Programs
brad.peck@beaconinteractive.com (757) 395-7409

Department of the Navy SBIR/STTR Transition Program

DISTRIBUTION STATEMENT A. Approved for public release. Distribution is unlimited.
NAVSEA #2026-091

Topic # N221-036
Exploitation of Ephemeral Features in Sonar Classification Algorithms
Etegent Technologies, LTD

WHO

SYSCOM: NAVSEA

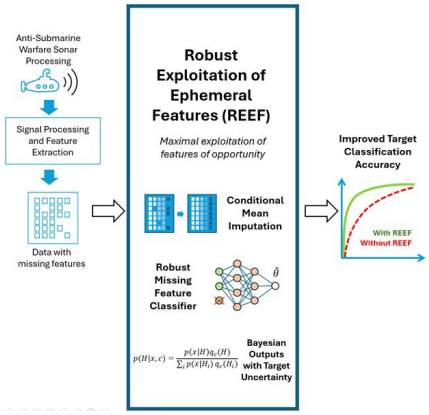
Sponsoring Program: PEO IWS 5.0 Undersea Warfare System Program Office

Transition Target: AN/SQQ-89 System

TPOC: (401) 832-8648

Other Transition Opportunities: Other Navy Anti-Submarine Warfare (ASW) programs including those at NAVAIR. Additionally, the algorithms developed are agnostic to domain and are suitable for any tabular dataset with missing features.

Notes: Robust Exploitation of Ephemeral Features (REEF) is a set of tools and algorithms which classify sonar contacts, specifically searching for subsurface vessels. A demonstrated need persists for robust classification in challenging operating environments where targets may only exist for fleeting moments or where targets may intentionally take deceptive and evasive measures that limit detection.



Etegent Generated

Etegent Technologies has over 25 years of experience providing advanced signal processing solutions to the defense sector, with government customers including AFRL, NASIC, NGA, NRO, NAVSEA, NAVAIR, OSD, and DARPA.

WHAT

Operational Need and Improvement: The Robust Exploitation of Ephemeral Features (REEF) technology seeks to improve classification on sonar returns as either subsurface vessels or clutter (ocean floor, school of fish, etc.) to better identify underwater threats. One challenge with data from these sonar returns is that useful features can often be unavailable for several reasons. These ephemeral features provide useful insight but are often missing from the dataset, making them less useful when combined with other features. REEF is a set of algorithms and techniques to maximally utilize this information and provide the most accurate possible predictions with or without these additional features.

Specifications Required: Current classification strategies are over-conservative and rely on using reduced feature sets that are typically always available, i.e. persistent features. In contrast, the proposed robust classification framework supports random feature availability and has the ability to leverage all available physical and meta data sources to provided improved classification performance. REEF performance will be evaluated by the government in a representative SQQ-89 processing prototype.

Technology Developed: Several algorithms which exploit ephemeral features have been developed and evaluated for use in ASW. REEF leverages a combination of Bayesian and machine learning methods to optimally exploit physical and virtual information sources. Conditional Mean Imputation (CMI) is a novel method of filling in data based on assumptions that can be made about the shape of the datasets. A robust missing feature classifier is used to classify contacts using a training strategy that is robust to missing features, meaning it produces accurate results regardless of if a given feature is available. These advanced statistical models of target features come together to form an end-to-end data pipeline that improves submarine detection performance.

Warfighter Value: REEF provides improved real-time target classification with limited contact information from fleeting and deceptive targets. Improved data exploitation also has the ability to shorten target identification time and reduce active sensing intervals. It also means fewer false alarms and fewer missed detections, ensuring that time and resources are properly allocated so ASW forces can properly respond to threats with the best possible situational awareness.

WHEN

Contract Number: N00024-24-C-S199 **Ending on:** Sep 09, 2026

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Novel Framework for Bayesian Data imputation	Medium	Improvement in probability of correct classification at a fixed false classification rate on Navy-identified datasets.	5	4th QTR FY26
SQQ-89 land-based prototype integration	Low	No negative impact of existing performance when no ephemeral features are present	6	2nd QTR FY27
SQQ-89 trunk integration	Low	Demonstration of integrated functionality of ephemeral feature technology.	7	3rd QTR FY27

HOW

Projected Business Model: Work with ONR, NAVSEA to identify other potential programs and organizations that would be interested in purchasing this software as a license.

Company Objectives: Etegent seeks to continue working with the Navy as REEF is transitioned onto the SQQ-89 platform and later pursue opportunities for this technology to be integrated onto other sensor platforms for the Navy and possibly other government agencies. Once transitioned to Programs of Record (PORs), Etegent seeks to continue to offer services and support to various Navy SYSCOMs.

Potential Commercial Applications: Improvements to Active Sonar classification algorithms could be useful in the fishing industry, underwater archaeology and construction, and for search and rescue. Furthermore, REEF algorithms do not rely on sonar phenomenology, meaning it is useful for a broad range of applications. This includes industries like finance, healthcare, manufacturing, or any industry which deals with missing data as a problem.

Contact: Jacob Ross, Principal Investigator
jacob.ross@etegent.com (937) 912-5125

Department of the Navy SBIR/STTR Transition Program

DISTRIBUTION STATEMENT A. Approved for public release. Distribution is unlimited.
NAVWAR PA Review complete

Topic # N211-080
Domain Optimized Tactical Line of Sight Communications
GIRD Systems, Inc.

WHO

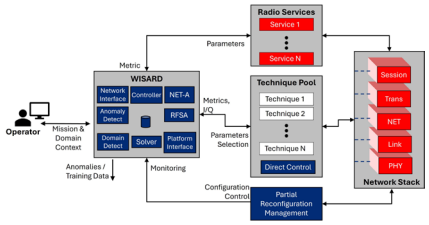
SYSCOM: NAVWAR

Sponsoring Program: PMW/A-101

Transition Target: Tactical Radios

TPOC: (619) 252-8077

Other Transition Opportunities: All Department of Defense (DoD) tactical radio systems that can benefit from machine learning (ML) controlled/informed optimization that improves performance across operational domains while reducing the degree of required radio operator intervention and expertise.



2025, GIRD Systems, Inc.

Notes: The technology being developed to support Domain Optimization of Tactical Line of Sight Communications is the Wireless Intelligent Service for Automatic Radio Domain optimization (WISARD) software-based solution that utilizes machine learning to optimize operation of tactical radio systems.

GIRD Systems is a small business defense contractor that is innovative and agile in satisfying the DoD's signal processing and communication needs. GIRD has successfully partnered with key defense contractors to develop innovative and technologically superior signal processing solutions that are currently being evaluated for transition into operational use by industry and military customers.

www.girdsystems.com

WHAT

Operational Need and Improvement: There is an increasing number and sophistication of adversarial and friendly communication systems and waveforms operating across multiple bands which impact radio communications during mission execution. WISARD provides a solution for optimizing radio link selection and performance across platforms and waveforms, allowing automated operation and reducing radio operator intervention and expertise.

Specifications Required: In order to provide these improvements, WISARD must maintain awareness of a wireless network's Operating Domain by processing existing information available on the wireless network's platform. Based on this information, WISARD must select and / or configure a platform's available Techniques and Services to align with the current Operating Domain. While performing these requirements, the operation of WISARD must result in a reduction of the degree of operator intervention and operator expertise necessary to manage the platform through changing Operating Domains. Further, WISARD must provide machine-readable and human-interpretable understanding of the mission, operating domain, and current conditions.

Technology Developed: GIRD Systems is developing the Wireless Intelligent Service for Automatic Radio Domain optimization (WISARD) technology, an ML-based software solution that improves the performance of tactical radio communication systems employed by the Army, Navy, and other services, by optimally aligning system parameters and configuration with operational domains. WISARD also reduces the degree of required radio operator intervention and expertise and improves the ease of use of WISARD managed systems.

Warfighter Value: WISARD enables optimal operation of the tactical radio resources and operation for the given operating conditions in an automated and informative fashion thereby enabling the warfighter to focus on the mission rather than equipment operation.

WHEN

Contract Number: N64267-24-C-0090 **Ending on:** Sep 25, 2026

Milestone	Risk Level	Measure of Success	Ending TRL	Date
System Requirements Defined	Low	Customer Requirements Acceptance		2nd QTR FY25
Studies Complete	Medium	Component Software Designed	3	1st QTR FY26
Preliminary Design Review	Medium	Preliminary Design Acceptance		4th QTR FY25
Prototype Capability Demonstration #1	Low	Successful Demonstration of Capability Set	4	1st QTR FY26
Prototype Capability Demonstration #2	Medium	Demonstration with Target Platform via External Interfaces	5	2nd QTR FY26
Prototype Capability Demonstration #3	Medium	Integrated Demonstration on Target Platform	6	4th QTR FY26

HOW

Projected Business Model: GIRD will engage industry partners to assess the contribution of the technology and identify a strategy for the potential market and potential customers. GIRD plans to license the technology as software/firmware IP to be integrated into customer's communication platforms. GIRD is identifying other potential applications within the DoD and is engaging industry partners for integration of the technology into their products.

Company Objectives: Transitioning the WISARD radio performance optimization software is highly relevant to our current market and customers since GIRD has been involved in developing novel, custom waveforms for the DoD and commercial partners, as well as implementing existing military and commercial waveforms to prime vendors' software defined radio (SDR) platforms. GIRD's past and current ML-based orchestration technology developments for the DoD (e.g., WISDOM) comprise major thrusts in this direction as is the application of ML to optimal decision making in complex, dynamic scenarios. Transitioning our technology into a program of record carries weight with GIRD's other potential customers and shows that GIRD is capable of delivering and integrating new technologies into the DoD.

Potential Commercial Applications: The ML decision engine forming the core of the WISARD technology has application to commercial systems via optimally configuring radio/communication systems and optimally routing data through alternate systems to avoid congestion and manage network loading. The automation provided through WISARD software reduces the amount of required radio operator intervention in the system operation, thereby reducing the expertise and training required by an operator and associated operating costs. Further, the WISARD training framework can serve to generate scenarios and network conditions to intelligently test and identify corner case conditions which impact system performance.

Contact: James Caffery, Jr., CTO
jcaffery@girdsystems.com (513) 281-2900 x103

Department of the Navy SBIR/STTR Transition Program

Topic # NSF11-561
Software-Defined Noise Cancellation for Wireless Pulse Based Communications
Dirac Solutions Inc.

WHO

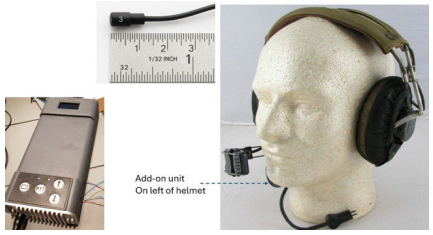
SYSCOM: NAVAIR

Sponsoring Program: NAVAIR

Transition Target: PMA-209 / PMA 202

larry.r.hutson4.civ@us.navy.mil

Other Transition Opportunities: Army Air Warrior Integration, Navy nuclear submarines, DHS



DiracSolutions.com, BellAviations.com

Notes: Adaptive noise cancellation on Software Designed Radio (SDR) integrated with reliable Ultra-wideband communications for V-22 aircraft.

The noise cancellation capability in software-defined radio (SDR) leverages adaptive signal processing algorithms to continuously analyze the acoustic and vibration profiles characteristic of aircraft operations. By dynamically adjusting filtering parameters in real time, the system mitigates a broad spectrum of interference, including engine harmonics, aerodynamic flow noise, and transient impulsive sounds from onboard systems. When combined with reliable wireless communications using ultra-wideband (UWB) signaling, this capability ensures robust, low-latency data transmission and high immunity to multipath effects, enabling consistent communications and sensor data integrity across varying operational conditions.

WHAT

Operational Need and Improvement: In DoD helicopter operations, effective wireless voice communication is vital for safety and coordination, yet current systems struggle in extreme acoustic environments—rotor noise often exceeds 100 dB SPL and vibration adds further interference. These conditions, amplified by helmet and hearing protection use, significantly impair speech intelligibility and lead to miscommunications. To solve this, DSI has developed and field-tested advanced signal processing techniques for active noise and echo cancellation within a pulse-based wireless audio system. Running on a software-defined platform, the solution concurrently targets multiple noise sources—from low-frequency rotor and gear noise to high-frequency engine noise—ensuring clear and reliable voice communication in high-noise flight operations, thereby boosting mission effectiveness and operational safety.

Specifications Required: (1) Reliable wireless transmissions between cabin crew members (in the air) and cabin crew members and external crew members (on the ground). (2) High speech intelligibility in presence of various sources of acoustic noise (3) Minimum communications range of 300 feet (T), as measured from a crew member inside the V-22 Osprey cabin to a crew member external to the V-22 aircraft (eliminating the existing long cord for maintenance crew communications.

Technology Developed: DSI's software-defined wireless communication system incorporates cutting-edge signal processing for active noise and echo cancellation, designed specifically for high-noise environments like DoD helicopter operations where rotor, engine, and transmission noise overwhelm traditional audio systems. By targeting multiple noise sources simultaneously, it ensures clear, reliable speech even when users wear helmets and hearing protection. Built natively on DSI's pulse-based wireless platform, this solution delivers robust, real-time voice communication in mission-critical settings. Additionally, DSI has adapted similar wireless systems for DOE applications, enabling the secure transmission of sensor data and image/video through 5-foot-thick nuclear concrete.

Warfighter Value: DSI's advanced wireless communication system delivers critical value to the warfighter by enabling clear, dependable voice communication in high-noise helicopter environments. By actively suppressing rotor, engine, and vibration-induced noise, the system ensures that essential commands are clearly transmitted and understood, minimizing the risk of miscommunication during mission-critical operations. This improves situational awareness, coordination, and safety for pilots, crew, and ground personnel. Its battery-free design and extended range further enhance mission flexibility while reducing equipment load—meeting the warfighter's need for lightweight, reliable communication tools in dynamic operational settings.

WHEN

Contract Number: N68335-24-C-0258 **Ending on:** Jun 03, 2026

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Implementation of adaptive noise cancellation algorithms for various noise sources	Low	Successful firmware evaluations	6	4th QTR FY25
Testing the dynamic and Adaptive Algorithm Selection Module	Low	Laboratory testing	6	4th QTR FY25
Full integration with UWB radios	Low	Hardware/software co-verification	6	1st QTR FY26
Field testing with V-22	Low	Performance evaluation at the intended environment	6	2nd QTR FY26

HOW

Projected Business Model: DSI's business model is to transition innovative research to high TRL through SBIR phase I, II, and III projects and target various applications based on the similar technologies. DSI's current strategy includes working with prime defense contractors for mainframe integration and welcomes the opportunity to test and sell directly to other government agencies if there are sufficient interests.

Company Objectives: DSI aims to design next-gen wireless systems that prioritize reliability, security, low cost, and low power. Its initial focus is on DoD applications, including aircraft, submarine, tunnel, and skyscraper communications, supporting voice, sensor data, and image/video. DSI also targets DOE and nuclear environments, deploying wireless sensor and video systems capable of penetrating thick concrete walls—such as those in nuclear reactors and submarines. Additionally, the technology supports first responder networks in harsh conditions, including firefighters operating in nuclear emergency scenarios.

Potential Commercial Applications: This military-grade voice system employs software-defined radio with adaptive noise and echo cancellation to maintain clear, reliable communication in the loudest environments—such as combat helicopters with intense rotor, engine, and transmission noise. It enhances speech clarity even when users wear helmets and hearing protection and seamlessly integrates with DSI's pulse-based wireless platform for mission-critical use. The same technology has been adapted for DOE applications, enabling wireless sensor, data, and video transmission through 5-foot-thick nuclear concrete.

Contact: Dr. Faranak Nekoogar, CTO
Faranak@DiracSolutions.com (408) 421-7537

Department of the Navy SBIR/STTR Transition Program

Topic # AF203-DCSO1
Parraid Outsourcing Workload (O.W.L) Linux Power and Data Hub
Parraid, LLC

WHO

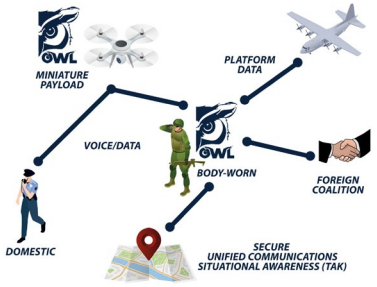
SYSCOM: NAVAIR

Sponsoring Program: Human Systems Engineering Department / NAWCAD

Transition Target: U.S. Special Operations Command (USSOCOM) is the primary transition target for OWL, with mission needs that align closely with its capability to support dismounted, mobile, and airborne edge computing and C2 operations. Joint Special Operations Command (JSOC) has expressed interest and may serve as an early operational test bed.

TPOC: (304) 488-9882

Other Transition Opportunities: OWL is well-suited for broader transition across the Department of Defense (DoD), including conventional forces, interagency partners, and coalition allies. Its rugged, adaptable design also supports mission profiles for domestic first responders—such as law enforcement, fire, and search-and-rescue—as well as security teams at critical infrastructure and industrial sites.



Notes: An operational overview of OWL shows how it enables situational awareness across land, air, and sea by acting as the connective tissue at the tactical edge. This Linux-based power and data hub translates protocols, bridges radio conversations, and pushes live mission map data forward to operators. OWL turns common devices—like a tablet or smartphone—into simple control interfaces of a powerful system, giving users the ability to configure, manipulate, and act on real-time information for faster, smarter decision-making in the field.

WHAT

Operational Need and Improvement: In today's operational environments, teams rely on a mix of radios and sensors that must work together seamlessly. Voice, data, and situational awareness need to move across all systems—without adding complexity or burden to the operator. Connectivity must extend to the front line, be easy to use, and stay out of the way. Current end-user devices are overloaded and often treated as expendable. OWL is a lightweight, low-power solution that takes the load off both the device and the warfighter.

Specifications Required: OWL is built with Size, Weight, and Power (SWaP) in mind—compact enough for dismounted operators or small air/sea drones. It's rugged, RF-shielded, and designed to survive in austere environments. OWL was engineered to meet MIL-STD-810 and MIL-STD-461, with certification on track. Onboard storage and processing capabilities enables OWL use with low-cost disposable end-user devices or as a standalone device. Interfaces follow Nett Warrior and Next Generation Hub standards, ensuring seamless integration with those systems and the enterprise Network Radio Gateway.

Technology Developed: OWL is a compact edge device designed to provide secure, continuous voice and data communications in contested environments. Security is delivered through a hardened Linux OS, secure USB tunneling, and support for M-Code GPS to maintain trusted geolocation in spoofed or denied areas. OWL features onboard storage and processing to ensure seamless operation, even when in and out of a network. Built-in protocol translation enables joint agency and platform collaboration by unifying communications into a single common operational picture. With integrated radio conferencing and a TAK server onboard, OWL delivers tactical awareness in a form factor small enough to be body-worn or deployed on drones.

Warfighter Value: OWL keeps the fight connected. It pushes secure voice and data across every domain—air, land, and sea—all the way to the operator on the ground. Built to take a hit and keep working, OWL sheds the weight and complexity of traditional systems. Whether you're moving in and out of network, coordinating across radios, or reacting to fast-changing threats—OWL gives you eyes on the fight, comms that don't quit, and the clarity to act without hesitation.

WHEN

Contract Number: N68335-25-C-0123 **Ending on:** Dec 31, 2026

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Product Demonstrator	Medium	Demonstratable by Engineer	5	1st QTR FY26
Operational Demonstrator	Medium	Demonstratable by Customer	7	3rd QTR FY26
Limited Production Run	Low	Sellable Product	8	1st QTR FY27

HOW

Projected Business Model: OWL expands Parraid's existing product line into the tactical edge—directly onto the warfighter, vehicle, or small platform. While OWL operates as a standalone edge node, it also scales as part of a larger operational solution. Parraid will pursue a hybrid go-to-market approach, leveraging direct sales, existing government contracts, and key integrator partnerships. The compact form factor, secure mobile OS, and flexible architecture make OWL ideal for rapid adoption and long-term growth in areas like edge-AI, sensor fusion, and low-SWaP deployments. OWL is positioned to bridge enterprise C2 systems with the forward fight—unlocking a broader ecosystem of tactical capability.

Company Objectives: Parraid's mission is to bring clarity to chaos. We push emerging tech to the tactical edge—connecting warfighters with the information they need, when they need it. Our focus isn't selling boxes—it's solving problems. Every product we build is designed to strip away complexity and give the operator the upper hand.

Potential Commercial Applications: OWL's compact, rugged design and unmatched interoperability make it ideal beyond defense. First responders, critical infrastructure teams, disaster relief agencies, and energy sector field crews face similar challenges in situational awareness and communications. OWL unifies radios, sensors, and data tools into one easy-to-use system—supporting operations in austere, remote, or denied environments. From wildfire zones to oil fields and humanitarian crises, OWL delivers dependable edge connectivity, live mapping, and rapid coordination when it matters most.

Contact: Rob Edmonds, Director of Strategic Engagement
sales@parraid.com (301) 690-0690

Department of the Navy SBIR/STTR Transition Program

DISTRIBUTION STATEMENT A. Approved for public release. Distribution is unlimited.
NAVSEA #2025-069

Topic # N221-061
EO/IR Raid Count and Kill Assessment for CSO threats
Solid State Scientific Corporation

WHO

SYSCOM: NAVSEA

Sponsoring Program: PEO IWS - Integrated Warfare Systems

Transition Target: Shipboard Panoramic Electro-Optics Infrared (SPEIR) program.

TPOC: (812) 227-9455
bo.e.miller.civ@us.navy.mil

Other Transition Opportunities: UAV Detection for Army, USMC, govt. agencies.

Simulated Drone Detection

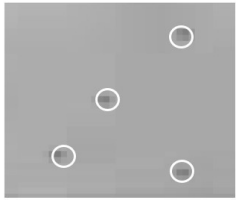


Image created by Solid State Scientific Corporation, Nashua New Hampshire

Notes: SSSC's algorithm extends detection range through advanced AI inference on low-resolution video detecting partially resolved targets as small as 3–5 pixels. Proven performance on real-world data through field validation with SSSC field trials (demo available) with high detection accuracy in clutter (clouds, sea state, and solar glare).

Background: SSSC has been extremely successful in transitioning SBIR Technologies with over 300 million dollars of SBIR Phase III funding. The Current Cloud Transition CPAR is rated "Excellent" in Quality, Cost Control, Management and Regulatory Compliance. Our objective is the successful transition of technologies related to Cloud Computing, Artificial Intelligence, Radar, and Multi-Spectral Sensing.

WHAT

Operational Need and Improvement: Early detection of aerial swarms is essential to maintain situational awareness and provide maximum time to respond. SSSC's solution is to use Electro-Optic or Infrared camera returns to detect swarms at a distance and perform a count of how many objects are in the attacking swarm. A secondary goal is to perform a kill assessment. The technology processes video imagery from cameras (either visible or infrared) in order to find distant targets including Unmanned Aerial Vehicles and the algorithm is effective even before a clear image of the threat is available.

Specifications Required: The proposed solution must be able to detect targets at a distance and perform a count of how many aerial objects are part of the incoming raid. Deploying an off-board EO/IR system at operationally relevant positions allows observation of incoming threats from alternative perspectives — effectively addressing blind spots caused by Closely Spaced Objects (CSOs).

Technology Developed: SSSC has developed a state-of-the-art artificial intelligence (AI) video processing algorithm capable of analyzing EO/IR imagery to detect targets that are barely resolved at the edge of sensor resolution.

Warfighter Value: SSSC's IR processing algorithm provides early warning of incoming aerial threats and hence increased response time for active responses and countermeasures. The developed technology makes it well-suited for missions requiring early warning and detection of inbound threats that include multiple targets.

WHEN

Contract Number: N00024-24-C-S028 **Ending on:** May 28, 2026

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Digital Simulation	Low	Succesful Demonstration of Simulated Environment to Navy	4	1st QTR FY24
Algorithm Demonstration on SSSC Field Collected Data	Low	Detection and tracking of Targets in Field of View	5	2nd QTR FY25
Testing on Navy Provided Data (AI/ML)	Medium	Detection and tracking of targets	5	3rd QTR FY26
Delivery of Prototype	Medium	Delivery into software environment	6	3rd QTR FY27

HOW

Projected Business Model: Adapt the algorithm for component-specific missions and continue providing software support to enhance and extend its capabilities through future upgrades, leveraging an Agile development approach and a Continuous Integration/Continuous Delivery (CI/CD) framework for continuous improvement.

Company Objectives: Expand and transition the technology to support a broader range of incoming target types, including fixed-wing aircraft, rotary aircraft and unmanned aerial vehicles (UAVs). Adapt the algorithm for component-specific missions and continue providing software support to enhance and extend its capabilities through future upgrades.

Potential Commercial Applications: Commercial Applications include high-value facility protection, long-range drone detection and tracking, and enhanced marine search and rescue operations.

Contact: Dr. Jonathan S. Kane, Senior Scientist
jon.kane@solidstatescientific.com (603) 598-1194 x125

NAVY SBIR TRANSITION PROGRAM

Electromagnetic Warfare

Company	Topic	Project Title	SYSCOM
3DFortify Inc.	N231-063	Advanced Hybrid Gradient Index Lenses via Additive Manufacturing of Low-Loss Materials	ONR
Aspen Consulting Group, Inc.	N232-108	Autonomous, Low-Cost Emitter for Electronic Warfare Training	ONR
First RF Corporation	N231-003	Broadband Antenna Solution for Vehicle-Mounted EW Systems	MCSC

Department of the Navy SBIR/STTR Transition Program

DISTRIBUTION STATEMENT A. Approved for public release. Distribution is unlimited.
ONR Approval #2025-8-21-1296

Topic # N231-063
Advanced Hybrid Gradient Index Lenses via Additive Manufacturing of Low-Loss Materials
3DFortify Inc.

WHO

SYSCOM: ONR

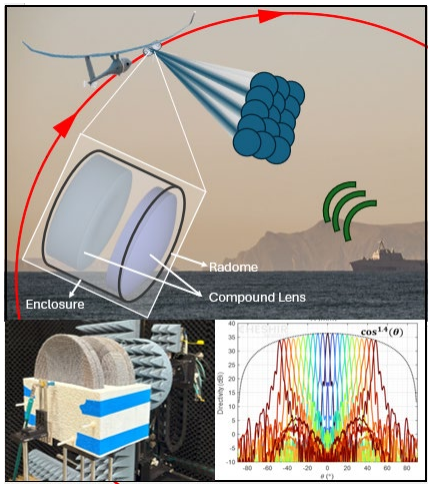
Sponsoring Program: ONR Code 312 - Electronic Warfare

Transition Target: Switched Beam Antennas, pod-mounted EW for class 3/4/5 UAV (Vanilla, Reaper, Predator), 5G Comms (Army PEO C5ISR)

TPOC: Trevor Snow
trevor.m.snow3.civ@us.navy.mil

Other Transition Opportunities: Ultra broadband, hybrid GRIN lensing has applicability across many comms, EW, and RADAR surface/air platforms to improve SWaP-C and bandwidth for beam steering systems requiring DF/ELINT functionality, LPD/LPI, or improved antenna gain/field of view.

Notes: Fortify's hybrid GRIN lenses are manufactured from tailored gradient index 3D printed materials - enabling ultra broadband performance via passive true time-delay in the lens. The graphic shows one compelling embodiment - a UAV pod-mounted ELINT system using a switched beam lens antenna. Final deliverable will have a compound lens architecture mounted within an enclosure and radome, shown by the diagram in the graphic.



Photos courtesy of University of Notre Dame and Cheshir Industries. Other images sourced from public use DoD websites.

WHAT

Operational Need and Improvement: DoN requires capabilities to design and produce GRIN lenses that leverage high dielectric constant, low loss, 3D-printable materials for microwave/mm-wave lensing and antenna structures that can operate over large bandwidths and challenging environmental conditions.

Specifications Required: GRIN lens structures suitable for UAV mounting that cover at least 10-to-1 bandwidth (objective 2-40 GHz), scan loss exponent of less than 2.5, peak sidelobes no more than 20-dB down from peak gain when steered at boresight, and no more than 15 dB when scanned to 50 deg off boresight. Other objectives: minimize lens weight, minimize dielectric and other efficiency losses, reduce overall lens thickness, minimize production costs, and minimize performance or material impacts that arise in naval conditions.

Technology Developed: Fortify and partners have developed/matured RF lens design and manufacturing workflows for Gradient Index lensing. Fortify demonstrated this capability via development of 3D printed dielectric steerable Gradient Refractive Index (GRIN) lens for Switched Beam Array (SBA) antennas that has extreme 13-to-1 instantaneous bandwidth (3 to 40 GHz), excellent scan loss to 50° (~1.4), with an aperture efficiency nearing 40%, manufactured from 3D printed materials ranging in Dk from 1.35 to 5.0.

Warfighter Value: Hybrid GRIN lenses and the associated design/manufacturing workflows offer the warfighter access to lower SWaP-C, ultra broadband beam-steering antenna capability for low cost, attritable, UAV and other platforms for RADAR, EW, and COMMs applications. When paired with a switched beam antenna array, hybrid GRIN lenses offer cheaper, lighter, lower power, low scan-loss beam-steering alternative to costly and power-hungry phased arrays.

WHEN

Contract Number: N68335-24-C-0292 **Ending on:** Aug 31, 2025

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Feasibility of hybrid material GRIN lensing	Low	Beam forming and steering up to 20 GHz	3	1st QTR FY24
Single lens scanning performance	Low	Measurement result show scan loss < 4	4	3rd QTR FY25
3-40 GHz Bandwidth Performance	Medium	Radiation efficiency/gain remains strong up to 40 GHz	4	3rd QTR FY25
Compound lensing	Medium	Scan loss exponent < 2	4	3rd QTR FY25
Integration into protective enclosure with radome	Low	No significant reduction in RF performance	4	4th QTR FY25
Environmental testing	Medium	Equivalent performance before and after exposure to relevant environmental conditions	5	1st QTR FY26
Hybrid lens integrated with wideband antenna system	Medium	Meets antenna system requriements	6	1st QTR FY26

HOW

Projected Business Model: The lens technology requires integration into an antenna system for it to solve a problem for the Navy or other services. The first demonstration of this will in a separate Army C5ISR center funded program for 5G Command and Control systems, with delivery and testing expected EOY 2025. Future applications will require development and integration efforts to take this lens technology into an antenna prototype to solve a Naval challenge. Fortify will collaborate with system integrators like RTX, LMCO and/or antenna system companies like ARA to develop a complete antenna system for a future naval capability. Long term, Fortify will be the the design and manufacturing partner for lenses and lens antennas.

Company Objectives: Fortify's objective is to transition this lens technology and adjacent RF lens/dielectric/antenna structures into a programs of record to solve challenges for the warfighter within the Navy or other services.

Potential Commercial Applications: 5G mm-wave antennas, 5G densification antennas, commercial airline SATCOM, SATCOM ground terminals, rail trackside backhaul, commercial RADAR (security, monitoring)

Contact: Philip Lambert, Director of Applications Engineering
phillambert@3dfortify.com (207) 776-0953

Department of the Navy SBIR/STTR Transition Program

DISTRIBUTION STATEMENT A. Approved for public release. Distribution is unlimited.
ONR Approval #2025-10-8-1583

Topic # N232-108
Autonomous, Low-Cost Emitter for Electronic Warfare Training
Aspen Consulting Group, Inc.

WHO

SYSCOM: ONR

Sponsoring Program: Simulation Enhancement and Modernization Suite (SEAMS)

Transition Target: USMC: LVC-TE, EWGIR, MCWL, INFOMODS, MCTSSA, SIGMAN, MARSOC, PM TRASYS, PM TCE, TECOM

TPOC: Peter Squire
peter.n.squire.civ@us.navy.mil

Other Transition Opportunities: US Army: INSCOM, PM EW&C, DEVCOM C5ISR Center (signed transition support), TSMO, ATEC, USASOC, Navy: NAVSEA, NAVAIR, NSW.

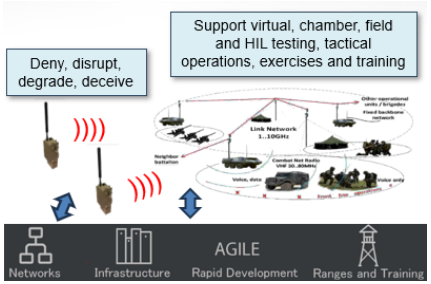


Image courtesy Aspen Consulting Group

Notes: STINGRAE trains our warfighters to maintain clear communication channels in contested environments. Our man portable transceiver has already been deployed in training exercises, simulating denied, disrupted and degraded communications in order to train warfighters to transition to alternate pathways. Provides a low size, weight, power and cost (SWaP-C) electronic warfare (EW) training device for all test and training ranges (i.e., outdoor, classroom/lab, chamber, hardware-in-the-loop (HIL) testbeds) for field training events and home station training.
- Implements a modular architecture for upgradability and growth that supports other applications and modes of operation
- Software-defined, multifunction transceiver with various attack vectors and development tools
- Easy to employ across the force for the generation of contested and EMSO environments
- Supports training the entire force with minimal resources
- Simplifies device set up, programming and operation
- Generates high-fidelity EW effects based on time, location or external triggers using preprogrammed, on-the-fly generated parameters or via remote control
- Interfaces with existing USMC equipment and into USMC training, testing and support infrastructure (i.e., Live Virtual Constructive-Training Environment (LVC-TE) , EW Ground Instrumented Range (EWGIR)

WHAT

Operational Need and Improvement: Due to the cost and complexity of existing EW training systems, the USMC cannot replicate the complete spectrum of EW effects in training exercises across the force. Applicable requirements include:
o USMC S&T Strategic Plan
- 19-5.5.2-G5/5.3.3-G4: Direct/Plan military deception
- 19-8.2.5-G1: III MEF MAGTF tactical warfare simulation training
- 19-1.2.1-G4: MOS and skills progression training
- 19-3.2.2-G2: Electronic attack
- 19-5.2.2-G1: Understanding the electromagnetic environment
o MEF Priority - Operations in an Information Environment- Signature Management
o TECOM S&T 2 - Replicate Multi-Domain EW\EMSO environment
o TECOM S&T 4 - Lack of a simulation for EMSO (e.g., EW, cyber, etc.)

Specifications Required: - Modular architecture
- HF to 6 GHz frequency range
- Two independent receive and transmit channels
- 0.1 to 10 watt power output
- Less than 10 pounds with battery and amplifier
- 8 hour mission duration

Technology Developed: Development and demonstration of a modular, hardened software defined transceiver with multiple attack vectors that addresses the technical/operational requirements, cost and SWaP goals and is integrated into the USMC training and testing infrastructure.

Warfighter Value: Enable USMC radio frequency (RF) communications operators to develop techniques, tactics and procedures to recognize and mitigate interference and jamming and to practice the transition to alternative communications pathways increasing OPSEC and survivability.
- Provides real-world effects and contested RF environments expected during a great power competition
- Standardizes training scenarios and environments across the force
- Dramatically increases training sets, scenarios and realism
- Reduces resources required for field training

WHEN

Contract Number: N68335-25-C-0087 **Ending on:** Feb 08, 2027

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Requirements and Tradeoff Analysis	Low	Prototype Field Demonstration	6	2nd QTR FY25
Design and Development	Low	Operational Demonstration	7	4th QTR FY26

HOW

Projected Business Model: Inhouse low rate initial production (LRIP), full rate production (FRP) by teammate (associate contractor or prime contractor), continued R&D to develop new capabilities.

Company Objectives: Build a low cost/SWaP device that can be mass produced and deployed to all USMC units requiring RF training/test assets and operated by minimally trained non-specialized personnel as demonstrated during recent USMC field exercises
o Remain relevant and continue innovation in the EW/EMSO market
o Connect with new customers and stakeholders
o Possible transition or license of the technology developed to prime

Potential Commercial Applications: Multiple government agencies have requirements for training detection and geolocation of illicit activities that typically use communications devices and drones for surveillance. The FCC, FAA and USCG have requirements for location of distress beacons, hoax mayday calls, jamming and unintentional interference. First responders often operate in situations where geolocation of RF transmitters is required in order to locate communications devices, trackers, rogue drone operators and emergency/distress beacons. These agencies typically can't afford expensive training systems and could benefit from a quickly deployed low cost/SWaP device that replicates signals of interest (SOI), jamming and interference for testing systems and training operators.

Contact: Steve Pizzo, Chief Engineer
Steve.Pizzo@aspenconsultinggroup.com (732) 722-7878

Department of the Navy SBIR/STTR Transition Program

DISTRIBUTION STATEMENT A. Approved for public release. Distribution is unlimited.
MCSC-PRR-116

Topic # N231-003
Broadband Antenna Solution for Vehicle-Mounted EW Systems
FIRST RF CORPORATION

WHO

SYSCOM: MCSC

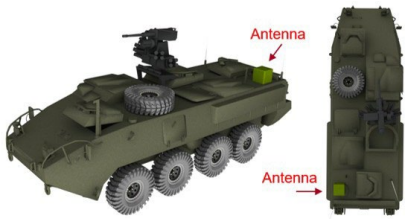
Sponsoring Program: Marine Corps Systems Command (MCSC)

Transition Target: Amphibious Combat Vehicle (ACV)

TPOC: sbir.admin@usmc.mil

Other Transition Opportunities: Ground and maritime platforms

Notes: One cubic foot integrated wideband dual-polarized antenna reduces footprint



Generated by FIRST RF Corporation

WHAT

Operational Need and Improvement: Develop an innovative and operationally suitable consolidated (minimized size and weight) antenna solution for sensing and transmitting broadly across the electromagnetic spectrum with angular resolution sufficient for direction finding.

Specifications Required: The antenna system will be contained in one foot cube and operate from very low frequencies to 20 GHz. The antenna system will provide dual polarization with multiple ports to support direction finding.

Technology Developed: FIRST RF has developed a dual-polarization antenna the operates from 20 MHz to 20 GHz in three bands. There internal antennas are co-located such that the antenna system is a single integrated unit.

Warfighter Value: This wideband antenna reduces the required platform surface area on target tactical military platforms. The sealed construction allows operation on amphibious vehicles, as well as other ground and maritime platforms.

WHEN

Contract Number: M67854-25-C-6527 **Ending on:** Dec 07, 2026

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Delivery of prototype	Medium	Gain, pattern, and impedance measurements	5	1st QTR FY26
Demonstration	Medium	Reception of signals over the frequency band and in any arbitrary polarization	6	1st QTR FY27

HOW

Projected Business Model: FIRST RF is a product-oriented company developing advanced technologies for antennas and Radio Frequency (RF) systems including communications, radar, phased arrays, Position Navigation and Timing (PNT), RF compatibility, low observable antennas, Electronic Warfare (EW), and Direction Finding (DF) systems. FIRST RF will produce antennas for integration onto a variety of vehicle platforms. Radio integration will be through a prime or directly with the government.

Company Objectives: FIRST RF is a developer of broadband antennas for tactical military vehicles. The company objective is to produce, test, and deliver these types of antennas to primes and government customers.

Potential Commercial Applications: The availability of Software Defined Radio (SDR) technology enables commercial users to transmit and receive over a very wide range of frequencies. SDR technology is now offering multiple channel radios that need multiple port antennas covering the entire frequency range for directional beams.

Contact: Dean Paschen, Director of Advanced Programs
dpaschen@firstrf.com (720) 589-2636

NAVY SBIR TRANSITION PROGRAM

Energy & Power Technologies

Company	Topic	Project Title	SYSCOM
Fathom5	N231-053	Improved Electromechanical Actuators for Aircraft Carrier Flight Deck Applications	NAVSEA
Diversified Technologies, Inc.	N221-064	Medium Voltage Direct Current Disconnect Switches	NAVSEA
Continental Controls and Design, Inc.	N171-028	Lightweight Self-Start System Demonstration for T56 Engine Driven Aircraft	NAVAIR

Department of the Navy SBIR/STTR Transition Program

DISTRIBUTION STATEMENT A. Approved for public release. Distribution is unlimited.
NAVSEA #2026-081

Topic # N231-053
Improved Electromechanical Actuators for Aircraft Carrier Flight Deck Applications
Fathom5

WHO

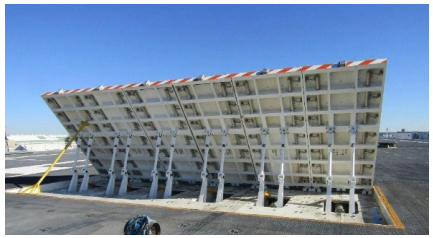
SYSCOM: NAVSEA

Sponsoring Program: PEO Carriers

Transition Target: Defense Contractors acting as primes for installation of Tesar Power lowering actuators on Jet Blast Deflectors (JBD) on Ford and Nimitz Class vessels.

TPOC: maboury.gueye.civ@us.navy.mil

Other Transition Opportunities: Naval Surface Warfare Center Carderock is assessing a related Phase II SBIR N254-C02 using Tesar Power to support At Sea Rearm VLS (ASRV) Strike Up/Down System (SUDS). Maritime Sustainment Technology & Innovation Consortium (MSTIC) Electrically Actuated Mast Raising Equipment is a well aligned opportunity for Tesar Power actuators. Fathom5 is collaborating with a prime defense contractor to propose actuator development for SSNx Control Surfaces.



https://www.cw-actuation.com/getmedia/d823d335-8c37-4cd4-8b10-684ce8a0730f/Advances-achieved-from-use-of-EMAs-for-Ford-Class-JBDs?ext=.pdf

Notes: Fathom5 is a Service-Disabled Veteran Owned Small Business that develops advanced hardware for mission-critical systems. Tesar Power is a compact, electric actuator engineered to meet Navy requirements for a safer, more reliable, and lower-maintenance alternative to traditional hydraulic systems. Developed under multiple SBIR efforts, Tesar Power is designed for rugged maritime environments and supports integration with legacy shipboard infrastructure. Fathom5's experience delivering hardened hardware solutions to the Department of Defense enables effective transition of Tesar Power to both naval and broader industrial applications.

WHAT

Operational Need and Improvement: An important goal of the Ford Class Aircraft carriers is to replace legacy hydraulic actuators with Electro Mechanical Actuators (EMAs) in many important ship's systems. Jet Blast Deflector (JBD) #3 was converted to operation with EMAs, but the actuator system resulted in a longer than desired emergency lowering cycle time. A hydraulic emergency lowering system is currently providing marginally adequate service on Ford Class vessels. NAVSEA desires to reduce the cycle time for the emergency lowering of deployed JBD #3 panels while reducing system complexity, decreasing manpower, and increasing system reliability.

Specifications Required: JBD Panel Dimensions: 6 ft wide; 14 ft long; 5200 lb per panel
65000 ft-lb maximum trunnion torque for lifting JBD Panel
12 minutes maximum time for emergency lowering of (6) JBD Panels
Manual Initiation of Emergency Lowering required, local or remote.
No added human-machine interface safety risks allowed.

Technology Developed: Tesar Power is a torque dense electric actuator using a novel spur gear tooth shape allowing very high single stage reduction ratios. The ratios achieved can use a commodity electric motor to provide very large torques through appropriate linkages. Tesar Power actuators can be configured for power transmission, precision control, or some compromise. Many applications requiring hydraulic power may be electrified using Tesar Power Actuators.

Warfighter Value: Faster Emergency JBD Lowering by reducing lowering time per panel to ~20 seconds.
Fully Electric Tesar Power Design supports the goal of eliminating hydraulics from Ford Class vessels.
Reduced Spatial Footprint as a result of eliminating the need for housing a hydraulic control skid.
Simplified Personnel Operations are achieved by allowing system operation by a pair of sailors.
Increased Reliability by removing complex hydraulic lowering system.
Improved Safety by eliminating flammable hydraulic fluid from the flight deck environment.

WHEN

Contract Number: N00024-24-C-S176 **Ending on:** Aug 29, 2025

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Subscale Prototype Critical Design Review	N/A	Approved Subscale Design	2	2nd QTR FY25
Subscale Prototype Acquisition	Low	Assembled Subscale Prototype	3	3rd QTR FY25
Sub-Scale Prototype Testing	Medium	Successful Load Test/ Life Test	4	4th QTR FY25
Integrated JBD Actuator Critical Design Review	N/A	Approved Integrated Actuator Design	4	2nd QTR FY26
Integrated JBD Actuator Acquisition	Low	Assembled Integrated JBD Actuator Prototype	4	3rd QTR FY26
Integrated JBD Lowering Actuator	Medium	Completed Shore Test	6	4th QTR FY26

HOW

Projected Business Model: Fathom5 plans to commercialize Tesar through a combination of direct sales and strategic partnerships with actuator manufacturers. The initial focus will be on government and defense applications where Tesar provides a drop in replacement for legacy hydraulic systems. Long-term growth will be supported through licensing and integration agreements, enabling adoption across shipboard systems, unmanned platforms, and adjacent industrial markets.

Company Objectives: Fathom5's mission with Tesar is to modernize actuation systems across defense and industrial sectors by replacing legacy hydraulic components with rugged, electrically driven alternatives. While initial deployment is focused on meeting Navy shipboard requirements, our broader objective is to scale Tesar for applications across maritime, aerospace, and industrial domains. We are advancing the design and control architecture of Tesar actuators to support high-reliability use cases and are seeking partners for production, system integration, and lifecycle sustainment.

Potential Commercial Applications: Tesar Power has broad applicability to actuation in Heavy Equipment, Material Handling, Robotics, and Precision Control

Contact: Scott Neves, Managing Principal for Actuator Design
scott@fathom5.com (512) 739-7853

Department of the Navy SBIR/STTR Transition Program

DISTRIBUTION STATEMENT A. Approved for public release. Distribution is unlimited.
NAVSEA #2025-025

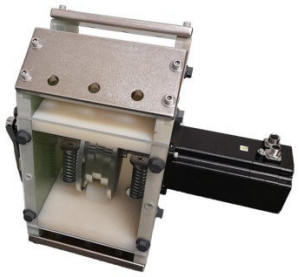
Topic # N221-064
Medium Voltage Direct Current Disconnect Switches
Diversified Technologies, Inc.

WHO

SYSCOM: NAVSEA

Sponsoring Program: NAVSEA

Transition Target: The target is new or upgrading shipboard power distribution systems of the Medium Voltage Direct or Alternating Current (MVDC or MVAC, respectively) types. A family of disconnect switches for MVDC or MVAC was developed for distribution systems and point-of-load applications. Due to the desire to increase shipboard efficiency and performance, ships are becoming more electric and an increased presence of semiconductor switches is expected which require disconnect switches to provide galvanic isolation for safety and maintenance. Transition pathways are sought to ensure Navy qualification and full transition of this program.



Disconnect switch design with two diagnostic voltage dividers for ±6 kV and 2,000 A

TPOC: (215) 897-1301

Other Transition Opportunities: 1. Low Voltage Direct or Alternating Current (LVDC or LVAC, respectively) power distribution systems. 2. Pursuing bundling disconnect switches with other switchgear, such as solid state switches or bus transfer units. 3. Always-ON battery energy storage systems and electronic variable-speed drives (VSD) are invading ships and these systems need disconnect switches. 4. Additional transition pathways are sought to ensure full commercial transition of this program and Navy qualification.
Notes (Caption): MVDC disconnect switch for up to 12 kVDC and 2,000 A. Family has a scalable current capability, lower voltage and current units can be smaller.

Notes:

WHAT

Operational Need and Improvement: The objective of this effort is to develop a family of MVDC double-pole disconnect switches to disconnect high voltage high current loads to provide equipment isolation for maintenance and fault localization. Medium Voltage power systems are more efficient Navy power and energy distribution topologies. A key to a safe and reliable electrical power distribution system is fast-acting, cost-effective switchgear; this is one of those components.

Specifications Required: Specifications for a family of MVDC two-pole mechanical disconnect switches of varying rated current. Disconnect switches are rated for voltages up to 12 kV and currents of 100 A, 500 A, 1000 A, 2000 A, and 4000 A. The Table to the right and applicable MIL standards identify disconnect switch specifications.
* On-going

Technology Developed: The fundamental technologies developed include high voltage standoff capability for Medium Voltage systems, low loss low resistance contacts for high currents, and a symmetric cam-follower mechanical system provides high CLOSED contact force for low contact resistance and is insensitive to high shock or vibration environments. A mechanical spring stores sufficient energy for several un-powered OPEN-CLOSE cycles for operations during momentary loss of ship's power.

Warfighter Value: The warfighter benefits from platforms with greater efficiency, power density, and reliability and lower cost due to design synergies (elimination of multiple transformations, etc.). Shipboard and submarine power system selection affects vessel efficiency for decades. Medium Voltage systems are more efficient since, for the same transmitted power, the current is automatically reduced hence dissipation is reduced. Direct Current systems are even more efficient since multiple voltage-level-changes via transformation are avoided and, since most loads (weapons, sensors, propulsion, refrigeration, housekeeping, etc.) are DC-input switched-mode-power supplies, more efficient rectification is performed in bulk not at point-of-load. Shipboard MVDC power distribution systems will require advanced switchgear technology to leverage the available reductions in volume, weight, cost, and maintenance of high-speed DC shipboard power distribution and protection systems. All electronic MVDC switchgear requires advanced disconnect switches for protection and efficiency.

WHEN

Contract Number: N00024-24-C-S070 **Ending on:** Sep 04, 2025

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Kickoff Meeting	Low	Define Specifications	2	2nd QTR FY24
Finalize Design of Disconnect Switch and Update Switchgear Enclosure Design	Low	Study Report	3	3rd QTR FY24
Fabricate Prototype	Medium	Study Report	4	4th QTR FY24
Testing of Design Ratings of Prototype Disconnect Switch	Medium	Test Report	4	4th QTR FY24
Finalize Design of Disconnect Switch Enclosure	Medium	Design Report	5	3rd QTR FY25
Fabricate and Test Prototype of Updated Disconnect Switch and Switchgear	Medium	Test Report	5	4th QTR FY26
Program Management / Transition Planning	Medium	Final Report	6	1st QTR FY27

HOW

Projected Business Model: DTI's business model is to work directly with the Navy to assess design constraints and test controls, sensors, actuators, interlock functionality, and safety. The system will be designed to pass Engineering Qualification Testing (EQT). DTI is one of DoW's and DOE's most successful SBIR commercialization companies, having sold over $250M of SBIR-derived products into a range of government and commercial markets, for a wide range of applications. Beyond system sales, DTI has licensed several non-core technologies to others for production and sales. DTI has a strong management team, adept at leveraging R&D technologies to generate commercial products. DTI's success is also reliant on our highly skilled manufacturing staff, which continues to grow. DTI's sales have quadrupled in the past decade to over $40M in non-SBIR sales in 2024, with 2025 sales expected to reach over $50M.

Company Objectives: DTI plans to promote switchgear capabilities directly with Government officials and prime contractors. The disconnect switch designed as part of this program will be available for use for MVDC and MVAC bus distribution applications. There ae several Programs of Record which would benefit from this technology including EMALS, AAR, and various radar programs, and active development activities including DEW, HPM, and others. Additional transition pathways will be sought to ensure Navy qualification and commercial transition of this program.

Potential Commercial Applications: Renewable energy & Microgrid: high-power DC grid in solar farms, wind energy and energy storage systems. Electric Utilities & Smart grids: Modernization of grid infrastructure with high efficiency DC systems. Industrial/Manufacturing DC power networks: MVDC switchgear for large scale manufacturing requiring efficient power management

Contact: Dr. David Cope, Director of Research
cope@divtecs.com (781) 275-9444

Department of the Navy SBIR/STTR Transition Program

Topic # N171-028
Lightweight Self-Start System Demonstration for T56 Engine Driven Aircraft
Continental Controls and Design, Inc.

WHO

SYSCOM: NAVAIR

Sponsoring Program: PMA 231 E-2 Acquisition Program Office

Transition Target: E-2D Hawkeye

TPOC: matthew.c.gonce.civ@us.navy.mil

Other Transition Opportunities: Electric drives are proliferating on aircraft and other military and commercial vehicles; some examples are vapor cycle systems, UAV and VTOL propulsion, hybrid generators. Increased power density is always beneficial in weight constrained systems.

Courtesy Continental Controls and Design

Notes: Clockwise from upper left 1) Prototype 25lbm starter motor for 5000SHP T-56 turboshaft engine. 2) Engine on test stand at Pax River after integrating electric start components. 3) A single stator tooth showing partial patent pending 'plate' winding of nearly solid copper. Doubling the slot fill halves the electrical resistance while cutting the thermal resistance even more.

WHAT

Operational Need and Improvement: The E-2D is the last carrier-launched Navy aircraft that needs ground support equipment for starting. This is both logistically expensive and operationally limiting. The conventional solution adds an onboard Auxiliary Power Unit but this would exceed the takeoff weight rating.

Specifications Required: A tight weight constraint limits the self starting weight gain to <200lbm. The current air turbine starter produces about 200NM of static torque and 30NM at 8300RPM with an outer diameter of about 8 inches and it delivers about 2MJ of energy to the single spool T-56 in ½ minute. An electric start system must meet these requirements over a broad range of environments to minimize turbine blade heating.

Technology Developed: The permanent magnet outer rotor uses a finely sectioned Halbach array to increase saturation flux density and patent pending formed 'plate' windings with about twice the slot fill of conventionally wound motors. The Inverter uses wide bandgap GaN switches to provide >99% efficiency.

Warfighter Value: Self starting allows streamlined carrier ops and increased access to remote airfields. Our high power density electric drive would be useful in many other military and commercial aerospace applications.

WHEN

Contract Number: N68335-24-C-0281 **Ending on:** Jan 15, 2026

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Trade Study and Topology Selection	N/A	Feasibility Simulation	3	2nd QTR FY18
Component Testing	N/A	Dynamic Measurements	4	4th QTR FY19
Complete Subsystem Tesing	N/A	Battery, Inverter, Motor Results	5	2nd QTR FY20
Engine Start Test	N/A	Consecutive Starts	6	3rd QTR FY21
Update producible design	Medium	Critical Design Review	6	2nd QTR FY26
Phase IIE test on operational aircraft	Medium	Consecutive Starts	7	3rd QTR FY26

HOW

Projected Business Model: Continental Controls and Design, Inc (CCD's) business development team will determine the best course of action for manufacturing our electric self start system with input of the original equipment manufacturer (OEM) subcontractor, which will likely involve license of manufacturing and integration rights. Prior to licensing, CCD will provide specialized services to mitigate risk and deliver confidence to our target customers. The specific manufacturing licensee depends on the program, the market, the primes, and subcontractors involved.

Company Objectives: CCD's goal is to integrate and transition this technology into government and prime contractor systems for facilitating low cost and reliable operation.

Potential Commercial Applications: Power drives are tending electric. The first application is clearly an onboard starting system but increased power density and efficiency through increased slot fill creates a larger space for electric drives. Potential military and commercial applications are vapor cycle systems, hybrid electric propulsion, starting for large and small turboshaft engines etc.

Contact: Lore Hynes, Business Administrator
lore.hynes@continentalctrls.com (877) 575-0053

Engineered Resilient Systems (ERS)

Company	Topic	Project Title	SYSCOM
Fuse Integration, Inc.	N231-015	Back End Data Lake and Microservices	NAVAIR

Department of the Navy SBIR/STTR Transition Program

Topic # N231-015
Back End Data Lake and Microservices
Fuse Integration, Inc.

WHO

SYSCOM: NAVAIR

Sponsoring Program: NAWCAD

Transition Target: PMA 231

TPOC: (301) 342-6341

Other Transition Opportunities: Overmatch and other organizations (government and contractors) with a need for data standardization and/or distributed application development.

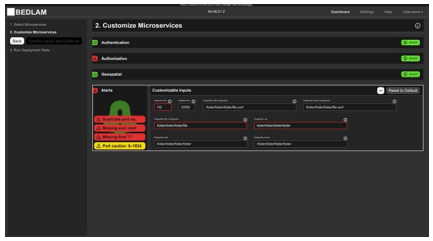


Image courtesy of Fuse Integration, Inc.

Notes: Bedlam Workshop is a development platform providing a low-code environment wherein users assemble containerized applications and can select from a library of common reusable microservices via user interface, providing the 'glue' for data standardization and transport across DoD-facing container applications.

WHAT

Operational Need and Improvement: A low-code application for developing containerized software systems streamlines the transport and interoperability of data between those applications in both single-host and distributed (cloud) environments. Reuse of common software components will reduce development time and rework in defense development, and data standardization and transport architecture will facilitate data interoperability across DoD-facing applications.

Specifications Required: Compatible with third party applications and Battle Management Aids (BMAs), operates in a distributed environment, maintains proper security boundaries and intellectual property rights for all developers using Bedlam Workshop.

Technology Developed: Bedlam Workshop offers a low-code environment for developing modular containerized applications in a distributed environment, with a library of DoD-approved microservices which will reduce rework and increase data interoperability across the defense industry.

Warfighter Value: Orchestrated services will share common data across applications, reducing strain on the network backbone and improving processing load. Bedlam Workshop will also reduce development and contracting costs associated with software development rework to aggregate common data. Ideally BEDLAM architecture should be largely invisible to the warfighter--simply allowing applications to 'talk' and share data behind-the-scenes.

WHEN

Contract Number: N68335-24-C-0382 **Ending on:** Nov 19, 2025

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Phase I Prototype Demo	N/A	Functional modular microservice architecture	2	2nd QTR FY24
Phase II MVP Workshop Demo	Low	Create a basic microservice-based application using Bedlam Workshop	3	1st QTR FY26
Phase II ACAWS Data Offload Demo	Medium	Create an ACAWS data offload application using Bedlam Workshop	5	3rd QTR FY26

HOW

Projected Business Model: Fuse intends to license Bedlam Workshop to government program offices and defense contractors for use and reuse of its component microservice library. The BEDLAM solution developed in this effort is intended to be easily accessible by any authenticated client application or BMA, allowing exposure of ingested data with only a plugin to connect to the BEDLAM Gateway Application Program Interface (API).

Company Objectives: Partner with larger primes and program offices which seek rapid development in distributed environments where data interoperability and modular software/BMA construction is of utmost importance.

Potential Commercial Applications: Potential commercial applications include healthcare providers, for managing patient records and improving administrative processes, transportation and logistics firms, for route and supply chain optimization, and energy and utility companies, for managing infrastructure data and predictive maintenance of equipment, where applications commonly query the same data. Modular configuration allows for conservation of work from one application to another; e.g. offloading ACAWS data from a Platform can be easily modified to offload ACAWS data from another type of aircraft.

Contact: Rebecca Unetic, Director of Strategy
rebecca.unetic@fuseintegration.com (952) 994-3323

Ground and Sea Platforms

Company	Topic	Project Title	SYSCOM
Diversified Technologies, Inc.	N171-075	Electromagnetic Vertical Launch System	NAVSEA
PacMar Technologies LLC	N192-101	Capture and Deploy Device using Inflatable Elements (CaDDIE)	NAVSEA
Advanced Technology & Research Corp.	N202-109	Launch System for Group 3-5 Unmanned Aerial Vehicles for Land- and Sea-Based Operations	NAVAIR
Physical Sciences Inc.	N161-054	Compact Lidar for Environmental Sensing in Support of Electromagnetic Maneuver Warfare	NAVSEA

Department of the Navy SBIR/STTR Transition Program

DISTRIBUTION STATEMENT A. Approved for public release. Distribution is unlimited.
NAVSEA #2025-046

Topic # N171-075
Electromagnetic Vertical Launch System
Diversified Technologies, Inc.

WHO

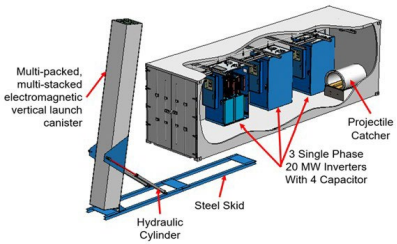
SYSCOM: NAVSEA

Sponsoring Program: NAVSEA

Transition Target: Cold-launched high-density payloads such as unmanned airborne vehicles and missiles for both surface ship applications, and transportable deployable launch systems. Multiple payloads per canister.

TPOC: (540) 653-3639

Other Transition Opportunities: 1. The rapid vertical launch concept immediately applies to Navy surface ships to launch multiple projectiles. 2. The Navy's all-electric ship represents a completely new paradigm for projectiles. Electricity replaces the explosive power of chemicals to launch a range of potential weapons and sensors. 3. High power electronics -- economically, the availability of fast, high voltage, high power solid-state switching represents a multi-billion dollar opportunity across the power control industry.



Electromagnetic vertical launch system with deployed, erected launcher and container with inverters. The Mark 13 canister erects with a hydraulic cylinder for near-vertical rapid sequence, multiple projectile cold launches.

Notes: Electromagnetic vertical launch system with deployed, erected launcher and container with inverters. The missile canister erects with a hydraulic cylinder for near-vertical rapid sequence, multiple projectile cold launches.

WHAT

Operational Need and Improvement: This effort focuses on an electromagnetic vertical launch system to provide cold launch technology to the Navy and demonstrates a vertical cold launch with multi-stacked and multi-packed projectiles. The concept is attractive for cold-launched payloads at relatively low velocities (such as unmanned airborne vehicles and missiles) for both surface ship applications, and transportable deployable launch systems. The benefits of a cold launch electromagnetic system include the elimination of dangerous propellants, reduction in explosive magazine size, increase in magazine size, and the ability to tailor the launch velocity and acceleration profile on a shot-by-shot basis.

Specifications Required: Missile parameters cover mortars, Hellfire, and similar missiles. The parameters were used to demonstrate viability to transition the electromagnetic vertical launch capability onto ships.

Technology Developed: In earlier efforts, Diversified Technologies, Inc (DTI) designed, fabricated, and tested electromagnetic launcher configurations spanning payload masses of 0.1 lbs to 250 lbs, and launch speeds from 540 m/s to 24 m/s, respectively. Additionally, a switched-launcher architecture was demonstrated with switching and long (250 ft) cables to enable multiple launchers to be selectable and powered from a single, centralized power supply showing multiple launchers can operate from a single power supply with cable lengths up to 1 km.
This proposed effort focuses on the development of electromagnetic vertical launch systems to provide cold launch technology for a family of missiles (Table 1) and demonstrate a vertical cold launch demonstration of surrogate missiles with single and multiple projectiles. This will transition the induction launcher technology to TRL 7.

Warfighter Value: The benefits of an electromagnetic launch system include multiple effectors per canister; elimination of dangerous propellants, shipboard combustion products, and near-ship rocket motor heat and thermal signatures; increased effectors per canister and at-sea reloading, and the ability to tailor the launch velocity and acceleration profile on a launch-by-launch basis. The electromagnetic signature of the launcher is inherently self-canceling (being composed of alternating magnetic fields), and the payload within the sabot is intrinsically shielded by the sabot itself. High reliability, fault tolerance, and casualty recovery are provided by multiple launchers powered by multiple power supplies and controllers, connected through robust switching.
* On-going

WHEN

Contract Number: N00024-24-C-S071 **Ending on:** Aug 21, 2025

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Kickoff Meeting	Low	Define Specfications	2	2nd QTR FY24
System Engineering	Low	Study Report	3	3rd QTR FY24
Design Launcher System	Medium		4	2nd QTR FY25
Fabricate	Medium		4	1st QTR FY26
System Testing	Medium		5	4th QTR FY26
Vertical Launch Demonstration and Prototype Delivery	Medium		5	1st QTR FY27
Program Management / Transition Planning			6	1st QTR FY27

HOW

Projected Business Model: DTI's business model for this project is to work directly with the Navy to identify cold launch opportunities. Beyond system sales, DTI has licensed several non-core technologies to others for production and sales
DTI is one of DoD's and DOE's most successful SBIR commercialization companies, having sold over $300M of SBIR-derived products to a range of government and commercial markets.

Company Objectives: DTI plans to promote this Electromagnetic Vertical Launcher with an emphasis on direct interactions with Government officials and prime contractors.

Potential Commercial Applications: Commercialization efforts will include technology prototype demonstration and integration of this cold launch technology in specifics applications. Potential platforms include a land-based launcher (Marines) and other military branches the Army and Air Force.

Contact: Dr. David Cope, Director of Research
cope@divtecs.com (781) 275-9444

Department of the Navy SBIR/STTR Transition Program

DISTRIBUTION STATEMENT A. Approved for public release. Distribution is unlimited.
NAVSEA #2025-054

Topic # N192-101
Caddie – UUV Launch and Recovery System
PacMar Technologies LLC

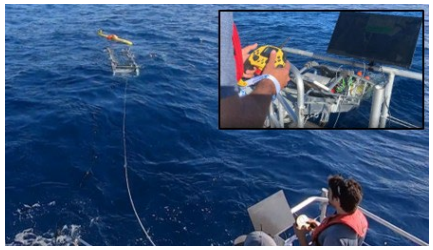
WHO

SYSCOM: NAVSEA

Sponsoring Program: PEO USC | PMS 300

Transition Target: Strategic Systems Programs (SSP), Naval Special Warfare Groups (NSWGs), Unmanned Undersea Vehicles Squadrons (UUVRONs), Explosive Ordinance Disposal Groups (EODGRUs), Mine Countermeasures Groups (MCMGRUs)

TPOC: (202) 781-3829
christian.e.rozicer.civ@us.navy.mil



Caddie launch and recovery demonstration at sea

Other Transition Opportunities: Other Unmanned Underwater Vehicle (UUV) operators that need a better way to launch and recover their assets.

Notes: Caddie enables the fast and efficient Launch and Recovery (L&R) of UUVs in up to Sea State 3 (SS3) without the need for in-water support, eliminating risk to personnel. The design is scalable to accommodate various UUV platforms (and other buoyant bodies), including disabled vehicles. PacMar Technologies seeks defense and industry engagement to expand platform capabilities and explore broader applications for the Caddie UUV launch and recovery system.

WHAT

Operational Need and Improvement: Many current UUV L&R operations are labor intensive and require divers/swimmers, which increases risk, particularly in higher sea states. Others require specialized equipment to meet MIL-STD-1472H for handling, which can be costly. Since most UUV manufacturers do not offer their own L&R system, Caddie offers a universal solution that can be adapted for specific vehicles and requirements.

Specifications Required: The system should be easily integrated into vessels with a stern ramp, A-frame, or knuckle crane, enabling the use of smaller support craft or other platforms. The system must be operable in up to SS3.

Technology Developed: Caddie is a remotely driven system (like an ROV) that can quickly and securely launch or capture a UUV and recover it onto the vessel's deck.

Warfighter Value: Caddie increases L&R operation efficiency and improves crew safety by minimizing number of crew to complete L&R as well as not requiring in-water support from divers/swimmers. Caddie can support military, commercial, and research operations. Future versions can support fully autonomous operations.

WHEN

Contract Number: N68335-21-C-0292 **Ending on:** Nov 21, 2025

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Pierside Testing Complete	N/A	Launch and Recovery in Calm Waters	5	2nd QTR FY25
Ocean Testing Complete	N/A	Launch and Recovery in Sea State 3	6	2nd QTR FY25
ANTX-CT25 Demonstration	Low	Launch and Recovery from Alternate Vessels	6	4th QTR FY25

HOW

Projected Business Model: Adaptable for specific customer applications; sell to UUV operators; develop (or license) L&R systems for UUV manufacturers to include as a package to customers.

Company Objectives: Low-rate initial production (LRIP) - transition to Navy, commercial operators, and UUV manufacturers.

Potential Commercial Applications: National Oceanic and Atmospheric Association (NOAA), research organizations, the Oil & Gas industry, and federal/state/local emergency services to support UUV operations.

Contact: Timothy Lee, Capture Manager
tlee@pacmartech.com (808) 304-3481

Department of the Navy SBIR/STTR Transition Program

Topic # N202-109
Launch System for Group 3-5 Unmanned Aerial Vehicles for Land- and Sea-Based Operations
Advanced Technology & Research Corp.

WHO

SYSCOM: NAVAIR

Sponsoring Program: NAVAIR PMA 251

Transition Target: USMC

TPOC: tyler.d.comisky.civ@us.navy.mil

Other Transition Opportunities: INDOPACOM, EUCOM, USN, USAF, US Army

Image Courtesy of Advanced Technology & Research Corp 2024

Notes: ATR is also targeting the USMC as a transition opportunity as part of its Manned-Unmanned Teaming (MUM-T) program for both reducing testing and evaluation costs as well as fielding the system. The USAF is also a target for reducing testing and evaluation costs of high-speed UAVs that are traditionally air-launched.

ATR has demonstrated a scaled launcher system interfacing with 5 different types of UAVs and launching them successfully at different weights and release velocities while meeting the program goal of less than 2 minutes between launches. Most recently demonstrated at OUSD TREX in March 2025.

WHAT

Operational Need and Improvement: The USMC is in need of an expeditionary capability to launch large UAVs for a multitude of missions, including ISR and offensive strike capabilities. Current technology is only effective at rapidly launching small UAVs (weighing in the hundreds of pounds) with small payload capacity and range.

Specifications Required: Launch aircraft with a wingspan of 30 feet weighing up to 6,000 lb at a release velocity of 150 Knots indicated airspeed (KIA)
Rapidly and repeatedly launch aircraft at a tempo of less than 2 minutes between launch events
Interface with multiple types of Group 3-5 UAVs

Technology Developed: ATR has developed a new runway independent launcher (RIL) capable of meeting the solicitation requirements and launching large UAVs in a distance of ~200 feet. The launcher utilizes an innovative flywheel energy storage technology so that it can be charged with a relatively small motor running on a field generator or ships power. A carriage supports the UAV and is pulled along a rail to meet the acceleration requirements, and swappable cradle for each different type of aircraft allows for multiple different types of UAVs to be launched in rapid succession at different weights and release velocities. The system can launch UAVs with and without landing gear.

Warfighter Value: Efficiently launch large Group 3-5 UAVs. Significantly reduce experimentation costs for Group 5 UAVs and high-speed Group 3 UAVs. Runway independent launch without the need for pyrotechnics. Higher operational security (no observable trail) and less hazard concerns. Adaptable to multiple UAV platforms. Containerized so can be moved with maritime assets and quickly assembled/disassembled

WHEN

Contract Number: N68335-22-C-0117 **Ending on:** May 16, 2023

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Completed build and laboratory testing of Drivetrain Subassembly	Medium	Repeatable and controllable power transmission from flywheel into launch drum	4	2nd QTR FY23
Launch of a controlled deadload at 46 knots in a laboratory environment	Medium	Repeatable release velocity and power transmission to representative mass	4	3rd QTR FY24
Launch of multiple types of UAVs into flight at up to 80 knots release velocity	High	Clean separation and UAV climbout after release	6	2nd QTR FY25
If Phase II.5 awarded, launch of a fully loaded high-speed Group 3 UAV into flight at 150 knots release velocity	Medium	Clean separation and UAV climbout after release	7	1st QTR FY27

HOW

Projected Business Model: ATR will build and deliver the launcher system to larger primes for inclusion into larger systems.
ATR will also offer launch services at different test locations throughout the US, allowing companies to test experimental aircraft at a fraction of the cost of airdrop tests.

Company Objectives: Build a full scale developmental prototype for Group 5 UAVs.
Build and operate as a service a Group 3 high-speed UAV launcher for test and evaluation purposes

Potential Commercial Applications: ATR sees value in selling launch services to UAV manufacturers and operators, especially for test and evaluation.

Contact: David Hart, Division Head
dhart@atrcorp.com (443) 766-7965

Department of the Navy SBIR/STTR Transition Program

DISTRIBUTION STATEMENT A. Approved for public release. Distribution is unlimited.
NAVSEA #2025-064

Topic # N161-054
Compact Lidar for Environmental Sensing in Support of Electromagnetic Maneuver Warfare
Physical Sciences Inc.

WHO

SYSCOM: NAVSEA

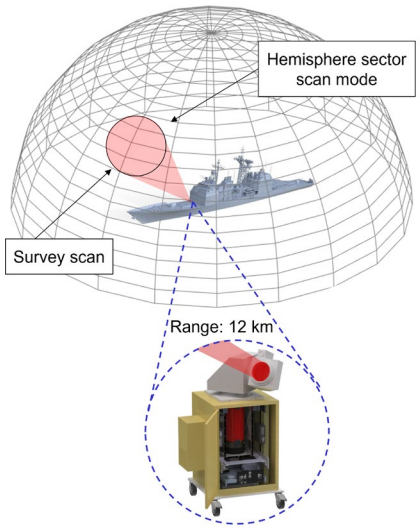
Sponsoring Program: NAVSEA

Transition Target: Directed Energy Systems Integration Lab, NAS Pt. Mugu

TPOC: (812) 854-4804

Other Transition Opportunities: Shipboard Panoramic Electro-Optic/Infrared (SPEIR)

Notes: The figure illustrates a conceptual design for the compact LIDAR system.



WHAT

Operational Need and Improvement: The deployment of Laser Weapon Systems and passive imagers aboard Naval vessels for ship defense necessitates the ability to dynamically characterize the maritime atmosphere to predict system effectiveness. The Navy needs novel approaches to determine atmospheric attenuation on a continuous or discrete basis and use this information to generate an 'Effectiveness Range' for use by the ships tactical team to determine e.g. whether the laser system is an appropriate weapon choice for a given threat. Atmospheric characterization in both azimuth and elevation is desired to allow for improved weapons selection ability against surface and airborne targets.

Specifications Required: Operational wavelength to match wavelength of laser weapon.
Measurement over ranges from ship to horizon.
Measurement in both azimuth and elevation angles.
Capable of 24/7 operation in a maritime, shipboard environment.
Minimal maintenance requirements and/or operate as a stand-alone device

Technology Developed: The basic lidar has been developed and field tested in a relevant environment. It has reached a TRL of 7.
We are developing an additional algorithm to extrapolate results over the wavelength range from 1000 to 2000 nm.
We are developing an additional algorithm to process multi angle data sets and characterize improvement in accuracy of retrieved vertical profiles of aerosol extinction.

Warfighter Value: The constant monitoring provided by the LIDAR will enhance environmental situational awareness for ship defense. The data collected by the LIDAR will be used to create a 3D map of the atmospheric attenuation surrounding the ship. It will be used to estimate effective power on target.
The data will contribute to quick evaluation of the effectiveness of the laser weapon against a target in a given engagement.

WHEN

Contract Number: N00024-24-C-S164 **Ending on:** Aug 07, 2026

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Algorithm to extrapolate retrieved vertical profiles of aerosol extinction to 1000 to 2000 nm	Low	Agreement with predictions of AFIT LEEDR atmospheric modeling code good to ± 20%	6	3rd QTR FY26
Algorithm to process multi angle data sets and characterize improvement in accuracy of retrieved vertical profiles of aerosol extinction	Low	Agreement with predictions of AFIT LEEDR atmospheric modeling code good to ± 20%	6	3rd QTR FY26

HOW

Projected Business Model: Physical Sciences Inc. (PSI) will manufacture the LIDAR system once development and operational testing are complete at the end of a Phase III program. PSI will deliver the initial system to the Directed Energy Systems Integration Lab, (DESIL) at NAS Pt. Mugu at the end of the Phase II.

Company Objectives: Our objective at the Forum for SBIR/STTR Transition is to meet with Navy HELWs personnel, DoD Test Range personnel, and prime contractor personnel to discuss further system development and testing. The lidar system is an important part of PSI's growing family of lidars we are developing for atmospheric monitoring. Specifically we are adapting some of the technology and algorithms to a smaller, ceilometer variant.

Potential Commercial Applications: Potential commercial applications include incorporation into emerging ground networks for boundary layer meteorology to determine boundary layer height and cloud ceiling. Other applications include visibility and Asian dust monitoring, hazardous volcanic ash cloud monitoring, regional air quality and human health assessments.

Contact: David Sonnenfroh, Laser and Atmospheric Technologies, Area Manager
sonnenfroh@psicorp.com (978) 738-8235

Human Systems

Company	Topic	Project Title	SYSCOM
InnoVital Systems, Inc.	N232-083	Helicopter Seat-Integrated Power Assist Device	NAVAIR
Charles River Analytics Inc.	N221-024	Communications with Operational Context and Knowledge for Target Audio Identification Learning (COCKTAIL)	NAVAIR

Department of the Navy SBIR/STTR Transition Program

DISTRIBUTION STATEMENT A. Approved for public release. Distribution is unlimited.
NAVAIR SPR-2026-0009

Topic # N232-083
Helicopter Seat-Integrated Power Assist Device
InnoVital Systems, Inc.

WHO

SYSCOM: NAVAIR

Sponsoring Program: PMA-275

Transition Target: PMA-299

Other Transition Opportunities:
PMA-275; Army helicopter programs, specifically H-60; other service aircraft programs

Notes: Pictured is a prototype ActiveSpine unit installed as a retro-fit on an MH-60S seat. InnoVital has experience transitioning technology to the fleet: PMA-202 acquired InnoVital's seat vibration isolation system for the Next Generation Gunner's Seat in 2021.

WHAT

Operational Need and Improvement:

A seat subsystem that can off-load the added weight of personal safety equipment (PSE) from a pilot's torso will reduce warfighter fatigue, back pain, and chronic long-term injuries, while improving posture and aircrew endurance.

Specifications Required:

The government is looking for solutions that will substantially reduce (>70%) the effective weight of PSE, be compatible with aviator mission equipment and vests; not cause substantial increase in weight of the seat; be retro-fittable into the seat and airframe without aircraft modifications, and ensure that the seat's crash safety performance is preserved.

Technology Developed:

InnoVital is developing the ActiveSpine as a retro-fit technology that can transfer the PSE weight away from the pilot and onto the seat structure instead, while still allowing full seated mobility and not interfering with the seat restraints. The device has an articulated column that follows the occupant's movement and mounts directly to the seat.

Warfighter Value:

The ActiveSpine technology will improve occupant musculoskeletal health by decreasing fatigue, back pain, and chronic injuries, decrease downstream medical costs associated with such issues, and increase mission endurance. The technology will keep warfighters in the fight.

WHEN

Contract Number: N68335-25-C-0122 **Ending on:** Jun 04, 2026

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Bench testing of fully functional prototype	Low	Seat integration, measured gear off-loading	4	3rd QTR FY26
Preliminary user study	Medium	Measurable benefit of prototype compared to baseline seat	4	2nd QTR FY27
User study of refined prototype	Medium	Measurable benefit of prototype compared to baseline seat	5	4th QTR FY28

HOW

Projected Business Model:

InnoVital expects to manage manufacture and assembly of the retro-fit systems, sell the systems directly to the government / customer, and provide support for fleet installation. InnoVital has existing / ongoing relationships with manufacturing and assembly houses from other related transition efforts that can provide the needed capability for small production runs and scalability for large production runs.

Company Objectives:

InnoVital strives to be a leader in developing innovative and practical solutions for critical needs in defense and healthcare. InnoVital develops promising concepts into meaningful solutions that help people in measurable ways. Transitioning the ActiveSpine technology is a perfect example of this approach and doing so will provide growth in our occupant protection portfolio.

Potential Commercial Applications:

A retro-fit system that can off-load gear / upper body weight from a user to reduce musculoskeletal loading and resulting injuries, while improving posture during both normal operations and high impact events, has many potential applications. Operators of land, air, and sea vehicles stand to benefit, whether military or civilian, occupational or recreational. Perhaps the most direct transition is other military helicopters, especially the US Army's H-60M, as well as foreign military aircraft.

Contact: Curt Kothera, Senior Scientist & Program Manager
curt@innovitalsystems.com (240) 790-0580

Department of the Navy SBIR/STTR Transition Program

Topic # N221-024
Communications with Operational Context and Knowledge for Target Audio Identification Learning (COCKTAIL)
Charles River Analytics Inc.

WHO

SYSCOM: NAVAIR

Sponsoring Program: Naval Air Warfare Center Training Systems Division (NAWCTSD)

Transition Target: DoD Schoolhouses and Simulation Programs

TPOC: (407) 380-4751

Other Transition Opportunities: Any training simulator requiring speech and/or chat data

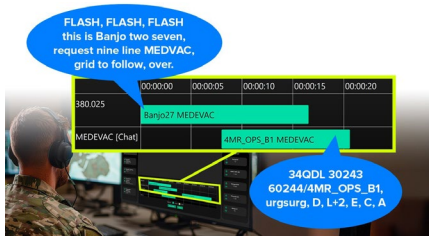


Image courtesy of Charles River Analytics Inc.

Notes: Navy training applications can benefit from realistic, automatically generated speech and chat. For example, simulations may include background radio and chat communications to make the training scenarios realistic and to teach trainees how to monitor multiple communications channels.

Currently, instructors spend hours recording these communications but trainees learn to recognize the specific recordings—reducing the effectiveness of the training.

COCKTAIL enables instructors to automatically generate realistic speech and chat dialogs for training simulations. The COCKTAIL interface allows instructors to specify only the properties of the data they need, without having to script the entire dialog or record the audio.

WHAT

Operational Need and Improvement: Naval operational environments require an operator to listen and filter through a large number of communications (voice and/or text) in order to complete their objectives. During training, the quality of the "non-target" communications, or "noise" is lacking, or does not exist, due to technological or instructor workload limitations. Calls that are replayed on a loop can alert the student to the normal pattern and allow them to pick out the target communications more easily than they would in an operational environment. This limitation decreases the training fidelity of the environment and can cause a lack of trainee skill.

Specifications Required: NAWCTSD seeks a software solution for enhancing communications-based training systems through development of a capability to deliver intelligent, autonomous, and realistic background calls and text chat (i.e., not scripted) to increase training fidelity. Instructors must be able to modify the environment of the scenarios, to include certain amounts and types of aircraft (and other calls) in order to simulate different mission sets, and difficulty levels.

Technology Developed: COCKTAIL enables instructors to automatically generate realistic speech and chat dialogs for training simulations. The COCKTAIL interface allows instructors to specify only the properties of the data they need, including the names of entities in the conversation, the topic of conversation, as well as audio-specific properties (e.g., voice, background noise). The audio is generated using state-of-the-art text-to-speech models, ensuring the speech is human-like and not robotic.

Instructors can place the speech and chat utterances on a timeline widget that enables them to control the degree to which the communications overlap. For example, an instructor may want to overlap several different conversations to challenge trainees' ability to monitor several communication channels at once and direct their attention toward the channels which are relevant to their mission. Because the data is generated quickly and automatically, instructors can generate new data for each training session with different voices and phrasing, preventing trainees from recognizing specific utterances from previous sessions.

Warfighter Value: COCKTAIL's ability to generate diverse, realistic speech and chat data will prevent students from memorizing prerecorded non-target communications. This will bring the training environment closer to the operational environment, enhancing students' training and preparation for the operational environment.

WHEN

Contract Number: N68335-23-C-0300 **Ending on:** May 12, 2025

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Design linguistic models for dialog generation	N/A	Verify correctness of dialog generation with SME.	3	1st QTR FY25
Integrate components of COCKTAIL into an end-to-end prototype	N/A	All major COCKTAIL components (e.g., dialog generation, text-to-speech generation, user interface) were created and integrated, supporting initial stakeholder evaluation.	5	2nd QTR FY25
Initial demonstration of prototype to instructors at Naval Air Station Fallon	N/A	Demonstrate ability to automatically create speech and chat content and export to training simulator software.	5	2nd QTR FY25
During Option, develop a hands-on demonstration for NAVAIR	Medium	Conduct stakeholder evaluation with instructors at Naval Air Station Fallon; refine the COCKTAIL prototype based on their feedback.	6	3rd QTR FY26

HOW

Projected Business Model: We see two approaches to transitioning and commercializing COCKTAIL. First, COCKTAIL can be used directly as a standalone application for creating speech and chat data for training simulations. Second, COCKTAIL can be integrated into other applications as a backend service for speech and chat generation, communicating with other components via an established API.

Company Objectives: Charles River Analytics has a proven track record of applying cutting edge research to problems of critical importance to the DoD. Charles River Analytics' mission is to develop innovative solutions to complex human-systems challenges in Unmanned Systems, Decision Support, Human Behavior, and Advanced Training Platforms by leveraging our expertise in Natural Language Processing, Information Fusion, and Human-Computer Interaction.

Potential Commercial Applications: COCKTAIL is being integrated into Charles River's Knows What You Need (KWYN™) training suite. KWYN™ is a large and diverse suite of training technologies that are loosely integrated so they can be combined as necessary for specific applications. Simulations and verbal instructions are used by KWYN products and will be supported by COCKTAIL. We are also exploring the possibility of licensing COCKTAIL to third parties whose business is to support military and commercial training.

Contact: Mike Giancola, PhD, AI Scientist
mgiancola@cra.com (617) 234-1569

NAVY SBIR TRANSITION PROGRAM

Materials & Manufacturing Processes

Company	Topic	Project Title	SYSCOM
Cornerstone Research Group, Inc.	N231-D02	Rapid, Randomly Oriented SiC/SiC Composites	SSP
Faraday Technology, Inc.	N22A-T015	Additive Manufacturing Method for High Performance Copper Electronic Components	NAVSEA
IRFlex Corporation	N231-011	Optical Additive Manufacturing in the MWIR and LWIR Bands	NAVAIR
Kitware	N222-117	AI/ML for In-Situ Additive Manufacturing Defect Detection	ONR
Physical Sciences Inc.	N193-144	A Hypersonic Environmental Testbed for Affordable and Standardized Materials Strength Testing	NAVAIR
Physical Sciences Inc.	N23A-T006	Low-Cost Microwave Curing of Aerospace Composite Materials	NAVAIR
TDA Research, Inc.	N222-116	Tunable, Repeatable, Calcium Lanthanum Sulfide Ceramic Powder Development	ONR
Luna Labs USA, LLC	N231-043	Ultra-Low Temperature Gaskets & Seals for Extreme Environments	NAVSEA
Pacific Engineering, Inc	N192-108	Lightweight Composite Launcher Components	NAVSEA
SURVICE Engineering Company	N231-047	Composite Navy Propulsor Shaft Design Validation	NAVSEA
TDA Research, Inc.	N231-012	Technology Development Strategy for the Design of Passive and Semi-passive Underwater Acoustic Metamaterial Filters	NAVAIR

Cornerstone Research Group, Inc.

Topic #: N231-D02

Rapid, Randomly Oriented SiC/SiC Composites

Department of the Navy SBIR/STTR Transition Program

DISTRIBUTION STATEMENT A. Approved for public release. Distribution is unlimited.
NAVSEA #2025-059

Topic # N22A-T015
Additive Manufacturing Method for High Performance Copper Electronic Components
Faraday Technology, Inc.

WHO

SYSCOM: NAVSEA

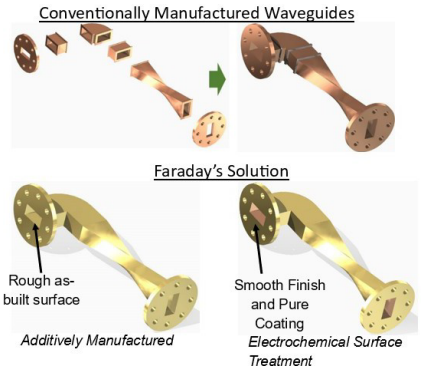
Sponsoring Program: IWS 2.0 (W-Band Radar and Communication Systems)

Transition Target: SPY 1

TPOC: (812) 854-8937

Other Transition Opportunities: U.S. Surface Ship, Airborne, & Space Surveillance Radar and Communications Systems

Notes: 3D CAD models of exemplar conventionally manufactured waveguides and the proposed manufacturing process for a complex waveguide design.



WHAT

Operational Need and Improvement: The US Navy requires a broad domestic manufacturing base that can produce high performance electronic structures, such as waveguides, for legacy systems and new acquisition programs. Faraday will create quick turnaround manufacturing facilities for those electronic structures, for single part replacement as well as limited rate production volumes.

Specifications Required: Electronic structure performance through outgassing, vacuum compatibility, eddy current testing to identify structural defects, S-Parameter Radio Frequency (RF) Characterization, and Voltage Standing Wave Ratio (VSWR). Any component produced by this approach will be subject to existing standards for the respective component.

Technology Developed: Faraday Technology is developing an on-demand manufacturing approach to build seamless copper-based high performance electronic structures. The technology is based on scalable, industrially compatible methods, processes and apparatus, combining additive manufacturing and electrochemical surface treatments to reproducibly produce complex, made-to-order, and high-performance electronic structures that are high frequency compatible and vacuum compatible.

Warfighter Value: The primary customers for this technology are the Department of Defense and the Navy, thus the first application will be selected in conjunction with the Navy. As production capability improves, it is expected that this technology will become the standard manufacturing method for made-to-order high frequency electronic structures, which serve a significant market opportunity for wireless telecommunication, consumer electronics, and electronic warfare. The global high powered radio frequency market is expected to reach $45 billion by 2025, with a compound annual growth rate of 14%. To meet the Department of Defense needs and those of commercial customers, and accelerate transition and implementation, Faraday anticipates partnering with larger companies and OEMs with market channels.

WHEN

Contract Number: N00024-24-C-T003 **Ending on:** Apr 24, 2026

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Achieved exceptional surface roughness during coupon electropolishing	N/A	Component characteristic meeting specifications	3	2nd QTR FY23
Design and fabrication of AM waveguide designs	Low	Real-world part production	4	1st QTR FY24
Achieved target surface roughness on internal channel of additive waveguide component	Low	Component characteristic meeting specifications	4	1st QTR FY25

HOW

Projected Business Model: Faraday is open to either transferring this technology to the Navy or an OEM. Full-scale production at FTI or our parent company PSI is also a viable option depending on demand and delivery timeline.

Company Objectives: Marketing of Faraday's products and processes generally utilizes its strategic partner's existing infrastructure and market channels. To identify and engage customers, Faraday presents papers, exhibits at tradeshows, reviews publications and websites, analyzes Securities & Exchange 10-K filings, assesses patents and patent applications, and reviews reports and press releases.

Potential Commercial Applications: Faraday's combined approach can be utilized to produce waveguides for RADAR systems, satellite communication systems, medical devices, and many other RF systems that depend on waveguide performance. There is potential for this approach to be extended to devices and components beyond waveguides.

Faraday has engaged in conversations with OEMs to identify other waveguide designs of interest to further illustrate the capability of this technology.

Contact: Timothy Hall, Research Director
timhall@faradaytechnology.com (937) 836-7749

Department of the Navy SBIR/STTR Transition Program

Topic # N231-011
Optical Additive Manufacturing in the MWIR and LWIR Bands
IRflex Corporation

WHO

SYSCOM: NAVAIR

Sponsoring Program: NAVAIR Warfare Center Weapons Division

Transition Target: Infrared sensors and cameras for reconnaissance and surveillance of targets of interest by thermal emissions.

TPOC: (904) 460-4494

Other Transition Opportunities:
- High-definition infrared camera systems.
- Unmanned air vehicle (UAV) turret assembly
- Government depot

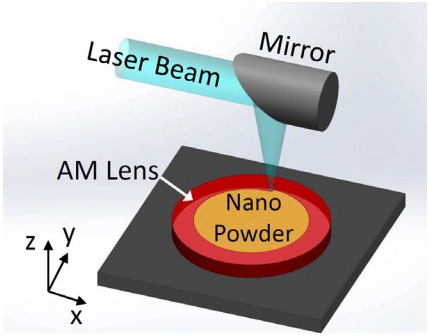


Image courtesy of IRflex Corporation 2025

Notes: Additive Manufacturing (AM) laser deposition process melts glass nano powders with sufficient quality and precision for optical components used in mid-wave infrared (MWIR) and long-wave infrared (LWIR) for high-definition (HD) camera systems. The AM Laser process will transition in the defense sector and homeland security for a broad array of weapon and surveillance systems needed for border security and terrorism threats.

WHAT

Operational Need and Improvement: The Navy desires to understand how to implement and use a novel MWIR and LWIR AM process with respect to: (a) optical materials deposition to provide infrared optics with an optical surface quality of lambda/10 flatness with minimum post-processing; and (b) how and when MWIR and LWIR AM will be financially beneficial to support field optical repairs.

Specifications Required: The Navy has identified the need to design and fabricate a MWIR window with an 8° or 0° face angle for imaging in the MWIR (3-5 µm) with a surface flatness of lambda/10.

Technology Developed: Novel AM laser process deposits optical materials transparent in the MWIR and LWIR for the manufacturing and the refurbishment of optical imaging components. The AM laser deposition process produces high-quality optics with good optical properties, full densification, and good surface quality with minimal or no post-processing. The AM technology allows engineering and customization of high-performance imaging optics.

Warfighter Value: AM makes single fused optics that are not possible to make the conventional way. This enables the fast production and customization of complex optics with less weight and volume, lower cost, and easier alignment compared to current multi-components imaging optics. Also, AM repairs and refurbishes MWIR and LWIR imaging quality optical components with sufficient dimensional accuracy and surface finish. This allows rapid repair of existing MWIR and LWIR optical systems and dramatically enhance the logistics and maintenance of the Navy's optical systems.

WHEN

Contract Number: N68335-24-C-0243 **Ending on:** Feb 01, 2027

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Significant event from Phase I	N/A	Successfully deposited transparent infrared glass film.	3	4th QTR FY24
Significant event from Phase II	Low	Infrared glass multilayers deposition and characterization	4	4th QTR FY26
Significant event from Phase II	Medium	Optical prototype component production and characterization	4	2nd QTR FY27

HOW

Projected Business Model: IRflex Corporation will develop the expertise and the intellectual properties on the AM laser deposition to produce MWIR and LWIR imaging optics. When the time comes, IRflex will look for commercial partners to transfer the AM technology for mass production of the AM optics for the MWIR-LWIR HD imaging camera systems.

Company Objectives: IRflex will collaborate with prime contractors to integrate this technology into MWIR-LWIR HD imaging camera systems and to transition into government. Also, the major infrared camera suppliers and the suppliers of complex imaging lens assemblies will be approached as business and strategic partners.

Potential Commercial Applications: Laser manufacturers, camera manufacturers, and imaging technology manufacturers will benefit from this AM technology because they can now specify custom-size optical components with unique MWIR and LWIR transmission profiles that are not currently available with conventional optical processing.

Contact: Dr. Francois Chenard, President
francois.chenard@irflex.com (434) 483-4304

Department of the Navy SBIR/STTR Transition Program

DISTRIBUTION STATEMENT A. Approved for public release. Distribution is unlimited.
ONR Approval #2025-9-16-1427

Topic # N222-117
AI/ML for In-Situ Additive Manufacturing Defect Detection
Kitware

WHO

SYSCOM: ONR

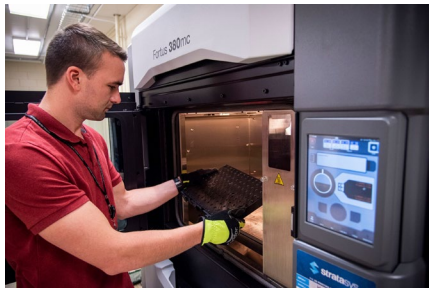
Sponsoring Program: Sea Warfare and Weapons / Manufacturing

Transition Target: Naval shipbuilding, Original Equipment Manufacturers (OEMs), Operations & Maintenance (O&M) efforts

TPOC: Jennifer Wolk
jennifer.n.wolk.civ@us.navy.mil

Other Transition Opportunities:

Kitware's software can be utilized anywhere where Additive Manufacturing (AM) is used to support Navy and Marine Corps missions.



https://www.navy.mil/Resources/Photo-Gallery/igphoto/2002365130/

Notes:

Kitware is partnered with researchers from Princeton University's Institute of Materials, leveraging both the Office of Innovation and an academic partner with extensive understanding of the Navy's challenges in the AM field.

WHAT

Operational Need and Improvement:
Additive manufacturing (AM), often referred to as 3D printing, has great potential for supporting the Navy and Marine Corp mission by allowing for the on-demand production of parts for both ship building and system maintenance and repair. One challenge with AM produced parts is the cost associated with post-fabrication nondestructive evaluation, currently conducted with X-ray tomography. Kitware's software solution leverages in-situ sensor data collected while the part is being produced, adapting the data to detect defects during the AM process. This saves time and money and potentially allows for corrective measures to be taken while the part is being produced, reducing AM waste as well.

Specifications Required:
A system designed to monitor parts produced by AM must use sensor data to identify defects and report them in a useful way to the human operator. The faster the sensor data can be analyzed the better, as it gives the opportunity to halt production if needed without further waste of time or materials. The system interface should provide the results in context with the expected part design. The ability to customize and calibrate the system for different AM platforms and vendors is important.

Technology Developed:
Kitware is developing a software system to collect data from in-situ sensors and apply Machine Learning methods to translate that data into an accurate prediction of defect formation while a part is being printed. This software system and supported hardware is designed for integration with multiple 3D printing platforms in order to provide the printer operator with real time feedback.

Warfighter Value:
Real time defect detection during Additive Manufacturing of parts will allow rapid production of systems that Warfighters rely on for their mission to stay in service longer, reduce their maintenance time and costs, and increase the efficacy of expeditionary AM systems.

WHEN

Contract Number: N68335-24-C-0039 **Ending on:** Apr 30, 2026

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Prototype software	Low	Demonstrate successful defect detection	3	3rd QTR FY24
Configure commerical printer for testing	Medium	Print test parts with commercial printer while collecting sensor data	4	2nd QTR FY25
Generation of additional data	Low	Collection of training and validation data representing real world parts	4	4th QTR FY25
Identify optimal sensor and models	High	Develop models that provide a level of accuracy sufficient for real-world use	5	3rd QTR FY26
Prototype interface for real time print monitoring	Medium	Get feedback from project partners on user interface	6	3rd QTR FY26

HOW

Projected Business Model:

Kitware is an open source software development company who generates revenue by providing support contracts and training for our software. We envision providing support and integration services for this new AM monitoring software to both commercial and government clients.

Company Objectives:

Our short-term objective is to complete the development of our software while continuing to develop partnerships with both 3D printer manufacturers and AM end users who can help with real world testing of our software, particularly those who utilize AM in expeditionary and austere environments.

Potential Commercial Applications:

As the use of Additive Manufacturing continues to grow within multiple industries, there will be considerable opportunities for accurate and real-time defect detection to improve efficiencies while reducing waste and cost. We will provide support for our software to end users of AM systems as well as develop partnerships with 3D printer manufacturers and vendors to provide our software as an upgrade to existing printers.

Contact: Chet Nieter, Principal Engineer
chet.nieter@kitware.com (919) 869-8876

Department of the Navy SBIR/STTR Transition Program

NAVAIR SPR-2025-0684

Topic # N193-144
A Hypersonic Environmental Testbed for Affordable and Standardized Materials Strength Testing
Physical Sciences Inc.

WHO

SYSCOM: NAVAIR

Sponsoring Program: Naval Air Warfare CTR Aircraft Division, Lakehurst, NJ

Transition Target: Low-cost, contamination free materials testing in flows simulating hypersonic flight, with the hypersonic materials mechanical strength (HMMS) testbed.

TPOC: (301) 342-8074

Other Transition Opportunities: Direct sales of the of the hypersonic materials mechanical strength (HMMS) testbed

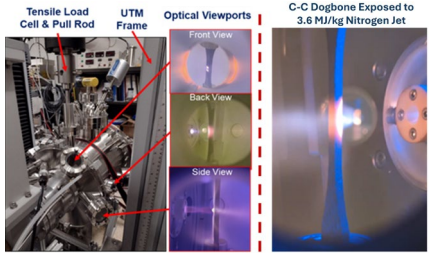


Image courtesy of Physical Sciences Incorporated

Notes: Figure Caption: Hypersonic materials mechanical strength (HMMS) testbed with 3 views of a dogbone sample during tensile testing.

HMMS Key Performance Parameters: Simulated Mach Number 3-17, Equivalent Altitude: 15-65 km; Max. heating rate:1500 W/cm2; Mechanical load capacity 50 kN; Treatment diameter less than 25 mm; Test cost per sample less than $500.

WHAT

Operational Need and Improvement: The hypersonic materials mechanical strength (HMMS) testbed provides a low cost, high throughput, contamination free alternative to relatively expensive arc-jet testing for components and articles less than 1" in diameter. The testbed fills a current gap in DoD test infrastructure by providing the capability to measure mechanical strength properties under simulated hypersonic flight conditions.

Specifications Required: HMMS Key Performance Parameters: Simulated Mach Number 3-17, Equivalent Altitude: 15-65 km; Max. heating rate: 1500 W/cm2; Relevant flow velocities: 1.5-5 km/s; Enthalpies 1-14 MJ/kg, Stagnation Temperature 2300-5500 K; Mechanical load capacity 50 kN; Test cost per sample less than $200 per sample.

Technology Developed: Controlled, accurate, in-situ mechanical strength testing of samples in a hypersonic environment, with low cost (less than $500/sample) and high-throughput (~ 8 samples per day).

Warfighter Value: The technology provides an inexpensive, contamination free alternative to arc-jet testing of leading-edge component materials for hypersonic applications. In addition, the technology fills a current gap in DoD test infrastructure by providing the capability to measure mechanical strength properties under simulated hypersonic flight conditions. The technology therefore helps establish the viability of new material designs under development for hypersonic and /or propulsion systems applications. This new test capability helps accelerate the development cycle and reduce development costs of hypersonic and propulsion materials systems.

WHEN

Contract Number: N68335-21-C-0683 **Ending on:** Jul 21, 2023

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Design Review	Low	Navy approval of Phase II design	3	2nd QTR FY23
Performance Validation Testing Complete	Low	Meet or exceed key performance parameters	4	2nd QTR FY24
Integrated Pumping System	Medium	Pump Enables Operation Over Specified Altitude Range	5	4th QTR FY25
Testbed Delivery	Medium	Successful Factory Acceptance Testing at NAVAIR	6	3rd QTR FY26

HOW

Projected Business Model: The projected business model of the HMMS testbed technology is based on two paths: 1) commercial testing services/contracts in which Physical Sciences Incorporated maintains a test facility and conducts sample testing for customers, and 2) sales of the HMMS testbed systems.

Company Objectives: To provide the Defense Community with alternative low-cost, high throughput materials HMMS testbed testing services and sales for developing thermal protection systems and materials for hypersonic applications.

Potential Commercial Applications: The MIDJet(TM) technology, a core component of the larger HMMS testbed technology, has commercial applications in semi-conductor processing, chemical vapor deposition, waste remediation, and as a source for high-power chemical lasers.

Contact: Dr. David B. Oakes, Aerothermal Group Leader
oakes@psicorp.com (978) 738-8230

Department of the Navy SBIR/STTR Transition Program

Topic # N23A-T006
Low-Cost Microwave Curing of Aerospace Composite Materials
Physical Sciences Inc.

WHO

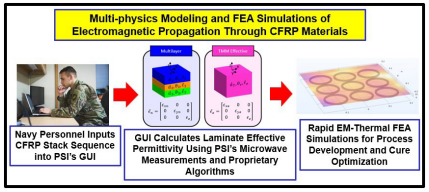
SYSCOM: NAVAIR

Sponsoring Program: NAVAIR Phase II STTR

Transition Target: PMA 265, Navy ManTech

TPOC: (301) 221-3054

Other Transition Opportunities: DoD and commercial CFRP component suppliers



Notes: The Phase II Option program is currently underway. The Phase II period of performance is 6/6/2024-7/21/2027.

Accomplishments To-Date:
• PSI electromagnetically cured a 12" sq. CFRP panel and showed equivalent or better mechanical properties (i.e. flexural modulus and strength) compared to conventionally cured panels
• PSI implemented an effective medium theory calculation for determining the orthotropic permittivity of multi-layer stacks of CFRP with various ply angles and ply thicknesses.
• PSI completed the Phase II Base with a GUI interface that allows Navy users to input the laminate stack sequence and output an effective permittivity with 10% error compared to experimental measurements

Future Work:
• PSI will expand our electromagnetic applicator to larger cure areas (i.e. several feet sq.) and contours
• PSI will design the electromagnetic applicator with COTS electronics and for high volume manufacturing
• PSI will update our effective medium model with a variety of CFRP laminates of various weave patterns and tow sizes.

WHAT

Operational Need and Improvement: The Navy requires a low-cost electromagnetic heating system for curing composite materials with reduced production costs and processing time. A key strategic priority of the United States military is to strengthen the domestic defense industrial base by expanding advanced manufacturing capabilities, reducing production costs, and accelerating throughput of critical aerospace and naval systems to ensure technological superiority and operational readiness.

Specifications Required:
• Energy and Cure Time Savings: ~40%
• Applicator Power: 600 W/ft^2
• Applicator Frequency: 10 kHz – 10 GHz

Technology Developed: PSI developed an electromagnetic applicator for curing 12" sq. laminates with thicknesses up to 10 mm. The laminates show improved mechanical properties compared to conventionally cured laminates, specifically flexural modulus. PSI co-developed a multi-physics model that uses an effective medium theory calculation to reduce computation time of electromagnetic-thermal FEA simulations.

Warfighter Value:
• PSI's electromagnetic applicator will reduce energy consumption and cure time of CFRP manufacturing processes by ~40%
• Predictive multi-physics modeling reduces the test runs required for composite part production and process development time
• Scheduling freedom through process modeling leads to adaptive production processes with reduced scheduling time and costs.

WHEN

Contract Number: N68335-24-C-0334 **Ending on:** Jun 17, 2025

Milestone	Risk Level	Measure of Success	Ending TRL	Date
1. Electromagnetic Applicator Prototype	Medium	Demonstrate a prototype of an electromagnetic heating system with ability to heat large (i.e., 2'x 2') and contoured (i.e., UUV monocues) CFRP components	5	4th QTR FY26
2. Electromagnetic Cure of Production Part	Medium	Demonstrate curing an aerospace production part with equivalent or better mechanical performance and lower cost using an electromagnetic heating system	6	2nd QTR FY27
3. Cost-Benefit Analysis	Low	Demonstrate via a cost-benefit analysis that electromagnetic curing reduces the production costs of military-grade carbon fiber/epoxy laminates with equivalent or better cured properties, with 40% reduction in cure time and energy use, and lower capital equipment costs	6	3rd QTR FY27

HOW

Projected Business Model: PSI will pursue Phase III research funding through the Navy's ManTech program and PMA 265 for further technology development. After Phase III, PSI will license our multi-physics modeling software to a DoD or commercial CFRP component supplier. PSI will either license or sell electromagnetic applicators to CFRP component suppliers. PSI will consider forming a spinout company to commercialize the technology.

Company Objectives: PSI aims to show the feasibility of our technology by partnering with prime contractors or CFRP component suppliers to integrate our modeling and/or electromagnetic applicator into existing CFRP production processes. The goal is to produce cost-benefit analyses to market our technology and show commercial viability.

Potential Commercial Applications: Organizations with technology need include DoD prime contractors, small DoD CFRP component suppliers, and commercial CFRP production companies.

• Northrop Grumman and Boeing are interested in electromagnetic applicators and associated modeling for CFRP component repair and part production processes, to support both DoD contracts and commercial aircraft production
• Smaller DoD CFRP component suppliers like Composite Energy Technologies are interested in electromagnetic curing applicators for thick, UUV monocoques

Contact: Brendan Nunan, Principal Engineer
bnunan@psicorp.com (978) 831-3782

Department of the Navy SBIR/STTR Transition Program

Topic # N222-116
Tunable, Repeatable, Calcium Lanthanum Sulfide Ceramic Powder Development
TDA Research, Inc.

WHO

SYSCOM: ONR

Sponsoring Program: Office of Naval Research

Transition Target: Any optical components in infrared-based applications for advanced remote sensing, guidance and communications, and multispectral imaging

TPOC: Chakrapani Varanasi
chakrapani.v.varanasi.civ@us.navy.mil

Other Transition Opportunities: Army and Air Force optical systems also employing Calcium Lanthanum Sulfide (CaLa2S4; CLS) optics; infrared sensors; support infrared lasers on medical equipment

This photograph is considered public domain and has been cleared for release by the U.S. Air Force. PHOTO BY: Staff Sgt. Codie Trimble, VIRIN: 201204-F-PG806-9417;
https://www.af.mil/News/Photos/igphoto/2002550648/

Notes: TDA expects to make high purity CLS material with a high level of reproducibility and the method allows for tuning of the calcium and lanthanum stoichiometry. TDA, which currently has all the facilities needed to produce CLS powders, and currently produces 60+ tons of sorbents and other powders annually, will produce the powder and sell it to the Navy and third-party fabricators of CLS parts. Infrared CLS windows have potential applications in targeting and tracking systems.

WHAT

Operational Need and Improvement: There is a critical need for a high purity commercial source of calcium lanthanum sulfide (CaL2S4; CLS). Ceramics made from CLS have an unusually broad range of transmittance in the infrared (IR), as well as high mechanical strength and environmental durability. For these reasons, CLS is an ideal material for IR windows used in applications such as multiband optical components and multispectral imaging. CLS ceramics are not yet broadly used because the precursor powders are inconsistent, which leads to difficulty when fabricating optical-quality parts. The Navy is seeking new, controlled methods for reproducibly producing CLS powders of high quality for producing optical components.

Specifications Required: A new synthetic method for producing CLS powders must reproducibly result in pure powders with consistent properties from batch to batch. Further, the process must be versatile so that stoichiometry of the resulting powders can easily be tuned to match desired compositions in terms of calcium and lanthanum content. The powders must be compatible with consolidation techniques that will be used to produce fully dense optical components. Finally, the synthetic process must be scalable in order to meet the demands for the powder required to fabricate optical components.

Technology Developed: TDA is developing a new, efficient method to manufacture CLS powder that, if successful, will be less expensive than previous methods, better-suited for a large-scale manufacturing environment, and will produce consistently high purity, high quality material from batch to batch. The process is highly amenable to stoichiometry changes, easily producing CLS powders that range from 3:1 to 18:1 lanthanum:calcium ratios. Our new process has the potential to consistently make CLS in high purity from batch to batch. We have formed a partnership with a major producer of ceramic parts and will supply them with CLS powder for fabricating IR transparent parts for the Navy.

Warfighter Value: TDA's CLS powders have the potential to make it easier to form consolidated optical ceramics made from CLS. CLS optics have an unusually broad range of transmittance in the infrared (IR), as well as high mechanical strength and environmental durability, making them ideal for optical components in infrared-based applications for advanced remote sensing, guidance and communications, and multispectral imaging.

WHEN

Contract Number: N68335-24-C-0218 **Ending on:** May 15, 2026

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Deliver kilogram quantities to sponsor for evaluation	High	Laboratory production process	3	3rd QTR FY26
Begin Phase II Option work	Medium	Scaled-up production process achieved	4	3rd QTR FY27
Work with third-party optical manufacturer to process product	Medium	Fabrication of optical-quality parts	4	3rd QTR FY27
Begin Phase II.5 optimization and Navy qualification	Medium	Qulaification of materials for use in parts	5	3rd QTR FY27
Phase II: TDA manufacture and supply to third party optical company and/or Navy	Low	Sales of product to Navy or manufacturer	6	1st QTR FY30

HOW

Projected Business Model: The product resulting from this technology will be a highly reproducible, high purity calcium lanthanum sulfide (CLS) powder. TDA is already developing semi-pilot scale methods for producing its CLS powder, and thus, TDA plans to manufacture the CLS powder and supply it to the Navy and third-party fabricators of CLS optics. TDA currently has all the facilities needed to produce CLS powders, and currently produces 60+ tons of sorbents and powders annually in these facilities.

Company Objectives: Since we intend to manufacture a CLS powder with a variable calcium/lanthanum composition, we can provide CLS powders to manufacturers with the capabilities to produce large scale CLS optical quality parts. Companies with CLS consolidation capabilities are looking for raw material providers with the capability of producing high purity CLS powders that can be made to their consolidation process specifications. If successful in developing its versatile manufacturing process, TDA can potentially meet the needs of these CLS optical part manufacturers, as well as provide powders of variable compositions for basic research.

Potential Commercial Applications: Our CLS powders potentially have applications in any optical systems that employs CLS optics. CLS is an ideal material for IR windows used in applications such as infrared remote sensing, guidance and communications, infrared lasers for medical devices, and multispectral imaging.

Contact: Brady Clapsaddle, Principal Chemist
bclapsaddle@tda.com (303) 261-1145

Department of the Navy SBIR/STTR Transition Program

DISTRIBUTION STATEMENT A. Approved for public release. Distribution is unlimited.
NAVSEA #2026-084

Topic # N231-043
Ultra-Low Temperature Gaskets & Seals for Extreme Environments
Luna Labs USA, LLC

WHO

SYSCOM: NAVSEA

Sponsoring Program: NAVSEA

Transition Target: NAVSEA

Devin.C.Burke.civ@us.navy.mil

Other Transition Opportunities: Seal/Gasket/O-ring manufacturers for aerospace, oil & gas, and other ultra-low temperature industries

Notes: Ships utilize gaskets, O-rings, and other rubber seals that must remain leak-free under harsh conditions. Over time, seals become brittle leading to cracking, tearing, and ultimately seal failure. Degradation is accelerated by various environmental factors including exposure to extreme temperatures (high or low), chemicals, oils, fuels, moisture, and ozone, leading to shorter seal lifetimes and increased maintenance cost. Particularly at ultra-low temperatures (less than -50 °F), there are very few rubber seal materials that remain flexible. There may be opportunities to develop an improved material type that maintains sealing under colder conditions than most common ultra-low temperature seals are currently used in both static and dynamic situations. The gasket/O-ring material can still function under hot conditions while still maintain a good seal down to ultra-cold environments.

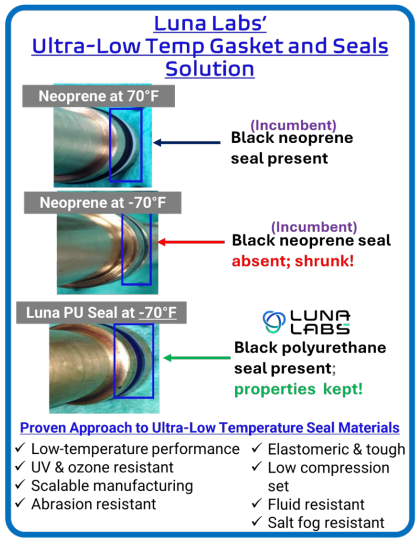


Image courtesy of Luna Labs USA, LLC (2025)

WHAT

Operational Need and Improvement: Navy assets are increasingly becoming exposed to colder conditions that will require an improved, advanced gasket/seal material to reduce maintenance issues. The gasket material must meet the mechanical requirements of the Navy to include sustained heavy loads and resist degradation when exposed to harsh maritime environmental factors, including saltwater, industrial chemicals, jet fuel, abrasion, fire resistance, and other forces, factors, and situations associated with ship motion and operation of maritime equipment.

Additionally, the gasket material must have excellent performance with minimal loss of mechanical properties at temperatures at least as low as -50°F while still maintaining its properties in hot climates and remaining a cost-effective solution for the Navy.

Specifications Required: There is a need for an improved material that pass key specifications required of rubber parts, such as those listed in MIL-PRF-6855F & MIL-PRF-15624F, even in ultra-low temperature environments. The gasket material should still work in hot conditions as very cold temperatures may not always be required. Other specs may apply.

Technology Developed: Luna Labs is developing an improved seal/gasket/O-ring material designed to significantly extend service life in demanding cold applications, outperforming traditional elastomers at ultra-low temperatures. It is still suitable for high temperature use.

Warfighter Value: Luna Labs' ultra-low temperature seal/gasket/O-ring material will help to minimize maintenance and lower the total cost of ownership to the Navy for operations in ultra-cold conditions due to lower risk of seal failure and prolonged operational lifetime.

WHEN

Contract Number: N00024-24-C-S186 **Ending on:** Sep 05, 2025

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Pass key laboratory tests	Low	Fully pass MIL-PRF-6855F	4	4th QTR FY25
Pass in relevant environment	Low	Pass in mock test conditions: seal against water and fuel at ultra-low temperature	5	4th QTR FY26
Pass in operational environment	Medium	Performs well in Experimentation Demo Cell & Industry Evaluation	6	4th QTR FY27

HOW

Projected Business Model: Luna Labs plans to commercially distribute moldable resin for our ultra-low temperature elastomer material to manufacturers of seals/gaskets/O-rings who service the Navy and related private sector industries. This technology is expected to be relevant for Technical Warrant Holders in SEA 05M2 and Deputy Program Managers in PMS 407 (Surface Ship Modernization), PMS 443 (Surface Ship Readiness & Sustainment), and PMS 373 (Polar Security Cutter) as well as to key industry stakeholders and market segments.

Company Objectives: To continue to offer innovative solutions to save money, time, and lives. This improved ultra-low temperature material will increase operational time of key Navy and industry equipment in demanding and/or inconvenient conditions and locations. This thereby will decrease risk by reducing the probability of seal material failure in static & dynamic situations while extending the duration of high-performance under diverse environmental conditions.

Potential Commercial Applications: There are wide applications for this enhanced ultra-low temperature material, including in non-marine environments and situations. These potentially include uses in aerospace, satellites, helicopter doors and components, window gaskets, Arctic/Antarctic, offshore installations in cold regions, ultra-low temperature refrigeration, cold weather engines, cold chain supply transport/storage, and the like.

Contact: Nikita Kevlich, PMP, Principal Scientist, Materials
nikita.kevlich@lunalabs.us (434) 220-1560

Department of the Navy SBIR/STTR Transition Program

DISTRIBUTION STATEMENT A. Approved for public release. Distribution is unlimited.
NAVSEA #2025-051

Topic # N192-108
Lightweight Composite Launcher Components
Pacific Engineering, Inc.

WHO

SYSCOM: NAVSEA

Sponsoring Program: PEO IWS 3L

Transition Target: Cruiser-Destroyer (CRUDES) platforms with the MK41 VLS system

TPOC: (540) 653-3639

Other Transition Opportunities: Navy platforms with vertical launch systems can benefit from hybrid composite/metal uptake hatches and/or cell hatches, including Ticonderoga class CG, DDG-51 class, DDG 1000, unmanned vessels, AEGIS Ashore, and submarines. Other services with mobile launch platforms that utilize canisters can also benefit from the technology.

Notes:

US Navy Photo, https://www.navy.mil/Press-Office/News-Stories/display-news/Article/4195103/two-us-navy-ddgs-successfully-engage-srbm-and-mrbm-during-exercise-formidable-s/

WHAT

Operational Need and Improvement: The primary goal of this Small Business Innovation Research (SBIR) Phase II is to resolve a major maintenance problem with corrosion, and availability for the weapon system. Currently, hatch replacement is required during each availability, which drives up sustainment costs.

Specifications Required: Meet shock and ballistics requirements, reduce weight, and reduce sustainment costs.

Technology Developed: Composite technology using specific resin and fiber selections unique to meet all performance requirements.

Warfighter Value: Addressing corrosion issues reduces life cycle costs and increases ship availability. In addition to solving corrosion issues, the hybrid composite hatches provide weight reduction and better insulation while still meeting ballistics requirements.

WHEN

Contract Number: N68335-22-C-0550 **Ending on:** Jun 10, 2026

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Prevent/mitigate corrosion to reduce rework costs and extend service life	Low	Sub Element testing per MIL STD 810 and Pathfinder fabrication	6	TBD
Meet current uptake hatch ballistic requirements	Low	Completed ballistics test	5	TBD
Meet operational (temperature, durability, loading) requirements	Medium	Structural and environmental analysis complete. Proof out manufacturing processes through assembly	5	TBD
Qualifications Testing	Medium	Passing all necessary tests identified for cell and uptake hatches	6	TBD
At Sea Testing	Low	Survivability in a marine environment	7	TBD

HOW

Projected Business Model: PEI intends to fabricate Cell and Uptake Hatches within its Nebraska facilities. Further, PEI will apply the technology developed to other DoD systems, i.e., other launchers and missile systems.

Company Objectives: Find ways to reduce weight and improve sustainment costs for defense components, meet shock and ballistic requirements, and eliminate/reduce corrosion for the cell and uptake hatches. Additionally, leverage other technology gains to provide an evolutionary approach to improving and introducing composite products into the fleet.

Potential Commercial Applications: Potential breakthroughs in meeting ballistic protection requirements opens up the commercial market significantly across the entire protection realm. There is direct application to many of the armored vehicles used by the US Military. Additionally, corrosion resistance and weight savings for components can be applied across many areas of the DoD and markets such as recreational vehicles and sports equipment.

Contact: Dexter Myers, Senior Vice President
dexter.myers@pacificengineeringinc.com (626) 379-2282

Department of the Navy SBIR/STTR Transition Program

DISTRIBUTION STATEMENT A. Approved for public release. Distribution is unlimited.
NAVSEA #2025-050

Topic # N231-047
Composite Navy Propulsor Shaft Design Validation
SURVICE Engineering Company

WHO

SYSCOM: NAVSEA

Sponsoring Program: PEO Submarines

Transition Target: Future U.S. Navy Submarine SSN(X)

TPOC: (301) 227-8851

Other Transition Opportunities: DoD, NAVSEA and NAVAIR
Amphibious (L-class) ships
Military Sealift Command (MSC) Auxiliary (A-class) ships
Merchant Marines Industry
Commercial Shipping Industry
Manned and Unmanned Submersibles

Virginia Class Submarine Image : U.S. Navy photo, https://www.navsea.navy.mil/Media/Images/igphoto/2003450548/

Notes: Virginia Class Submarine and Thermoplastic Shaft Automated Tape Placement Fabrication Process

WHAT

Operational Need and Improvement: Traditional metallic submarine propulsor shafts are approaching the limits of the current industrial base manufacturing capability due to weight and availability. While non-metallic propulsor shafting is already in-service in the surface ship fleet (e.g., Littoral Combat Ship), the current scale/size is insufficient for meeting targeted performance metrics of both current (e.g., Virginia-Class) and future (e.g., SSNX) submarine platforms. The need is to develop a non-metallic shaft alternative that reduces the weight of existing metallic shafts while maintaining or improving the operational performance of the shaft and associated platform.

Specifications Required: Resolve the capability limitations associated with traditional metallic submarine propulsor shafts, currently approaching the limits of the industrial base manufacturing capability due to weight and available alternative approaches, with a high-performance composite material and a novel in-situ additive fiber placement process. Resolve the identified metallic shaft limitations with a material and process that has been demonstrated to yield lighter weight shaft configurations for other applications while having unlimited up-sale potential for size (diameter, length, and wall thickness). Requirements include evaluation of non-metallic material properties and novel manufacturing processes capable of developing a submarine propulsor; properties and processes that are repeatable, reliable, efficient, and robust in order to be suitable for large, thick waterborne propulsor shafting subjected to long-duration complex stress states, definition, development, and documentation of a proposed non-metallic shaft design, including an approach for structural validation testing; and demonstrate the developed technology through a fabrication and quality verification process.

Technology Developed: Fiber reinforced thermoplastic thick walled composite shaft utilizing "on the fly" additive manufacturing automated tape placement process with laser heating.

Warfighter Value: Enhanced platform operational performance supporting increased power transmission. Greater payload and operational range due to lower weight.
Increased system life and reduced life cycle costs resulting from improved environmental performance (e.g. corrosion resistance) and enhanced durability.

WHEN

Contract Number: N00024-25-C-S039 **Ending on:** Nov 19, 2025

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Generation of Supporting Material Data	Low	Material Data Compatible with Design Allowable used in Design Work	2	1st QTR FY25
Propulsor Shaft Design	Medium	Propulsor Shaft Design Supported by Test Data	3	1st QTR FY26
Fabrication of Propulsor Shaft Section Based on Design	Medium	Demonstrator Propulsor Shaft Section (If Phase II Option 1 Exercised)	4	1st QTR FY27
Quality Verification of Shaft Fabrication Process	Medium	Shaft Quality Verification	5	1st QTR FY28

HOW

Projected Business Model: - Working by way of a limited partnership with TSS/Albany provide design and fabrication services for the development and production of thermoplastic drive shafts.
- Provide drive shaft design services for military and commercial platforms which include the design of the respective drive or propulsor shaft and coordinate the development and fabrication of the subject shaft.
- Package and license a design methodology tool that will support drive shaft design, facilitating its development and platform integration. The tool will be designing software which will include material design properties and shaft sizing to define a design which can merged into a finite element model of the customer's choosing to support their internal shaft design activities.

Company Objectives: Expand the technology to the fabrication of drive shafts in the automotive, ship, and aircraft industries. This would include both thick and thin walled shafts that could take advantage of lower weights and costs resulting from the application of the technology

Potential Commercial Applications: Wind Turbine Industry Tower Fabrication
Drive Systems for Automotive, Shipbuilding, and Aircraft Industry
Oil and Gas Industry Drilling Shafts

Contact: Harry R. Luzetsky, SME Composites and Survivability
rick.luzetsky@survice.com (610) 444-7447 x2158053910

Department of the Navy SBIR/STTR Transition Program

DISTRIBUTION STATEMENT A. Approved for public release. Distribution is unlimited.
NAVAIR SPR-2025-0705

Topic # N231-012
Technology Development Strategy for the Design of Passive and Semi-passive Underwater Acoustic Metamaterial Filters
TDA Research, Inc.

WHO

SYSCOM: NAVAIR

Sponsoring Program: Air Anti-Submarine Warfare Systems (PMA-264)

Transition Target: PMA-264

TPOC: (301) 757-4816

Other Transition Opportunities: Submarine Acoustic Systems (PMS-401)
Maritime Surveillance Systems (PMS-485)

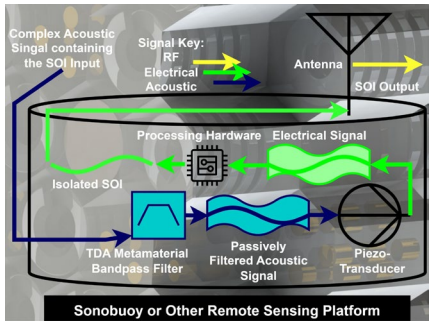


Image developed at TDA 2025

Notes: TDA's acoustic metamaterial (MM) serves as an entirely passive (non-powered) bandpass filtering co-processor in the signal processing chain used on anti-submarine warfare (ASW) receiving platforms. The technology is targeted for use on Air Deployable Active Receiver (ADAR) sonobuoys, which receive complex acoustic signals and isolate the signal of interest (SOI). TDA's iterative development process allows the MM acoustic filter passband to be tuned during design. This allows for easy transition of the technology to other underwater signal processing applications.

WHAT

Operational Need and Improvement: Improving the sensitivity and signal processing capabilities of ASW platforms eases detection of quieter submersibles in noisier ocean environments. One key platform, sonobuoys, are single use devices which are produced in large volumes to support ASW operations. Minor reductions of the unit production cost translates into significant savings in annual procurement costs. TDA is developing a low cost, passive acoustic MM filter to improve the sensitivity and co-processing capability aboard the sonobuoy while reducing the cost of fabrication.

Specifications Required: The MM filter technology must be able to be integrated with exiting ASW platforms. The integrated MM will provide a 10X reduction in the signal to noise ratio and a 1000X reduction in the amount of signals received by the piezoelectric hydrophone element which need to undergo analog to digital conversion.

Technology Developed: TDA is developing low-cost MMs consisting of polymer embedded structures. Materials are designed and tuned for pass band behavior using an iterative process of fabrication, testing in a hydrostatic chamber, and simulation. The method allows the technology to be adapted for other water based acoustic filtration applications with variable frequency ranges and operational depths.

Warfighter Value: TDA's MM filter enables enhanced acoustic sensitivity and reduction of signal post processing time onboard ADAR sonobuoys. This will benefit ASW operations with faster and higher confidence target lock and tracking. The low-cost passive acoustic filter will result in savings during procurement by replacing complex and costly digital signal processing hardware.

WHEN

Contract Number: N68335-24-C-0507 **Ending on:** Mar 16, 2027

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Hydrostatic test results	Low	Measurement of acoustic standing waves at variable test pressure	3	4th QTR FY24
Simulation-physical test harmonization	Medium	Simulated MM transmission loss results agree with apparatus tests	4	4th QTR FY25
Computational optimization output	Medium	MM transmission loss profile demonstrates bandpass filtration	5	3rd QTR FY26
Design for sonobuoy integration	Medium	MM form factor meets sonobuoy hydrophone size envelope	6	3rd QTR FY26
Operational environment testing	Low	Band pass filtration demonstrated in open water environment	7	2nd QTR FY27

HOW

Projected Business Model: TDA will license the technology to Government prime sonobuoy manufacturers such as Ultra Maritime, Sparton, and LM. As regularly mass procured ASW devices, integration of the MMs in sonobuoys will provide a steady demand for TDA's passive filtration technology.

Company Objectives: TDA Research - We Tackle Difficult Problems.
Our team develops cutting edge chemical processes, materials, and hardware for customers in the defense, aerospace, energy, and chemical industries. Our research results in commercialized technologies. Partner with us today to address your most challenging technological issues!

Potential Commercial Applications: TDA's MM bandpass filter technology has applications in other underwater acoustic receiving applications. It is particularly advantageous for low power devices since the MM's processing capabilities are completely passive, requiring no electrical energy. The target platform for the technology, sonobuoys, are regularly purchased by PMA-264 for ASW activities.

Contact: Girish Srinivas, PhD, MBA, CEO, Project PI
gsrinivas@tda.com (303) 748-7153

NAVY SBIR TRANSITION PROGRAM

Modeling and Simulation Technology

Company	Topic	Project Title	SYSCOM
Combustion Research and Flow Technology, Inc.	N23A-T003	Advanced Physics Modeling for Gas Turbine Particulate Ingestion	NAVAIR
Corvid Technologies, LLC	N221-081	Development of an Aerothermal Modeling and Simulation Code for Hypersonic Applications	SSP
Crown Point Technologies, LLC	N221-077	Semantic-Driven Data Integration Software Solution	SSP
Faraday Technology, Inc.	N23A-T019	Improved Electrochemical Machining of Next-Generation Alloys for Turbine Engine Components through Enhanced Tool Design	ONR

Department of the Navy SBIR/STTR Transition Program

Topic # N23A-T003
Advanced Physics Modeling for Gas Turbine Particulate Ingestion
Combustion Research and Flow Technology, Inc.

WHO

SYSCOM: NAVAIR

Sponsoring Program: NAWCAD Propulsion and Power; PEO (A)

Transition Target: NAWCAD Propulsion and Power

TPOC: (240) 572-9856

Other Transition Opportunities: PMA-275 (V-22), PMA-261 (CH-53), Gas Turbine Original Equipment Manufacturers (OEM)

Notes: V-22 Osprey landing during training exercise under high dust/sand kickup. Turbine blade shown illustrates simulated particulate deposition of experimental setup involving high temperature gas and particle flow.

U.S. Marine Corps photo by Cpl. Simon Saravia; https://media.defense.gov/2024/Aug/22/2003530914/-1/-1/0/240806-M-HJ365-7466.JPG

WHAT

Operational Need and Improvement: The Navy operates aircraft powered by gas turbine engines in environments with significant concentrations of dust and sand. Particulates which are not captured by an existing inlet or engine mounted filtration system may pose safety, performance, and reliability concerns. Engine reliability is impacted through faster engine deterioration and leads to significant life cycle cost.

Specifications Required: The improved modeling toolset needs to be efficient and robust. Focus is placed on parallel execution using systems available to the high-performance computing (HPC) user to analyze complex internal engine components subject to sand particulate laden flows.

Technology Developed: CRAFT Tech has developed improved modeling and simulation tools to characterize the sand particulate impact on turbomachinery within aircraft propulsion systems. The Reactive Solids Toolkit (RST) is developed within the CRUNCH MPHYS(R) CFD flow solver and is available as a standalone package for use with converted solutions from third-party solvers.

Warfighter Value: Improved particulate modeling will provide positive impacts to safety, reliability, performance, and cost of maintenance on platforms featuring gas turbine propulsion systems. Improved analytical tools can provide benefits to future design and acquisition decisions.

WHEN

Contract Number: N68335-24-C-0286 **Ending on:** Nov 01, 2026

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Thermal Module Grid Motion	Low	Demonstration of grid deformation through communication with Fluid Module	3	4th QTR FY25
Investigation and Implementation of Alternative Dispersion Models	High		3	1st QTR FY26
Particle Simulation through Rotating Reference Frames	Medium	Simulation of turbine system including rotating geometry	4	2nd QTR FY26
Validation of Deposition Modeling	Medium	Favorable comparison of particle deposition with experimental measurements performed by OSU	4	4th QTR FY26

HOW

Projected Business Model: CRAFT Tech's business model is to license the RST toolkit to government or commercial OEM customers. Licensure can be for the particle trajectory and deposition analysis solver as a standalone package or coupled with the CFD flow solver CRUNCH MPHYS(R).

Company Objectives: CRAFT Tech seeks to connect to platform manufacturers and support teams leading to the license of the analytical tools developed by the company. Collaboration with interested partners to further develop the toolkit to include adjacent flow phenomena such as material abrasion/erosion or surface icing is desired.

Potential Commercial Applications: The RST toolkit will directly aid in the analysis and design of aircraft or other transportation or energy platforms subject to sand or dust debris. Additionally, the toolkit can be utilized to develop or validate monitoring sensors of micron and nano-particulates.

Contact: Michael O'Gara, Research Scientist
info@craft-tech.com (215) 766-1520

Department of the Navy SBIR/STTR Transition Program

DISTRIBUTION STATEMENT A. Approved for public release. Distribution is unlimited.
9/24/25

Topic # N221-081
Development of an Aerothermal Modeling and Simulation Code for Hypersonic Applications
Corvid Technologies, LLC

WHO

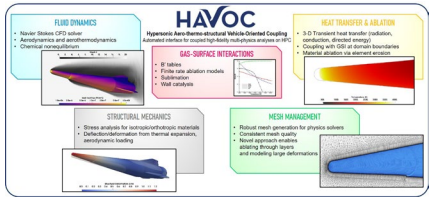
SYSCOM: SSP

Sponsoring Program: Strategic Systems Programs

Transition Target: Navy hypersonic weapon system modeling and simulation tools

TPOC: SSP.SBIR@ssp.navy.mil

Other Transition Opportunities: Hypersonic programs in the Air Force, Navy, MDA and Army involving flight vehicle design, analysis and optimization



HAVOC workflow for hypersonic applications.

Notes: DOD Benefits:
- Solution will result in a production-level high-fidelity computational framework for full-scale, three-dimensional (3-D), system-level analysis of hypersonic weapons
- Fast turn-around for full-trajectory survivability assessments (within hours)
- Based on established and validated tools, for use in HPC environments
- Understanding of changing aerodynamics with recession and impact on final trajectory, range, vehicle stability with distorted airframes
- Novel capability to define system requirements and for post-test analysis

WHAT

Operational Need and Improvement: Current state-of-the-practice approaches/tools are unable to account for non-linear coupled effects which drive response in hypersonic systems. Furthermore, current vehicle analysis workflows are disconnected and require manually mapping between different solvers, which is very time consuming, costly and error-prone. Navy desires an integrated, multi-physics, high-fidelity modeling tool to support hypersonic vehicle design and aero-thermal-structural survivability analysis.

Specifications Required: A high-fidelity aerothermal and TPS design tool that can automate the process of coupling aerothermal physics and material response into finite-element analysis (FEA) thermo-structural models for a complete aero-thermal-mechanical survivability analysis across full hypersonic flight trajectories. The framework will be validated with ground and/or flight test data.

Technology Developed: Corvid has devloped a coupled production-level framework called Hypersonic Aerothermostructural Vehicle-Oriented Coupling (HAVOC), which leverages high-fidelity solvers to provide the Navy with an accurate, trajectory-based thermostructural capability to analyze hypersonic vehicles. HAVOC is built on Corvid's validated and highly-scalable CFD and thermostructural solvers, which enable solving large, coupled problems in a high-performance computing (HPC) environment with rapid turnaround useful for applied analysis. To automate this capability, Corvid has developed numerical and remeshing techniques to robustly account for large mesh deformations due to thermostructural and ablation effects in 3-D. The framework's design enables flexibility for future extensions to other solvers and capabilities.

Warfighter Value: The HAVOC framework enables accurate and fast design, optimization and development of high-speed vehicles and weapon systems. By being built on high-fidelity solvers and coupling the physics, HAVOC will result in vehicles with increased performance (such as speed and range) by reducing design conservatism. HAVOC's provides a virtual test bed in which engineers can converge on high-speed designs rapidly and shorten the time to deliver a capability to the warfighter.

WHEN

Contract Number: N64267-24-C-0051 **Ending on:** Jan 12, 2026

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Ph. 1 Feasibility Prototype	Low	Loose physics coupling with shape change	4	3rd QTR FY23
Validation with Ground Test Data	Medium	Agreement with ground test	5	4th QTR FY23
Ph. 2 Software Prototype	Medium	Deployment and testing by users	6	1st QTR FY26
Flight Validation	Medium	Agreement with flight test data	7	2nd QTR FY26

HOW

Projected Business Model: HAVOC will be provided via software license leveraging Corvid's existing suite of commercial software which include Velodyne and RavenCFD. This solution will also be made available to customers via Corvid's engineering services support using Corvid's high performance computing (HPC) facility cleared for unclassified and classified work. HAVOC will be expanded to include additional capabilities and code interfaces to continue expanding the user base.

Company Objectives: Corvid Technologies provides end-to-end solutions, including concept development, design and optimization, prototype build, test, and manufacture to defense customers. HAVOC leverages the predictive capabilities of our high-fidelity computational physics solvers in a high performance computing environment to provide a high-fidelity capability to analyze high-speed systems. HAVOC is an enabling capability to continue supporting Corvid's growing hypersonic portfolio, as well as providing the highest-fidelity modeling and simulation capabilities to our customers.

Potential Commercial Applications: HAVOC will be made available to commercial aerospace companies in the defense and space sectors, who are investing in high-speed vehicle development and optimization. HAVOC will be made available for use through licensing or engineering services support.

Contact: Giovanni Salazar, PI
giovanni.salazar@corvidtec.com (704) 799-6944 x2062

Crown Point Technologies, LLC

Topic #: N221-077
Semantic-Driven Data Integration Software Solution

Department of the Navy SBIR/STTR Transition Program

Topic # N23A-T019
Improved Electrochemical Machining of Next-Generation Alloys for Turbine Engine Components through Enhanced Tool Design
Faraday Technology, Inc.

WHO

SYSCOM: ONR

Sponsoring Program: Naval Air Warfare Center Aircraft Division (NAWCAD)

Transition Target: Defense Research Sciences for advanced turbine engine materials and coatings and Future Naval Capabilities Applied Research for Propulsion Gas Turbine Materials Upgrade (GTMAT) efforts to enable sustained higher engine service temperatures to meet increased ship power needs/capabilities and maintain engine life.

TPOC: David Gonzalez
david.r.gonzalez32.civ@us.navy.mil

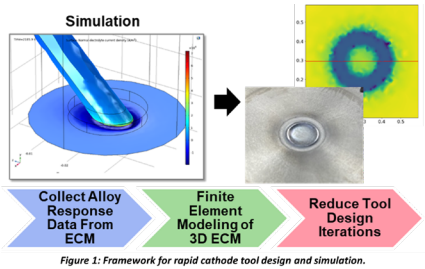


Figure 1: Framework for rapid cathode tool design and simulation.

Other Transition Opportunities: Electrochemical Machining (ECM) of critical materials for weapon systems, aircraft, naval vessels, medical components and additively manufactured parts.

Notes: Image shows a prediction of ECM behavior on next-gen materials through acquisition of data and subsequent simulation of ECM for enhanced tool design while reducing required iterations.

WHAT

Operational Need and Improvement: The Navy has recognized an industry-wide need for solutions to the upfront non-recurring engineering expenses associated with electrochemical machining (ECM) in engine components. A large portion of these expenses are related to the design of cathode tools used in the ECM process. To improve efforts Faraday is developing a tool to reduce cost and time associated with the fabrication of turbine engines. Specifically, we are developing a software to accurately simulate the ECM of complex components from relevant industrial and next generation alloys.

Specifications Required: Reduce the upfront tooling and non-recurring engineering expense associated with current ECM processes, and yield cost/lead time reductions of > 25% for turbine engine components when compared to current best practices used for next generation metal material systems and geometries, including superalloys and high entropy alloys.

Technology Developed: Faraday is developing a tool to reduce cost and time associated with the fabrication of turbine engines. Specifically, we are developing a software to accurately simulate the ECM of complex components from relevant industrial and next generation alloys such that the upfront engineering expenses associated tool design and fabrication cost are reduced.

Warfighter Value: Software will reduce upfront cost associated with non-recurring engineering expenses associated with ECM in engine components to enable more fuel-efficient gas turbine engines and Navy sustainment needs. This will reduce machining time, increase efficiency, maximize rate of consumption for materials and allow for greater process control and accuracy.

WHEN

Contract Number: N68335-24-C-0293 **Ending on:** Sep 30, 2026

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Develop Cathode Tool Design Software	Low	Show functioning finite element model that can simulate reasonable electrochemistry and fluid flow physics.	3	1st QTR FY26
Validate Cathode tool Design Simulation	Low	Analyze machined parts and show a match with simulation predictions.	4	2nd QTR FY26
Demonstration of technology on real components	Medium	Show a decrease in iterations required to achieve final part design for an ECM machined component.	5	3rd QTR FY26
Preliminary Development of Standalone Application and Identification of Early Adopters.	High	Show use of a standalone application for part iteration in commercial environments.	6	4th QTR FY26

HOW

Projected Business Model: The cathode tool design application/software will be standalone software, that can be used by the intended customer as computer application. Once successful we plan to commercialize the technology through domestic channels to both large and small manufacturing centers. Market entry for Faraday will be incurred through; 1) distribution of an application plugin for cathode tool design, 2) cathode tool design consulting service, 3) Saleable database of material behavior for ECM, and/or 4) Limited rate production/contract manufacturing of cathode tools at Faraday.

Company Objectives: We seek to connect with relevant companies as we focus on transitioning the software and provide consulting services to early adopters. We wish to identify new consumers so that we can understand their needs and tune our approach to reduce transition risk. Anticipated customers include large or small ECM firms interested in improved fabrication capabilities.

Potential Commercial Applications: Applications seek to solve current requirement for upfront non-recurring engineering expenses associated with ECM components. The software developed will reduce the number required iterations for the design of cathode tools used in the ECM process. Electrochemical machining of critical materials for weapon systems, aircraft, and naval vessels, medical components and additively manufactured parts. Allowing for commercial use in ECM practices at both small and large firms, applicable in any scenario where ECM is used (i.e. critical materials for weapon systems, aircraft, naval vessels, medical components and additively manufactured parts).

Contact: Guillermo S. Colon, Principal Scientist
guillermocolon@faradaytechnology.com (937) 836-7749

NAVY SBIR TRANSITION PROGRAM

Sensors

Company	Topic	Project Title	SYSCOM
Advanced Cooling Technologies, Inc.	N221-083	Conformal Two-Phase Switch for Sensor Thermal Control	SSP
Scientific Systems Company, Inc	N111-025	SAFEPASS: Safe Encounter Resolution using Passive Sensing	ONR
Surface Optics Corporation	N231-020	Detection and Tracking of Hypersonic Missiles Using EO/IR Sensors	NAVAIR
Triton Systems, Inc.	N221-083	Variable Conductance Thermal Management Technology	SSP
EPIR, Inc.	N231-065	MWIR TPA Notch Filter	ONR
GoHypersonic Inc.	N23A-T029	Non-Intrusive Aerodynamic State Sensing for Hypersonic Flight Control	ONR
Opterus Research and Development, Inc.	N221-072	High Strain Composite Boom Deployed Volumetric Sonobuoy Array	ONR
Texas Research Institute Austin, Inc.	N211-062	Nondestructive Detection of Flaws through Thick Polymers using Electromagnetic Imaging Technologies	NAVSEA

Advanced Cooling Technologies, Inc.

Topic #: N221-083

Conformal Two-Phase Switch for Sensor Thermal Control

Department of the Navy SBIR/STTR Transition Program

Topic # N111-025
SAFEPASS: Safe Encounter Resolution using Passive Sensing
Scientific Systems Company, Inc

WHO

SYSCOM: ONR

Sponsoring Program: Code 331: Unmanned Surface Vehicle and Small Combatant Craft

Transition Target: PEO USC

TPOC: Bob Brizzolara
robert.a.brizzolara.civ@us.navy.mil

Other Transition Opportunities: This system can be integrated onto both manned and unmanned vessels to provide safe navigation during operations where the use of active sensors such as radar presents a risk. PMS-406 manages several USV programs that could benefit from the technology and present a possible transition path. SAFEPASS software brings exquisite capabilities to off-the-shelf sensors and so low-cost, small USVs are the primary target platforms. For this reason, both traditional ship building primes and many of the small businesses currently making headway into the autonomous ship market present transition opportunities.

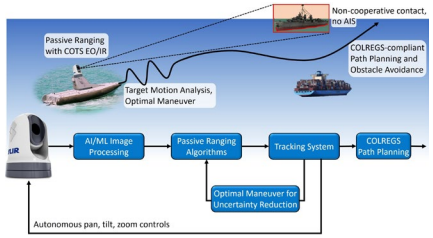


Image courtesy of Scientific Systems Company Inc. 2025

Notes: This technology enables a low-cost, off-the-shelf, monocular camera to passively track nearby vessels. It uses three sophisticated algorithms to estimate range and output tracks compatible with systems that interface with maritime radar. The system is prototyped and its functionality verified in on-water tests. Scientific Systems specializes in applying advanced AI solutions to autonomous systems in sea, ground, air, and space. Our goal is to integrate and transition this technology into the government and prime contractors for use on the nation's growing USV fleets.

WHAT

Operational Need and Improvement: Recent conflicts around the world have highlighted the importance of autonomous platforms and the Navy is seeking to rapidly increase the size of their unmanned fleet. Small Unmanned Surface Vessels (sUSVs) are especially important as they align with DoD's "Affordable Mass" push to produce capable, low-cost platforms at scale. Naval operations which must be done in Emissions Control (EMCON) environments prohibit USVs from using marine radar to detect obstacles and other vessels. Specialized camera systems (e.g. stereo or multi-sensor) can determine distance to nearby vessels, but are mechanically complex, difficult to source in large numbers, and limited in effective range. SAFEPASS software brings exquisite capabilities to a low-cost platform by enabling an off-the-shelf monocular camera to provide accurate range information out to the horizon.

Specifications Required: This technology can be integrated onto a wide variety of platforms and cameras with no additional hardware requirements. The SAFEPASS system requires input of images and has three outputs. The first output is a list of contact tracks, which can be consumed by external systems designed to consume radar tracks. The second output is a stream of pan, tilt, and zoom controls to be sent to the camera, ensuring that all nearby vessels have their tracks maintained. The third output is a list of waypoints, to be passed to the USV autonomy or operator, which contain a Target Motion Analysis (TMA) maneuver to reduce range uncertainty and a COLREGS-compliant path around obstacles. Output data can be represented in several formats, including the Navy's Unmanned Maritime Autonomy Architecture (UMAA).

Technology Developed: Safe Encounter Resolution Using Passive Sensors (SAFEPASS) is a marine perception and action system specialized to process monocular EO/IR data to determine range to objects. Taking inspiration from history's navigators, SAFEPASS performs passive ranging with a combination of Target Motion Analysis, Rate of Growth, and Stadimeter techniques. Closed-loop perception enables the system to produce optimal maneuvers to reduce uncertainty of contact tracks while still maintaining mission objectives and safe separation.

Warfighter Value: SAFEPASS offers the Navy a low-cost add on to any vessel, manned or unmanned. For manned vessels, an automated ranging and tracking system can reduce the manpower required for lookouts by increasing their situational awareness. For unmanned vessels, which normally rely on radar for collision avoidance, it enables an otherwise impossible use case of operation.

WHEN

Contract Number: N64267-24-C-0150 **Ending on:** Mar 25, 2026

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Closed-loop sensing algorithm integration of passive ranging, tracking, and path planning complete.	Low	Simulation Testing	4	1st QTR FY25
On-shore dataset processed to produce tracks.	Low	Offline track accuracy	5	3rd QTR FY25
On-water test data processed to produce tracks.	Medium	Live track accuracy	6	4th QTR FY25
If option exercised, fully autonomous closed-loop sensing demonstration including Target Motion Analysis maneuvers.	Medium	Live track accuracy	7	3rd QTR FY26

HOW

Projected Business Model: Scientific Systems delivers high-impact software to autonomous platforms in the ground, air, sea, and space domains. Our history of deploying to a wide variety of platforms has required our tools be flexible to different configurations. For this reason, we are able to provide this technology under three separate business models. First, SAFEPASS can be purchased under a per-unit software license and integrated into platforms with existing autonomy computer and cameras. Second, SAFEPASS can be purchased as a "autonomy in a box" embedded computer, which can be integrated onto any platform with a sufficient camera system. Finally, SAFEPASS can be purchased as a hardware bundle including a capable pan, tilt, zoom camera.

Company Objectives: Scientific Systems has been delivering industry-leading, AI-powered autonomous solutions for almost three decades. In alignment with DoD's recent "Affordable Mass" strategy, we are well positioned to provide software that imbues commercial, off-the-shelf sensors and platforms with exquisite capabilities. Recent conflicts have shown that a large number of capable, low-cost platforms will outperform a small number of flagship platforms in terms of loss-exchange ratios.

Potential Commercial Applications: SAFEPASS has numerous commercial applications. For manned vessels, an automated ranging and tracking system can reduce the manpower required for lookouts by increasing their situational awareness. There is also a clear application to automated inspection or harbor security for the myriad of commercial small USVs hitting the market.

Contact: Brian A Free, Senior Research Engineer
brian.free@ssci.com (781) 782-3274

Department of the Navy SBIR/STTR Transition Program

DISTRIBUTION STATEMENT A. Approved for public release. Distribution is unlimited.
NAVAIR Public Release .SPR-2025-0610

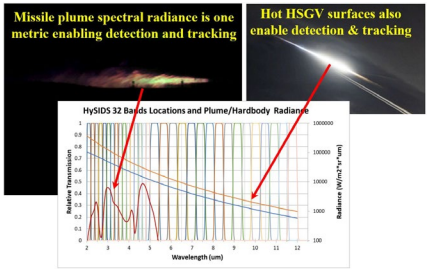
Topic # N231-020
Detection and Tracking of Hypersonic Missiles Using EO/IR Sensors
Surface Optics Corporation

WHO

SYSCOM: NAVAIR

Sponsoring Program: NAWC-AD

Transition Target: Transitioning Surface Optics Corporation (SOC) Multispectral/Hyperspectral Imaging (HSI) sensors to any land, sea, or air platform would enable enhanced protection of that platform and other DoD assets by reliably detecting hypersonic threats long before their arrival. Detection, identification, and tracking of these threats is vital to countering them before the adversary can inflict catastrophic damage and kill/injury US and Allied personnel.



Surface Optics Corporation; DVIDS

TPOC: (301) 342-3728
Richard.LaMarca.civ@us.navy.mil

Other Transition Opportunities: All DoD branches and their assets are at risk from hypersonic threats, so all branches provide transition opportunities. This system can be deployed at a base or on a vessel, but line-of-sight limitations associated with curvature of the earth limit ultimate detection range for sea-level or near-sea-level installations. Improved protection results from high-elevation operation. Hence, transition to a high-altitude platform, whether UAV or a long-term station-keeping balloon such as one identified in the Phase I effort, or transition to a space-based platform, provides dramatically improved detection ranges an, hence, force protection; transition to such platforms, then, is the ultimate goal of this effort.

Notes:

WHAT

Operational Need and Improvement: Hypersonic missiles, both cruise and boost/glide, pose an emerging and growing threat to US Naval assets. These missiles move and maneuver at speeds of Mach 5 or higher, leaving little time to detect, track, and deploy counter measures. Given their ability to maintain a relatively low altitude, fly fast, and maneuver, these threats are more difficult to detect than standard cruise or ballistic missiles and are likely to penetrate current anti-missile shield systems. Plasma sheaths from atmospheric ionization around the missile absorb radio waves, making these threats practically invisible to radar

Specifications Required: This program seeks to explore and develop UV, SWIR-MWIR, and LWIR spectral imaging technologies for the detection, identification, and tracking of hypersonic missiles that cannot otherwise be detected using more conventional imaging or radar. The goal is to perform an exploration and investigation of the spectral signatures of these threats resulting from their aero-heated surfaces and plasma sheaths. Investigations also include adaptation of Surface Optics' plenoptic LightShift spectral imaging technology to exploit these signature to enable reliable detection of hypersonic threats at significant ranges, yielding many minutes to track and then deploy countermeasures.

Technology Developed: Surface Optics' LightShift spectral imaging technology allows simultaneous acquisition of 32 spectral bands from 2 um to 12 um throughout a 320 x 180 image (640 x 360 with super resolution) at beyond video frame rates; 16 bands from 0.27 um to 0.55 um for imaging the plasma sheath are available as an option. An integrated, compact, spectral image processor executes spectral detection and tracking algorithms on the imagery to detect and track hypersonic missiles, both during boost/cruise phase and during glide phase; the high sensitivity and speed of this imager, together with the high spectral radiances of the threats, enable detection even when the missile / glide vehicle is deeply subresolved, resulting in many minutes to prosecute the threat. Metrics from the sensor enable definitive differentiation of hypersonic threats from non-threats, such as meteors and non-hypersonic objects.

Warfighter Value: Reliably detecting hypersonic threats at very long range allows the warfighter many minutes to track the threat to determine an approximate destination and then to deploy countermeasures to eliminate the threat. This capability improves both warfighter and targeted non-combatant safety.

WHEN

Contract Number: N68335-24-C-0374 **Ending on:** Jun 24, 2026

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Prove LightShift spectral imaging technology for moving target detection	Low	Detect moving targets in cluttered environment	5	3rd QTR FY16
Develop concept for long-range hypersonic missile detection using LightShift technology	Low	Completed conceptual design	2	4th QTR FY24
Design hypersonic missile detection system	Medium	Full design package for system prototype	3	1st QTR FY26
Manufacture prototype system	Medium	Manufacture & integrate all components, test in lab	4	3rd QTR FY26
Test/Demonstrate system during Costal Trident 2026	Medium	Detection of surrogate targets demonstrated	6	4th QTR FY26

HOW

Projected Business Model: Through this Phase I & II SBIR effort, Surface Optics will design, build, and test the prototype HySIDS (Hypersonic Spectral Imaging Detection Sensor). Follow-on efforts will refine the design, incorporated any required changes discovered during testing, and begin transition to a mil-qualified, field-ready system. We then intend to license the technology to a prime contractor better positioned than we to supply the system to DoD and other government agencies for deployment. We will continue to sell HySIDS and variants thereof both to low-volume government customers, e.g., government labs, and to commercial customers.

Company Objectives: Our intent is to finish building and testing HySIDS in preparation for full commercialization through a prime contractor. We then intend to use profits from that commercialization to fund additional system development first for high-value civilian target protection applications, and then to adapt the spectral imaging technology at the heart of HySIDS to non-hypersonic missile detection applications, thereby expanding our presence in the spectral imaging marketing and growing our business.

Potential Commercial Applications: With the growing proliferation of hypersonic threats that can be difficult to identify at extreme
range using current widely deployed techniques such as radar and panchromatic imaging, the threat to any high profile civilian and government targets such as research and development facilities, energy facilities, and government buildings is high. To counter this threat, we will adapt HySIDS for installation at such civilian sites to provide enhanced security. Further adaptation of the technology in HySIDS also enables detection of explosives, chemical and biological agents, drugs, and other threat materials. The chemical identification technology is also appropriate for medical diagnostics, agricultural monitoring and fertilizer/water control, online manufacturing control, and more.

Contact: Mark Dombrowski, President & CTO
markd@surfaceoptics.com (858) 675-7404

Triton Systems, Inc.

Topic #: N221-083
Variable Conductance Thermal Management Technology

Department of the Navy SBIR/STTR Transition Program

DISTRIBUTION STATEMENT A. Approved for public release. Distribution is unlimited.
ONR Approval #2025-9-2-1346

Topic # N231-065
MWIR TPA Notch Filter
EPIR, Inc.

WHO

SYSCOM: ONR

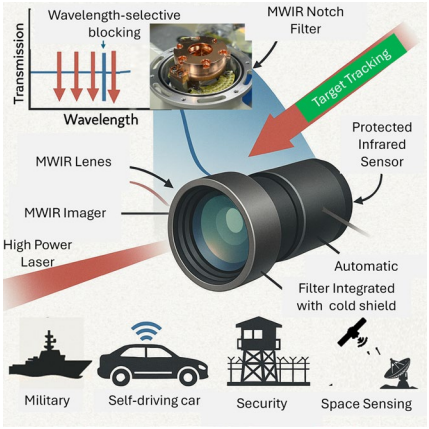
Sponsoring Program: Naval imaging systems/sensor protection

Transition Target: Navy MWIR imaging systems and sensors

TPOC: Richard Espinola
richard.l.espinola.civ@us.navy.mil

Other Transition Opportunities: Army imaging systems
Air Force imaging systems
Missile defense system for all agencies
Commercial laser protection

Notes: TPA filter technology provides picosecond response time with minimal SWaP impact. Technology builds on EPIR's 20+ years of IR detector and FPA development experience.



MWIR Self-adjustable Notch Filter or Power-limiter Technology

WHAT

Operational Need and Improvement: Navy MWIR imaging systems are vulnerable to high-power laser countermeasures that can disable or damage sensitive sensors. Current protection methods are inadequate.

Specifications Required: Autonomous filter capable of attenuating MW/cm² laser threats while maintaining >90% transmission for normal imaging. No restriction on acceptance angles, no moving parts, no polarization sensitivity.

Technology Developed: HgCdTe and InGaAs-based spectrally agile TPA notch filters using two-photon absorption nonlinear response to autonomously block high-intensity laser threats.

Warfighter Value: Protects critical imaging sensors from laser threats while maintaining operational capability. Enables continued mission effectiveness in contested environments.

WHEN

Contract Number: N68335-24-C-0301 **Ending on:** Jul 31, 2026

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Phase I Completion	Low	Proof of Concept Demostration	3	1st QTR FY25
Phase II Base	Medium	Filter Fabrication and Integration with Imager	5	TBD
Phase II Option	Medium	System Integration	6	TBD
Transition	Low	Transition to Navy System and Demonstration	7	TBD

HOW

Projected Business Model: Manufacturing: Low-rate production at EPIR's ISO 9001 facility (Bolingbrook, IL).
Licensing: IP partnerships with Navy System Vendors.

Company Objectives: Secure Phase III contract with Navy Program Offices, maybe includes the F/A-18 and EA-18G Program Office (PMA-265).
Transition to FRP (Full-Rate Production) via Cooperative Research and Development Agreement (CRADA) with NRL.

Market Size: $120M (military); $45M (commercial) by 2030.

Business Objectives:

Secure Phase III contract with PMA-265 (F/A-18 Program Office).

Transition to FRP (Full-Rate Production) via CRADA with NRL.

Potential Commercial Applications: Laser protection in Navigation system, optical sensors while other high power laser presents such as laser welding and cutting, and LIDAR system presents.

Contact: Silviu Velicu, President
svelicu@epirinc.com (630) 842-4486

Department of the Navy SBIR/STTR Transition Program

DISTRIBUTION STATEMENT A. Approved for public release. Distribution is unlimited.
ONR Approval #2025-11-17-1680

Topic # N23A-T029
Non-Intrusive Aerodynamic State Sensing for Hypersonic Flight Control
GoHypersonic Inc.

WHO

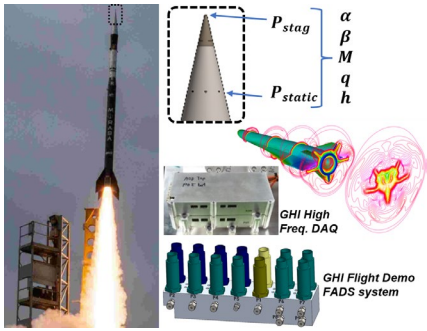
SYSCOM: ONR

Sponsoring Program: Office of Naval Research Code 352

Transition Target: Accurate air state measurement and estimation to improve navigation and target accuracy for DoD missile systems.

TPOC: Eric Marineau
eric.c.marineau.civ@us.navy.mil

Other Transition Opportunities: This technology would be an additional service and product, expanding and complementing our expertise in hypersonic vehicle design and testing. GHI is seeking to lead the market in this space by leveraging our existing and future ground and flight test programs to gather data and refine our FADS system and development approach. Meanwhile, GHI will be looking to expand our customer base to additional government agencies/departments and prime contractors for both development and operational hypersonic and high speed systems.



Distribution Statement A: Approved for Public Release; Distribution is Unlimited. AFRL-2023-5284. 88th ABW CASE NUMBER 2015-3073.

Notes: GHI has now successfully demonstrated high accuracy FADS measurement and state estimation approach during the ONR STTR Phase I and is in Phase II development of a prototype hypersonic FADS system. GHI has demonstrated its hypersonic vehicle design/production, sensing solutions, data acquisition systems, and experiment control on multiple hypersonic flight tests (2023 HIFLIER launch shown) and will use this expertise/experience to rapidly advance this technology to benefit the warfighter.

WHAT

Operational Need and Improvement: Hypersonic flight conditions are greatly affected by incoming air state, and it is critical to understand incoming air properties to accurately control vehicles under these extreme pressures and temperatures. Hypersonic vehicle flight envelopes cover a wide range of flight conditions, proving challenging to measure incoming air state with a single sensing technology. As stated in the solicitation, “No single technology is capable of producing sufficient accuracy, precision, and bandwidth across the entire flight envelope of a hypersonic weapon, especially for weapons that cover a range of high-speed conditions in a single flight” - Navy STTR Solicitation (N23A-T029), 2023

Specifications Required: A single technology capable of producing vehicle state information (speed, orientation, altitude, etc.) with sufficient accuracy, precision, and bandwidth across the entire vehicle flight envelop, covering subsonic, supersonic, and hypersonic conditions to enable hypersonic vehicle control.

Technology Developed: GHI demonstrated a widely adaptable approach during Phase I showing a high TRL sensing solution, coupled with our FADS database algorithm produces state estimates sufficient for hypersonic vehicle control, making GoHypersonic a leader in this field. GHI is rapidly advancing the TRL of this system ahead of competitors with our FADS hypersonic flight experiment in 2025.

Warfighter Value: GHI’s FADS system decreases flight risks by providing accurate air state measurement to improve navigation and target accuracy, even within contested environments. Accurate air data leads to more robust vehicle control, resulting in greater accuracy to target and improved range. The warfighter sees benefits from fewer missed targets and increased contested environment capabilities.

WHEN

Contract Number: N68335-24-C-0516 **Ending on:** Sep 25, 2026

Milestone	Risk Level	Measure of Success	Ending TRL	Date
FADS State est. computer MkI	Low	Implementation of state estimation algorithm with simulated flight data	4	1st QTR FY26
Hypersonic flight test of FADS sensing solution (no computer)	Low	Capture data to improve FADS system and data processing	6	1st QTR FY26
Wind tunnel test of FADS system, with state est. comp.	Low	Capture data to improve FADS system and data processing. Demonstration of FADS system on additional configuration.	6	2nd QTR FY26
FADS State est. computer MkII	Low	Improved performance state estimation computer demonstrated using ground and/or flight data	6	4th QTR FY26
Refinement and adaptation	Low	Continue refining system based on test data and adapt to new system/transition partners	7	2nd QTR FY27

HOW

Projected Business Model: The Flush Airdata Sensing (FADS) system is a GHI service and product offered to primes and government agencies/departments to increase capability of emerging weapons systems.

Company Objectives: GoHypersonic Incorporated (GHI), headquartered in Dayton, Ohio, was founded in 2006.GHI specializes in hypersonic flight technologies and systems, with ~50 prime contact awards supporting customers such as USAF, USN, MDA, and NASA and more. Our company is growing to become a vertically integrated innovator of hypersonic technologies to ensure the defense of our country. By 2030, GHI will have developed 1-2 unique military systems and successfully completed 4-6 flight tests of those technologies.

Potential Commercial Applications: Potential commercial applications for this include high-speed transport via combined cycle engine configurations or solid fuel integral rocket ramjet with payload deployment system for point-to-point transport. FADS technology would benefit either of these applications by providing accurate state estimates for vehicle control.

Contact: Michael Kurtz, Aerospace Engineer
mike.kurtz@gohypersonic.com (937) 331-9460

Department of the Navy SBIR/STTR Transition Program

DISTRIBUTION STATEMENT A. Approved for public release. Distribution is unlimited.
ONR Approval #2025-10-23-1620

Topic # N221-072
High Strain Composite Boom Deployed Volumetric Sonobuoy Array
Opterus Research and Development, Inc.

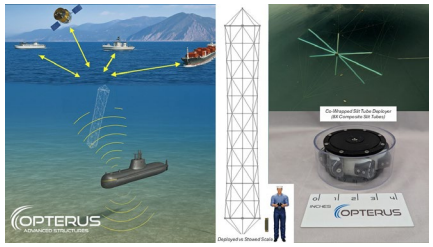
WHO

SYSCOM: ONR

Sponsoring Program: U.S. Navy: Office of Naval Research

Transition Target: Ocean Intelligence, Surveillance, and Reconnaissance (ISR), Underwater Unmanned Vehicle (UUV) Detection, Unmanned Surface Vehicle (USV) detection, Anti-Submarine Warfare (ASW)

TPOC: Joel Lopez-Alvarado
ivan.j.lopez-alvarado.civ@us.navy.mil



www.opterusrd.com

Other Transition Opportunities: Lightweight High Strain Composite (HSC) structures; low-cost deployable systems; ground and sea-based sense and warn, space-based uplink and downlink systems.

Notes: IMAGE
Left: ASW scenario depiction of a deployed Opterus Sonobuoy with across multi-platform sensing

Top Right: Successful environmental test of Opterus Sonobuoy

Bottom Right: Scale depiction of Opterus Sonobuoy and HSC deployer

WHAT

Operational Need and Improvement: Opterus Sonobuoy addresses the gap of scale versus space, where current sonobuoys are limited in the sizing adaptability of the array's aperture and sensing ability as well the current load that can be carried per mission. HSC technology solves the space constraint problem by compacting structures while increasing operational performance and allowing the Navy to maximize sensor capacity within existing platform limitations.

Specifications Required: Low cost (<$500), volumetric expansion ratio of 5100x, support ~100 hydrophones.

Technology Developed: This High Strain Composite (HSC) deployable structure achieves exceptional volumetric expansion utilizing dual co-wrapped slit tube deployers that stow compactly and then passively deploy to maintain optimal radial stiffness. Engineered HSCs can tolerate extreme deformations while preserving material integrity, exceptional precision and stiffness upon deployment. HSC structures are low-cost to manufacture and have broad applicability for sensing scenarios across domains.

- Volumetric expansion ratio: 6,428x - 8,267x
- Passive deployment (no active mechanisms), +48 hr deployment lifespan
- Scalable, low-cost manufacturing

Warfighter Value: This next generation HSC deployable structure technology directly addresses the Navy's need for enhanced acoustic sensor capacity for both small and near peer threats without increasing platform footprint. The +6,000x volumetric expansion capability enables:

-Increased Mission Capacity: Deploy many more sensors per sortie without additional storage modifications
-Extended Operational Range: Carry larger sensor arrays for broader area coverage and mission duration
-Tactical Flexibility: Rapid passive deployment for responsive sensor placement in dynamic threat domains
-Reduced Logistics Burden: Compact stowed configuration reduces resupply frequency/storage complexity
-Cost-Effective Force Multiplier: Low-cost manufacturing enables wider deployment across the fleet

WHEN

Contract Number: N68335-23-C-0658 **Ending on:** Sep 20, 2027

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Task 1: Prototyping Design Review	High	Advantageous concept design and strategy built for fabrication and production	2	1st QTR FY25
Task 2: Prototype Fabrication	High	Fabricate HSC deployer and tension wire to all specifications and requirements	3	3rd QTR FY25
Task 3: Opterus Lab Testing	High	Effective multi-deployment test at Opterus facility	4	3rd QTR FY25
Task 4: Environmental Testing	Medium	Successful 48 hour environmental test towed and at simulated sea state 5	6	4th QTR FY25
Phase II Option	Medium	Successful design iteration, with environmental and operational testing	7	TBD

HOW

Projected Business Model:
(1) The company will develop technology to the point of commercialization, ensuring it meets market readiness and regulatory requirements.
(2) Following successful development, the company will then license or supply the deployment system directly to the prime contractor for implementation.

Company Objectives: To create and supply world class deployable structures and systems for application and utilization advancing U.S. defense capabilities in all domains.

Potential Commercial Applications: Sea-mapping, seismic detection, natural disaster advanced warning, sub-sea exploration, weather tracking, oil and gas detection, rare earth mineral mapping.

Contact: Jenna Commisso, Program Manager
jcommisso@opterusrd.com (815) 713-7217

Department of the Navy SBIR/STTR Transition Program

DISTRIBUTION STATEMENT A. Approved for public release. Distribution is unlimited.
NAVSEA #2025-074

Topic # N211-062
Nondestructive Detection of Flaws through Thick Polymers using Electromagnetic Imaging Technologies
Texas Research Institute Austin, Inc.

WHO

SYSCOM: NAVSEA

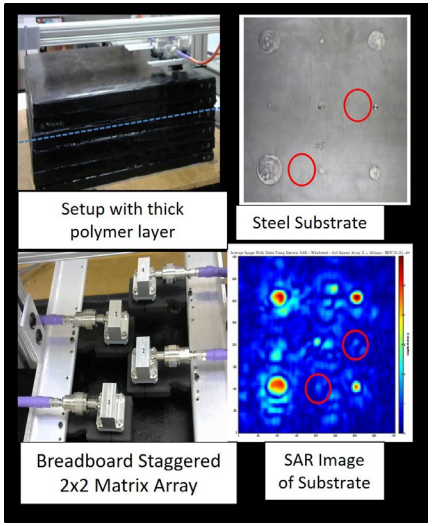
Sponsoring Program: Submarines, and other Subsea applications

Transition Target:

TPOC: (401) 832-4462

Other Transition Opportunities:

Notes: Prime: TRI Austin, Inc. (PI - Doyle Motes, P.E. – dmotes@tri-austin.com)
Subcontractors: Iowa State University Center for Nondestructive Inspection (PIs – Dr. M. Tayeb Al Qaseer, PhD), AVID R&D (Dr. Trevor Watt, PhD)



Images courtesy TRI

WHAT

Operational Need and Improvement: USN is anticipating advanced sustainment needs for marine vessels that are covered in thick polymer coatings. Specifically, these vessels can experience seepage between the polymer coatings that allow water ingress to the steel substrate below. This can cause corrosion, metal loss, and degradation of the bondline between the polymer and the steel below, in the worst case resulting in the loss of the polymer coating in totality. Inspection of the substrate health is made more complicated by conductors embedded within the coating itself.

Specifications Required: Developing a bi-static electromagnetic (EM) imager (frequency range ~ 8-18 GHz) will permit inspection of the substrate around conductive obstructions. The imaging system has been shown to identify corrosion defects at sizes of interest.

Technology Developed: TRI Austin is developing a real-time, high resolution, microwave frequency imaging system for the inspection of the surface of a metallic substrate under thick polymer coatings. The imaging system will use synthetic aperture radar (SAR) imaging algorithms to generate high resolution images from raw microwave inspection data (in the range from 10-18 GHz). The system will accurately provide data on the substrate's state, service capabilities, and bond life at various times in their life cycles. Currently, there is no method for testing thick polymers besides destructively removing sections which is costly, labor intensive, and time consuming. The NDT capability will greatly enhance performance and readiness across a number of Navy platforms.

Warfighter Value: There is currently no method for nondestructive testing (NDT) of metal substrate health underneath the bondline of thick polymers. TRI Austin's electromagnetic inspection technology provides high resolution, microwave frequency imaging system for the inspection of the surface of a metallic substrate under thick polymer coatings.

WHEN

Contract Number: N68335-23-C-0410 **Ending on:** Aug 26, 2026

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Breadboard Imager lab model	N/A	Completed	5	4th QTR FY24
Breadboard Imager Prototype	N/A	Completed	5	4th QTR FY25
Final Production Model	Medium	3rd QTR 26	6	4th QTR FY26

HOW

Projected Business Model: Sell to customers either via licensing or direct application of product.

Company Objectives: Sell an end product commercially.

Potential Commercial Applications: Subsea infrastructure

Contact: Doyle Motes, Principal Investigator
dmotes@tri-austin.com (512) 615-4475

Sustainment

Company	Topic	Project Title	SYSCOM
Boston Engineering Corporation	N231-031	Underwater Cavitating Jetting Antifouling System	NAVSEA

Department of the Navy SBIR/STTR Transition Program

DISTRIBUTION STATEMENT A. Approved for public release. Distribution is unlimited.
NAVSEA #2025-047

Topic # N231-031
Underwater Cavitating Jetting Antifouling System
Boston Engineering Corporation

WHO

SYSCOM: NAVSEA

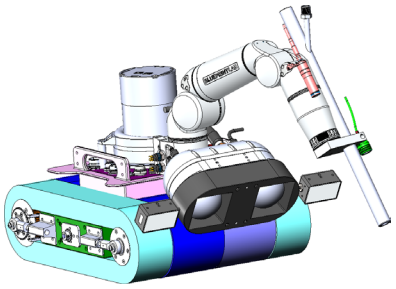
Sponsoring Program: NAVSEA PEO IWS 5.0

Transition Target: NAVSEA PEO IWS 5.0

TPOC: (301) 227-5622

Other Transition Opportunities: PEO Subs, PEO Ships, NAVFAC, Commercial Shipping, Cruise Industry

Notes: This platform is the underwater variant of a commercial above-water version. The design of both of these platforms is highly modular, enabling the use of any number of work packages or sensors above or below water.



Boston Engineering Corporation

WHAT

Operational Need and Improvement: Acoustic receive arrays mounted to the contours of Navy submarines and surface combatants provide detailed understanding of the undersea environment and the entities within that environment. However, these sensitive surfaces can easily become fouled by biological growth during deployment. This biofouling causes sound energy to impinge on the sonar arrays, clouding sonar images and effectively reducing array sensitivity. Hull-conformal acoustic arrays, often coated with anti-fouling materials, can cover large areas of the hull of a submarine or surface combatant. Using current practice, this results in a need to manually clean large, fouled surface areas, which comes with a concomitant risk to divers.

Specifications Required: The technology must replace the level of biofouling removal currently achieved by Navy diver personnel. The system requires a level of autonomy, allowing cleaning of the acoustic arrays with minimal human intervention.

Technology Developed: Boston Engineering is developing an underwater suction-adhering crawling robot. The platform will use a robotic arm to replicate the fidelity of a human diver to match or exceed the cleaning ability. Additionally, localization will allow the system to eventually achieve autonomous cleaning of the arrays, enabling a bespoke cleaning schedule based on environmental conditions.

Warfighter Value: This technology enhances safety of the Warfighter by removing diver personnel from the water, instead allowing the hull-conformal acoustic arrays to be cleaned from the relative safety of a boat or potentially pierside. Additionally, with an "on-demand" cleaning ability, the nation's fleet can stay in peak condition ready to immediately shift back to operations with maximum effectiveness.

WHEN

Contract Number: N00024-25-C-S044 **Ending on:** Feb 18, 2027

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Robotic Arm/Water Jet Integration	Medium	Cavitating water jet fidelity testing for antifouling effectiveness	6	3rd QTR FY26
Localization of platform that meets or exceeds diver capability	Medium	Underwater imaging system demonstration	5	1st QTR FY26
Underwater stereo camera system to assist in visualization from topside/through turbidity	Medium	Underwater imaging system demonstration	5	1st QTR FY26
Crawler with suction adherence while traversing hull	Low	Cavitating water jet fidelity testing for antifouling effectiveness	6	3rd QTR FY26

HOW

Projected Business Model: Boston Engineering Corporation's business model is flexible to meet the needs of the Navy in order to get this technology into the hands of the Warfighter. The company will work with government stakeholders to determine most beneficial route: equipment sales, leasing model, etc.

Company Objectives: Boston Engineering's mission statement "Improving the Way People Work and Live Through Innovative Product Design and Novel Engineering" translates perfectly to our mindset regarding the Warfighter. We want to help the Navy, and DoD as a whole, accomplish their mission in the safest, most efficient way possible to keep the nation protected.

Potential Commercial Applications: The technology developed during this program has clear applications in the commercial sector. The biofouling process has highly negative effects on virtually any vessel or structure exposed to water. This biofouling causes serious damage and hinders performance. Commercial shipping and the cruise industry are two likely customers for an autonomous solution. Smaller variant(s) of the platform may be useful for fishing or private boats. Boston Engineering also designs solutions with modularity and interoperability in mind, so the same platform could be used with any number of sensor or work package, greatly enhancing the use cases.

Contact: Mark Smithers, Chief Technology Officer
msmithers@boston-engineering.com (508) 259-8686

NAVY SBIR TRANSITION PROGRAM

Weapons Technologies

Company	Topic	Project Title	SYSCOM
SpaceWorks Enterprises, Inc. (SEI)	N231-006	Next Generation Toolset for Weapons Separation Evaluation	NAVAIR

Department of the Navy SBIR/STTR Transition Program

Topic # N231-006
Next Generation Toolset for Weapons Separation Evaluation
SpaceWorks Enterprises, Inc. (SEI)

WHO

SYSCOM: NAVAIR

Sponsoring Program: Navy NAVAIR

Transition Target: Weapons separation analysis

TPOC: (301) 342-8580

Other Transition Opportunities: This effort will yield a fully functional suite of software for store separation evaluation, with the primary goal of this technology is to serve as a replacement for legacy 6-DOF store separation analysis used by NAVAIR. This new software will have the flexibility to cover a wider range of analysis scenarios as well as support emerging needs. Therefore, this technology could be applied to new and upcoming warfighter aircraft programs as well as existing ones.

Image courtesy of SpaceWorks Enterprises, Inc.

Notes: SpaceWorks Enterprises, Inc. (SEI), based in Atlanta, Georgia, specializes in leading edge space and flight product development, systems engineering, software development, and aerospace economic consulting for a broad and diverse customer base. SpaceWorks is dedicated to advancing the state-of-the-art of the aerospace space sector from early design to flight demonstration.

WHAT

Operational Need and Improvement: Air-launch weapon system store separation dynamics need to be fully characterized to ensure safety and weapon controllability during the separation phase. Late identification of store separation and controllability issues during flight test can result in reduced flight envelopes or asset redesign causing significant fielding delays. As a legacy FORTRAN-based tool, NAVSEP (NAVAIR's Store Separation Branch) lacks commercial-grade software development, documentation, support, and upkeep, nor can it take full advantage of modern computational capabilities or easily integrate into modern workflows. These limitations have made it difficult for store separation design teams to keep pace with the advancement in complexity of air-launch weapons systems and aircraft platforms. SpaceWorks is developing a new weapons separation toolset, called Kingfisher, using state-of-the-art computer program methods and software utilities as a replacement to NAVSEP.

Specifications Required: The Navy requires a novel toolset with a core 6-DOF equations-of-motion solver, an integrated visualization workflow, and an efficient miss distance calculator for generating proximity data between the aircraft and weapon. These computed trajectories are critical for separation dynamics to assess safety and weapon system controllability issues during flight tests.

Technology Developed: SpaceWorks is actively developing Kingfisher, a novel and modern toolset that expedites analysis of weapon separation events. This new software will feature a 6-DOF equations-of-motion solver demonstrating weapon dynamics propagation, a miss distance calculator determining two-body proximity calculations, and visualization tools to explore results and provide 3D animations of the weapon separation event. The software features a user-friendly, text-based input file with syntax highlighting support. Kingfisher is based in a modern programming language and built from the ground up to take advantage of today's multithreaded high performance computing architectures, and to be integrated into modern automation environments for batch execution and system design studies.

Warfighter Value: Kingfisher provides critical capability for the Navy and other DoD entities to set a new standard for store separation analysis based on a flexible, modular, and performant software suite that enables next-generation store modeling. A critical value available to the warfighter is a greater understanding of safety and risks during test fights or operation due to the enhanced capabilities of Kingfisher. Kingfisher will be a commercial-grade software product with thorough documentation, ongoing maintenance, and technical support.

WHEN

Contract Number: N68335-24-C-0397 **Ending on:** Jul 06, 2026

Milestone	Risk Level	Measure of Success	Ending TRL	Date
6-DOF equations-of-motion solver	Low	Solver results match or improve the quality of those from legacy Navy software	4	3rd QTR FY26
Efficient miss distance calculator	Low	Solver results match or improve the quality of those from legacy Navy software	4	3rd QTR FY26
Interactive data explorer GUI	Low	User experience matches or improves on the quality of those from legacy Navy software	4	3rd QTR FY26
Interactive 3D animation visualizer	Low	User experience and graphics matches or improves on the quality of those from legacy Navy software	4	3rd QTR FY26
Core GUI wrapper	Low	User experience matches or improves on the quality of those from legacy Navy software	5	3rd QTR FY27

HOW

Projected Business Model: SpaceWorks will offer Kingfisher as a fully featured, commercial-off-the-shelf software package to both the DoD and commercial customers. Leveraging existing industry relationships to bring this software to market. Initial marketing efforts will focus on the DOW and US companies only, with further exploration of other revenue streams, including research institutes and universities as secondary targets. The funding from this effort will primarily cover the research and development costs associated with maturing this technology. Additional funding from SpaceWorks' software business unit will be used to drive a proactive marketing campaign via our dedicated software sales team.

Company Objectives: SpaceWorks maintains a strong focus on commercialization of aerospace simulation software and will leverage corporate expertise as the capabilities of Kingfisher are made available to the defense sector. SpaceWorks has a proven track record of successfully transitioning software initially funded by the SBIR program to fully supported commercial-off-the-shelf software products. Examples include QuickShot, a trajectory optimization software suite, and Manta, a high-speed propulsion modeling and optimization software tool. SpaceWorks plans to leverage our deep experience in selling both QuickShot and Manta to market the final software product from this effort to both government and commercial customers.

Potential Commercial Applications: SpaceWorks anticipates that multiple commercial companies and defense contractors will benefit from and have interest in this advanced toolset for shortening the design and development cycle for air-launched munition market.

Contact: John Bradford, CEO
john.bradford@spaceworks.aero (770) 379-8007