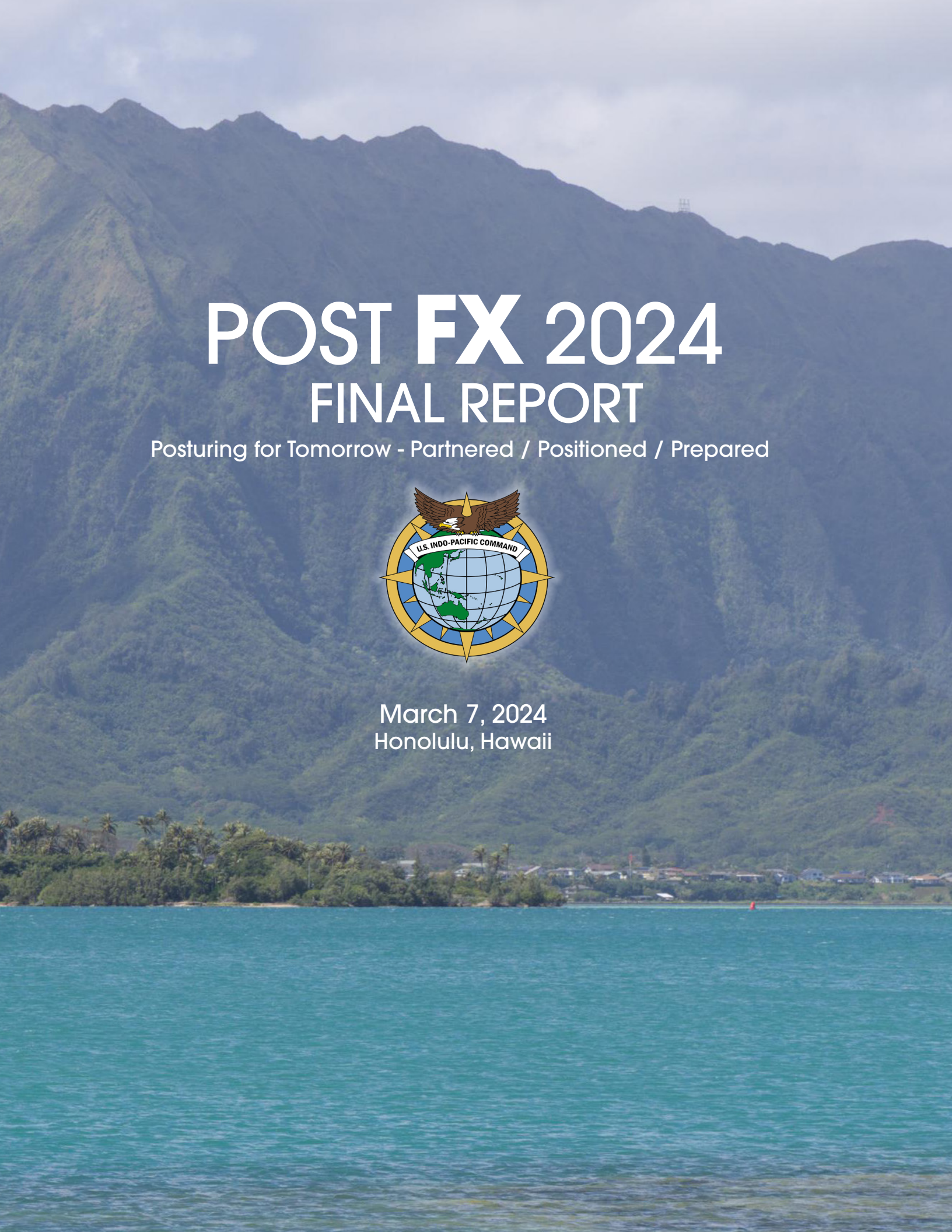

POST FX 2024
FINAL REPORT

Posturing for Tomorrow - Partnered / Positioned / Prepared

March 7, 2024
Honolulu, Hawaii

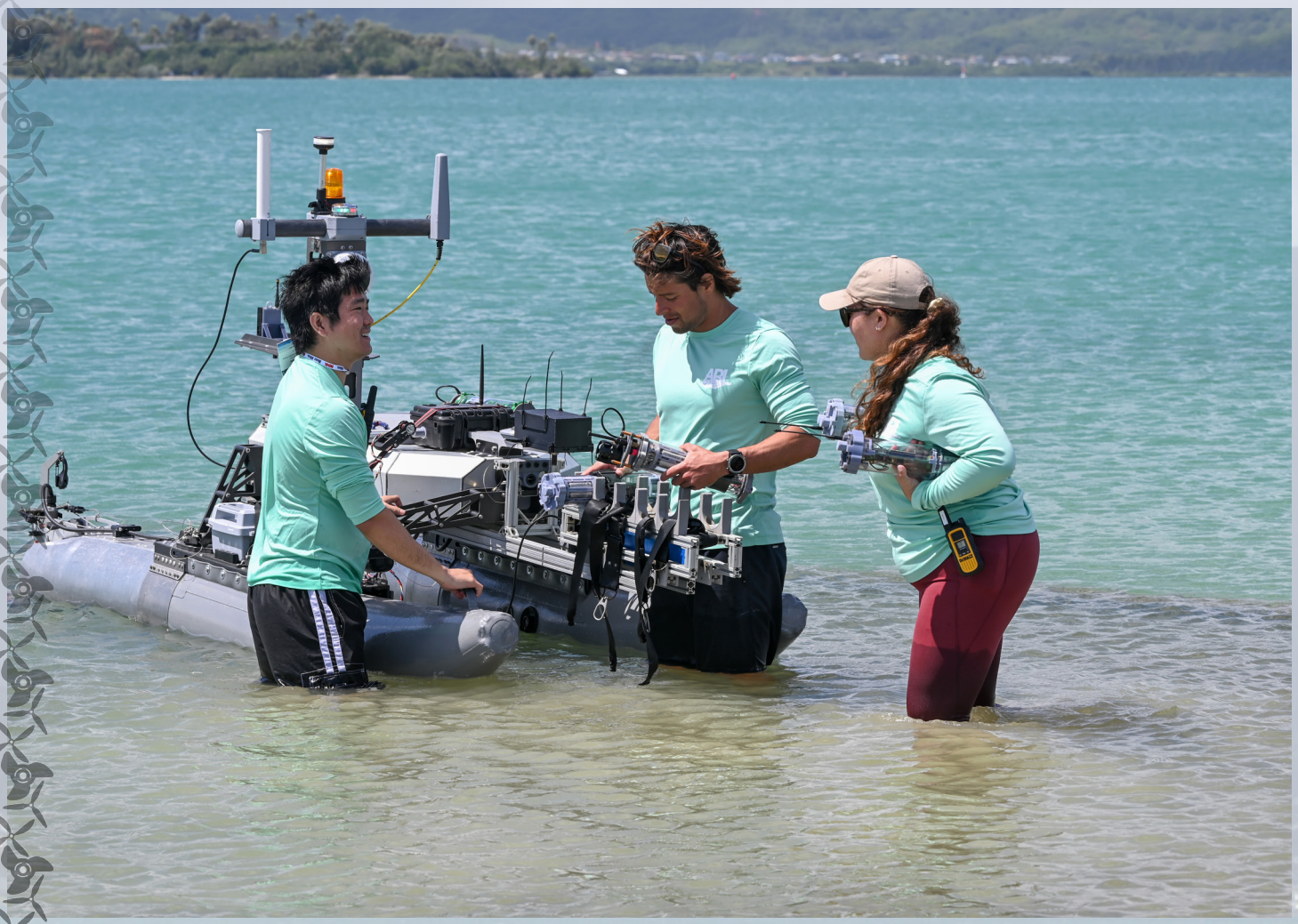

photo credit: NDIA

executive summary

The Pacific Operational Science & Technology Conference (POST) is the United States Indo-Pacific Command's (USINDOPACOM) annual Science and Technology (S&T) conference. The conference brings together policy, military, industry, and academic leadership from the United States (US) and its Pacific allies to focus on the emerging stability challenges in the Indo-Pacific region. The theme for POST 2024, "Posturing for Tomorrow – Partnered / Positioned / Prepared," fostered collaboration among the S&T community within the USINDOPACOM.

The Field Experimentation (FX) component of the conference is designed to provide a stage for demonstrations of technologies that engage USINDOPACOM's allies and partners. The third annual POST FX, in 2024, offered a platform to vendors from industry, academia, and small and local other government agencies to present their technologies.

POST FX 2024 was conducted on March 7, 2024, at the Marine Corps Base Hawai'i (MCBH) in Kāne'ohe, Hawai'i and hosted 45 organizations, agencies, and technology vendors. Approximately 600 attendees from the US Government and Pacific Security Partners, industry, and academia from 13 countries were part of the event.

Feedback from POST FX 2024 demonstrators and attendees was overwhelmingly positive and many indicated the event provided technological insight and networking opportunities in an operational setting. Given this response, POST FX promises to be a critical component of future POST conferences. This report aims to connect readers with POST FX organizers and technology providers for appropriate discussion using the contact information provided.


EASYRIDERS

contents

photo credit: NDIA

purpose and objectives

As the United States (US) enters an era of strategic competition with near-peer adversaries, the Joint Force plans to accelerate its uptake of critical technologies that will maintain the nation's competitive advantage into the future. At the same time, the US military must enhance its cooperative and security agreements with like-minded allies and partners, especially in the Indo-Pacific area of responsibility, to create a robust and responsive coalition of countries that work together to repel any threat posed to the security of the region. "Posturing for Tomorrow – Partnered / Positioned / Prepared" was the POST 2024 theme, and the event placed a special focus on critical infrastructure cybersecurity, manufacturing technology, and contested logistics.

As the allied defense science and technology community accelerates to meet the speed of relevance, technology field experimentation serves a unique purpose within the innovation ecosystem. Specifically, these endeavors benefit both the developers and end-users of technological innovations, providing invaluable operational insight to the developers and giving the latter real-time familiarization and feedback opportunities to guarantee seamless force uptake and maximize operational utility.

POST FX seeks to capture the momentum generated by the POST conferences and channel it to advance warfighting capabilities. The complex security challenges in the Indo-Pacific demand that the community moves forward together to innovate, collaborate, and strengthen efforts to maintain peace and prosperity in the region. Developing solutions from different perspectives and rapidly fielding novel prototypes for experimentation are crucial to enhance the capabilities of both joint and allied warfighting forces.

The innovation priorities for POST FX 2024 include five principal priorities issued from USINDOPACOM J85 (S&T Division) and 14 additional general priorities adopted directly from the Office of the Undersecretary of Defense for Research and Engineering. The principal innovation priorities are Counter-Command, Control, Communications, Computers, Cyber, Intelligence, Surveillance and Reconnaissance (Counter-C5ISR); Air/Land/Maritime Domain Awareness; Joint Command and Control (C2); Contested Logistics; and Humanitarian Assistance/Disaster Response (HA/DR). The general innovation priorities are Biotechnology; Quantum Science; Future Generation Wireless Technology (FutureG); Advanced Materials; Trusted Artificial Intelligence (AI) and Autonomy; Integrated Network Systems-of-Systems; Microelectronics; Space Technology; Renewable Energy Generation and Storage; Advanced Computing and Software; Human-Machine Interfaces; Directed Energy; Hypersonics; and Integrated Sensing and Cyber.

All POST FX 2024 technology demonstrators linked their solutions to innovation priorities. Among the 19 categories, Air/Land/Maritime Domain Awareness, Joint C2, and Contested Logistics were the most well-represented. The demonstrators were assembled according to innovation priorities and attendees were encouraged to network with the groups of greatest interest to them. In this manner POST FX 2024 stimulated collaboration around the identified innovation priorities, provide visibility to promising non-traditional defense performers, and highlight novel and transformative technology solutions.

location and organizers

POST FX 2024 represented a marked shift from the previous years' events with respect to visibility, interest, and operational relevance. Anticipating a sharp rise in recognition, arrangements were made early in the planning process to bolster organizational support in the months leading up to the event. The Applied Research Laboratory at the University of Hawai'i (ARL at UH) was contracted by USINDOPACOM J85 to act as the principal planner, arranger, organizer, and executor of POST FX, and the National Security Innovation Network (NSIN) assisted the ARL at UH. To facilitate hosting POST FX at MCBH, USINDOPACOM J85 retained one active-duty US Marine Corps (USMC) Captain as an embedded employee focusing principally on serving as the POST FX operations lead and chief liaison officer to MCBH for all matters pertaining to the event. To enable uncrewed aircraft systems (UAS) flights over MCBH, the Naval Information Warfare Center Pacific (NIWC PAC) Flight Experimentation Unit 1 (FLEX-1) and Pacific Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) Department worked in tandem with POST FX organizers and allowed usage of their Developmental Interim Flight Clearance (IFC). As in previous years, the National Defense Industrial Association (NDIA) provided transportation and marketing support.

The one-day demonstration event was held in and around Hangar 103 at the Marine Corps Air Station (MCAS) Kāne'ohe Bay on MCBH. The location provided ample access to airspace, water, and indoor and outdoor hangar and ramp space to host technology demonstrations in all three domains: land, sea, and air. First Low Altitude Air Defense (LAAD) loaned their space within Hangar 103 to host most of the technology demonstrations. Marine Wing Support Squadron 174 (MWSS-174) set up generators and provided electrical distribution infrastructure to power the event. NIWC PAC worked with the Federal Aviation Administration (FAA), MCAS, and MCBH to secure an Airspace Access Authorization (AAA) that enabled UAS operations in the controlled FAA Class D airspace above MCBH. MCAS grounded all crewed aircraft operations in the operating area (OPAREA) during POST FX to deconflict with the event's UAS flights. ARL at UH and USINDOPACOM J85 worked with US Pacific Fleet (USPACFLT) to apply the latter's Hawai'i-Southern California Training and Testing Final Environmental Impact Statement/Overseas Environmental Impact Statement (HSTT FEIS/OEIS) from October 2018 to satisfy the requirements of the National Environmental Policy Act (NEPA) and Marine Mammal Protection Act (MMPA) necessary to operate uncrewed surface vehicles (USVs) and uncrewed underwater vehicles (UUVs) within the MCBH waters of Kāne'ohe Bay just south of Hangar 103. Lastly, the MCBH Provost Marshal's Office (PMO) and the Naval Criminal Investigative Service (NCIS) provided event security, and PMO additionally arranged designated on-base parking areas for FX participants.


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On-site Aerosolization of All Types of Contaminated Water

Kelly Houston, Aerosolization Equity Investments, LLC; 704-756-5494 aeihq@mindspring.com

Technology Description (TRL8, 5 issue utility patents):

- "Aerosolization" is simply adding air to a solution so as to create mass oxidation and precipitate the "fall out" of solution via gravity. CBRNE proved in the mid 70s.
- Eliminates many personnel responsibilities and construction and maintenance costs.
- Greatly reduces installation footprint, operations, and environ. litigation across DoD.
- Overlays existing operations, infinitely scalable, safe, effective, efficient and all natural.
- Simple to deploy, move and maintain with either fixed or mobile operations.
- Eliminates many legacy systems and logistics tails.
- CBRNE decon and fire suppression applications with the automated same equipment.
- As a "dual use" it makes AWG equipment exponentially more efficient, allow for immediate domestic critical mineral mining, immediately protects DoD's supply chain, and directly reduces the nearly $1T spent on public and private sector contaminated water operations and regulatory issues. Reductions can be as much as 85%.

Where do we fit in?

2024 Principal Innovation Priorities:

- Air/Land/Maritime Domain Awareness (WaterSHED project/global reach)
- Contested Logistics (reduced total water related personnel, material and costs)
- Humanitarian Assistance/Disaster Response (any type of contaminated water)

2024 General Innovation Priorities:

- Biotechnology (<u>all</u> biologicals clump very thoroughly in oxidation)
- Autonomy (entire system can be automated and run 24/7/365)
- Integrated Network (system integrated with related compliance)
- Human-Machine Interfaces (automated and integrated with AWG's)
- Integrated Sensing and Cyber (WaterSHED project/global reach)

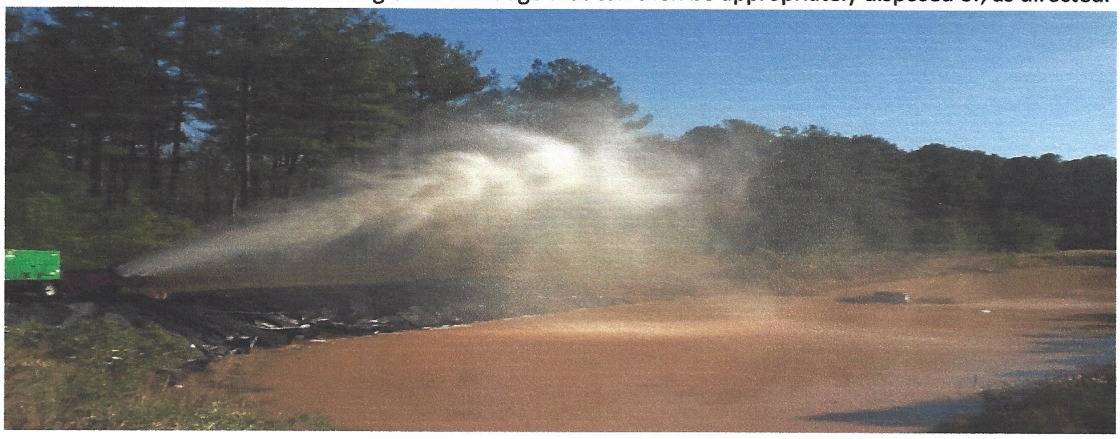
Company Information:

- Self-funded
- 1st state approvals (NC,VA) was after 1.5 years of daily testing with "zero detects" in 2013 and 2015 respectively)
- 2015-2018 spent in court fending off infringing companies
- 2019 CRADA w/ERCD & "Alliance for Risk Assessment" eval. w/zero negative comments
- 2020 – 3 meetings at The White House to request national pilot funding. 4th meeting was cancelled due to COVID in early March
- Seeking to work directly with DoD wince 9/2020 through: AFWERX, AAL, NAVYX, DIU, ANTX/CT, SOF, CBRNE, installations and other various groups evaluation for DoD.

Aerosolization Equity Investments, LLC (AEI, LLC) is a self-funded TRL8 issued patent cluster holding company seeking to directly contract across all branches of DoD and the federal government to eliminate any type of contaminated water using the safe, controllable and medically understood science of "Aerosolization" which forms the scientific basis of the "6-foot social distancing directive". Medical, pharmacology and CBRNE professionals use "aerosolization" daily. **On-site Aerosolization of all Chemically, Biologically or Radiologically Contaminated Water or Algae** is a: proven, effective, efficient, all natural, operationally overlapping, infinitely scalable, and extremely economical "zero liquid discharge" capability to tremendously reduce costs, liability and litigation.

On-site Aerosolization Description: Starting from any ponded and untreated contaminated water the trailer mounted Integrated Mobile Aerosolization System-(IMAS) can be deployed in 5 minutes with a 1-person crew to start "de-watering in place" any type of contaminated water. The SME's for "aerosolization" are chemists, biologists, toxicologist and particle physicists usually found together in the CBRNE commands. "Aerosolization" is simply adding air to a solution to use all natural individual particle electrostatic charges, oxidation and gravity to clump and thus "precipitate out of solution" or "salt out of solution" the contaminants and put them back into the pond from which they came but surrounded by at least 5 layers of oxidation. The "IMAS" is modular, rugged, simple, light, run by standard NATO generators or hard-wired, can be shipped assembled or easily assembled on site by a 2-person team, extremely economical and can be additionally used in assisting "atmospheric water generators-AWGs" create more drinking water from the air, CBRNE DECON operations or in enhancing firefighting capabilities.

On-site Aerosolization of all Chemically, Biologically or Radiologically Contaminated Water or Algae is proven after 1.5 years of daily testing with "zero detects" using untreated landfill leachate and is ready to contract today and start shipping within 6 weeks of PO. Additionally, any small assembly shop in the country can be immediately contracted to make IMAS's for local or international delivery. "Aerosolization" is operationally overlapping and can be easily and simply added to give an immediate "zero liquid discharge" and greatly reduce liability or litigation. 24/7/365 operations are suggested and are remotely controlled with either geo-fenced sensors or drone air monitoring to ensure regulatory compliance through time stamped push documentation. Here working with CBRNE established protocols and equipment are also suggested. Give us 10 million gallons of contaminated water and the total volume will safely be reduced to the tens of thousands of gallons of sludge that can then be appropriately disposed of, as directed.



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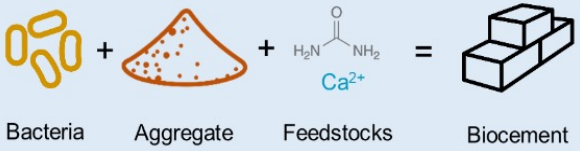
Biocementation

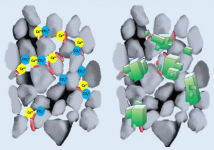
Dr. Mitchell Meade & Dr. Rhett Martineau, Air Force Research Lab, mitchell.meade.1@us.af.mil, rhett.martineau.1@us.af.mil

Microbially Induced Calcite Precipitation

$$(NH_2)_2CO + 3H_2O + urease \rightarrow 2NH_4^+ + HCO_3^- + OH^- + urease$$

$$CaCl_2 + HCO_3^- + OH^- \rightarrow CaCO_3 \downarrow + H_2O + 2Cl^-$$





Technology Description / Product:

- Non-modified, naturally occurring bacterial spores applied to harden surfaces
- Leverages on-site resources (soil/water) to harden ground surfaces; cement produced ≤ 96 hours w/ 10% of current manpower requirements & reduced heavy machinery (<50%) of traditional methods
- Uses affordable, locally sourced chemicals for growth; urea-fertilizer,$CaCl_2$-road salt
- Fieldable using multiple water types – fresh, salt and brackish
- Accelerates construction of critical base infrastructure (i.e. parking aprons, roads, amphibious zones, foundations, LZs, and more)

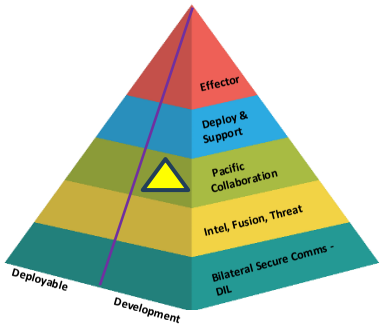
Where do we fit in?

2024 Principal Innovation Priorities:

- Contested Logistics

2024 General Innovation Priorities:

- Biotechnology



Company Information:

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Materials and Manufacturing Directorate
Air Force Research Laboratory
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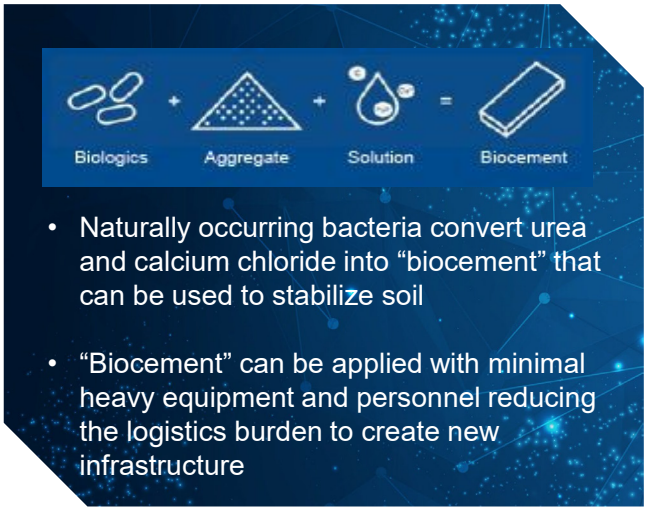
Wright-Patterson AFB, OH 45433

AFRL
THE AIR FORCE RESEARCH LABORATORY
LEAD | DISCOVER | DEVELOP | DELIVER

NDIA

BIOCEMENT

BIOCEMENT FOR AGILE INFRASTRUCTURE



- Naturally occurring bacteria convert urea and calcium chloride into "biocement" that can be used to stabilize soil
- "Biocement" can be applied with minimal heavy equipment and personnel reducing the logistics burden to create new infrastructure

WHAT IS IT?

AFRL is collaborating with a North Carolina-based small business to develop biomanufacturing processes to rapidly expand austere airfields using common agricultural chemicals and natural resources (soil and water) found at the location. These processes significantly reduce the need for heavy equipment, large teams of civil engineers and large quantities of cement and other materials to be shipped to the site. Instead, it allows bacteria to transform the local soil into hardened "biocement" by creating calcium carbonate crystals and binding the soil. This allows US forces to build infrastructure in otherwise resource-poor locations and operate from locations that were previously inaccessible. Once US forces have finished using the airfield, the hardened earth can easily be returned to its original state, lessening the ecological impact of overseas deployments of military personnel.

Biomanufacturing and "biocement" will enable tomorrow's US Air Force to project power and realize their Global Power and Global Reach missions. This capability is made possible by the expertise of AFRL Materials & Manufacturing researchers working to translate the commercial developments to meet the special needs of the military.

HOW DOES IT WORK?

Naturally occurring bacteria, S. pasteurii, are grown on site and sprayed onto the soil where they are given a chance to percolate and grow. Feedstock chemicals, urea and calcium chloride, are then prepared and sprayed on the soil surface. The bacteria produce an enzyme called urease that reacts with urea to form ammonia and carbonate. In the presence of calcium, this forms calcium carbonate, which binds the soil particles together increasing the overall strength of the soil.

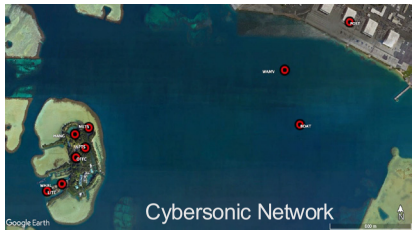
The "biocement" process can be used to treat and stabilize weak sandy soils and significantly improve the soil's load-bearing capacity. The entire process can be carried out in less than 96 hours from initial setup to ready-to-use surface. AFRL and the Air Force Civil Engineer Center (AFCEC) are currently working to test the ability of "biocement" stabilized soils to support heavy ground vehicles and cargo aircraft for short-duration operations.

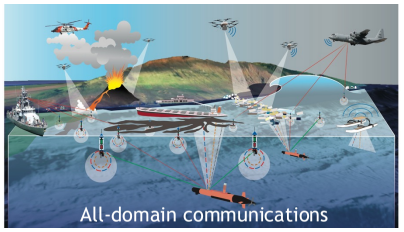
Biocement being sprayed on sandy soil at Tyndall, AFB. Photo Credit: Grace Bland

Applied Research Laboratory at the University of Hawaii (ARL at UH)

Research, Development, Testing & Evaluation of All-Domain Sensor Systems

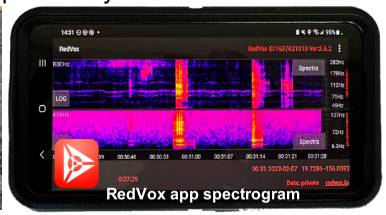
Design and build new capabilities for near real-time all-domain awareness (ADA) by leveraging existing frameworks for Command, Control, Communications, Computers, Combat Systems, Intelligence, Surveillance, and Reconnaissance (C5ISR), humanitarian assistance and disaster relief (HADR), Integrated Networks of Intelligent Cyber-physical Systems-of-Systems, and All-Domain Signatures.



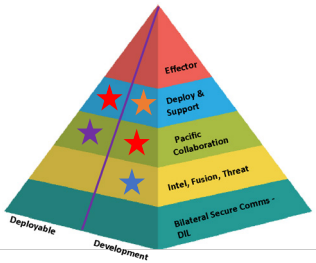


Technology Description / Product:

The ARL at UH is demonstrating its capabilities to design, build, operate, and integrate components into operationally relevant sensing systems such as Mini Sondes (MiSos), Wireless Automated Sensor Platform (WASPs), and Cybersonic RedVox networks for potential deployment aboard land, sea, and airborne platforms in contested environments. The systems are deployed using the 8-foot Wave Adaptive Modular Vessel (WAM-V 8) owned and operated by the ARL at UH.



Where do we fit in?



Focus Areas

- Demonstrate rapidly manufacturable, modular, and low-cost platforms and sensors that can be used in a variety of ADA operations.
- Establish information dominance in contested zones where traditional access and communication pathways may be blocked or pose a risk to allied forces to provide persistent information pipelines to end users.
- Present alternative methods of C5ISR responsive and resilient to natural hazards and denial-of-service attacks.

★ WAM-V ★ MiSo ★ WASP ★ Cybersonic ISR

Contact Information:

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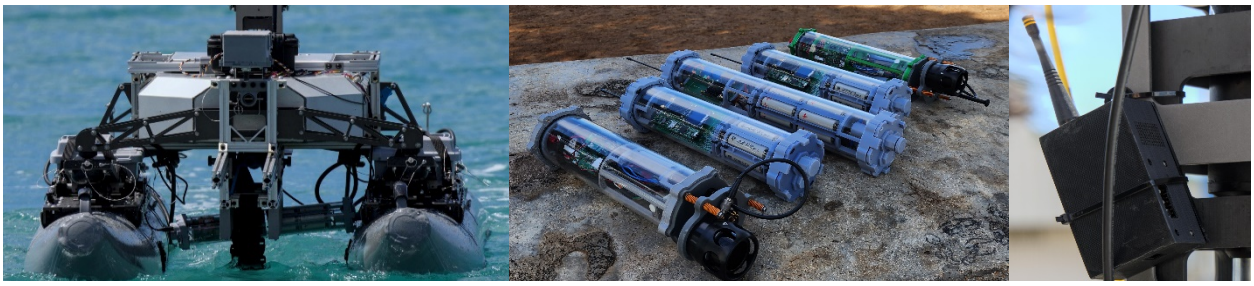
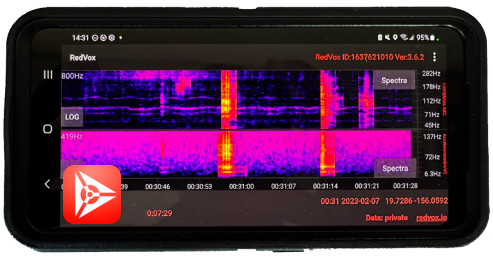
The **ARL at UH** is a Navy-sponsored University Affiliated Research Center (UARC) and serves as a center of excellence for critical national defense needs, imagining and developing agile, innovative, and cost-effective solutions to problems impacting our stakeholders, our community, and our planet. At POST FX 2024, applications toward contested logistics and humanitarian aid and disaster relief are showcased through the deployment of heterogeneous environmental sensing platforms that support rapid characterization and all-domain awareness capabilities in challenging areas.

The Wave Adaptive Modular Vessel (**WAM-V)** is an eight-foot-long autonomous uncrewed surface vessel developed by Marine Advanced Robotics, which acts as a force multiplier to human-led operations by deploying and supporting many assets in the maritime domain in hard-to-reach locations. The Mini Sonde (**MiSo)** is a ruggedized platform suitable for uncrewed aerial vehicle (UAV)-deployment from altitudes up to 10 meters or for batch surface deployment. **MiSo** provides a cross-domain communications pathway from airborne to underwater platforms using wireless communications in air and acoustic communications in water. The Wireless Automated Sensing Package (**WASP)** is a modular handheld radio-sized platform used to create sensor networks from commercial-off-the-shelf (COTS) electronics in 3D-printed enclosures; its modular form allows quick modifications to keep up with technological progress.



Left: WAM-V 8, Center: MiSo Collection, Right: WASP module

The **Cybersonic** Command, Control, Computers, Communications, Cyber, Intelligence, Surveillance, and Reconnaissance (**C5ISR**) network collects and processes pressure and other sensor information to characterize aerial and land, and shallow water acoustic emitters from infrasound to ultrasound moving at subsonic to hypersonic speeds using COTS mobile devices running the RedVox tech stack. The **Cybersonic C5ISR** RedVox sensor network and Cloud ecosystem streams station data from the Hawaii Institute of Marine Biology (Coconut Island) in Kaneohe Bay, Oahu, as well as from Guam and other regions of interest. All sensing platforms are either persistent or regularly field-deployed and demonstrate the ability to communicate data through at least one of the following pathways: cell, Wi-Fi, free-space optical communication, electro-optical and optical-electrical interfaces, or acoustically. The attritable sensors contribute as force multipliers in the world of all-domain awareness, secure operations in contested environments, and in support of humanitarian assistance and disaster response missions. Future iterations will focus on integrating diverse technologies and sensor modalities into a user-defined common operating pictures for mission planning, deployment, and monitoring.



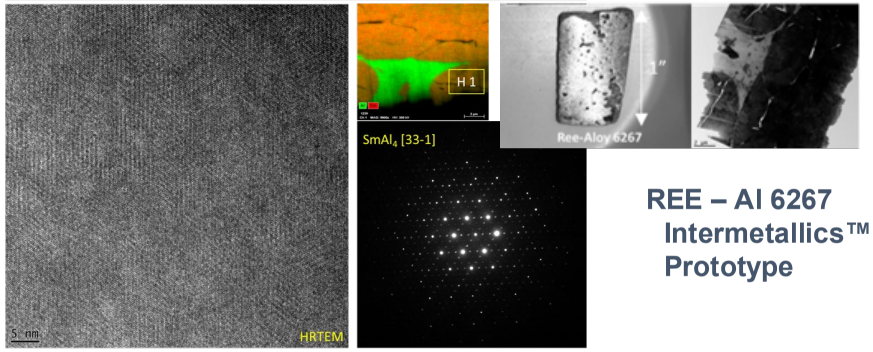
RedVox spectral display, microphone and accelerometer

UNCLASSIFIED

REE-Al Intermetallics™ Innovative Next-Generation Alloy System

Dr. Nickie J. Peters, ARA-NEUK LLC, [573-355-3344], njpeters@ara-neuk.org

Prototype REE-Al 6267 HRTEM and SEM Images with Diffraction Patterns of their Crystalline Monolithic Binary Intermetallic Matrices



REE – Al 6267 Intermetallics™ Prototype

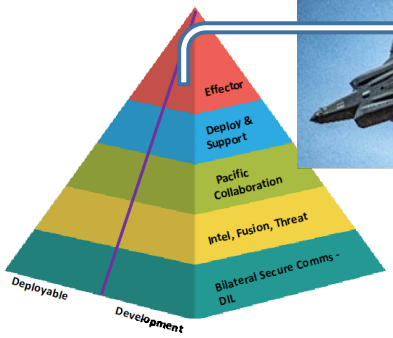
Technology and Products

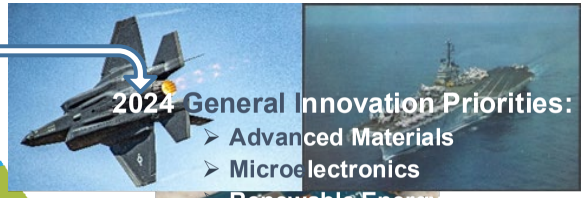
REE-Al Intermetallics™ innovative system of sixteen (16) alloy series for vehicular structural alloys, nuclear reactor components, permanent magnets, and microelectronic device advancement, integral in various DoD applications while supporting decarbonization.

Structural REE-Al Intermetallic™ alloy technology and comparison alloys

REE-Intermetallic	REE-Al Series ID	Max. Melting Temp (°C)	Thermal conductivity[est] (k) Range (W/mK)	Density[est] Range (g/cc)	Surface Oxide
Sc	2100	1420	126 - 214	2.77 - 2.87	$ScAlO_3$
Y	3900	1490	127 - 215	3.24 - 4.21	$Y_3Al_5O_{12}$
La	5700	1405	125 -214	3.75 - 5.64	$LaAlO_3$;La_3AlO
Ce	5800	1480	124 -214	3.93 - 6.16	$CeAlO_3$
Pr	5900	1480	124 - 214	3.93 - 6.16	$PrAlO_3$
Nd	6000	1460	127- 215	4.00 - 6.37	$NdAlO_3$;$Nd_2Al_4O_9$
Sm	6200	1480	125 -215	4.15 - 6.80	$SmAlO_3$
Eu	6300	1050	125 -215	3.47 - 4.86	$EuAlO_3$;$EuAl_2O_4$
Gd	6400	1525	123 - 214	4.27 - 7.12	$Gd_3Al_5O_{12}$
Tb	6500	1513	124 - 214	4.37 - 7.40	$Tb_3Al_5O_{12}$
Dy	6600	1508	124 - 214	4.46 - 7.66	$DyAlO_3$
Ho	6700	1529	127 - 215	4.53 - 7.88	$Ho_3Al_5O_{12}$
Er	6800	1446	126 - 215	4.61 - 8.09	$Er_3Al_5O_{12}$
Tm	6900	1500	127 - 215	4.69 - 8.33	$TmAlO_3$
Yb	7000	1355	138 - 217	3.97 - 6.27	$YbAlO_3$
Lu	7100	1580	126 - 215	4.68 - 8.31	$Lu_3Al_5O_{12}$
Current Alloy Matrices	**ID (General)**	**Alloy Melting Temp (°C)**	**Thermal conductivity (k) Range W/mK**	**Density Range (g/cc)**	**Surface Oxide**
Al	1100; 6061	660	238	2.71	Al_2O_3
Steel	C; stainless	1375 - 1530	16 - 45	7.80 - 8.03	Cr_2O_3
Ni- Superalloy		1453	9.8 - 29.5	≥8.55	NiO
Ti		1650	21.9	4.504	TiO_2
	superior neutron-aborbers				
	superior neutron-transparent				

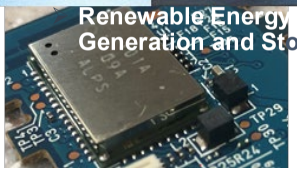
Where do we fit in?





2024 General Innovation Priorities:

- Advanced Materials
- Microelectronics
- Renewable Energy Generation and Storage



Company Information:

ARA-NEUK researches and develops advanced alloy materials. It also offers consultancy services for nuclear related systems and the application of its patent-pending REE-Al Intermetallics™ technologies. The company was founded by CEO and inventor of REE-Al Intermetallics™ alloy system Dr. Nickie J. Peters.

Located: 4612 W Gillespie Bridge Rd,
Columbia, MO, 65203
Tel: (573)355-3344
Email: njpeters@ara-neuk.org
Website: www.ara-neuk.org

NDIA

UNCLASSIFIED

4612 W Gillespie Bridge Rd
Columbia MO, 65203
Tel:573-355-3344
Email: njpeters@ara-neuk.org
www.ara-neuk.org

ARA-NEUK LLC presently developed a novel system of sixteen (16) next-generation alloy series, **REE-Al Intermetallics™,** whose aim is revolutionizing various technologies with – advanced materials, safety in clean energy production, and decarbonization. The patent-pending REE-Al Intermetallics™ alloys and their first-of-a-kind production methodology comply with the *Paris Agreement* decarbonization initiatives. The advanced intermetallic atomic crystallographic structures yield matrices thereof with vastly improved properties. Optimally, REE-Al Intermetallics™ matrices can be more advantageous than aluminum, steel, titanium, magnesium alloys, and nickel-based superalloys. As such, ARA-NEUK LLC's novel system of alloys has various unique characteristics for highly versatile, oxidation-resistant, and high-temperature applications in advancing structural alloys, nuclear reactor components, permanent magnets, and microelectronic device technologies. That is, the impact capabilities include: *(i) lightweight REE-Al Intermetallics™ alloy technologies that can increase current ground vehicular fuel efficiency by up to 25%, and military jet fighters e.g., the LM F22 Raptor, by up to 15%, while providing high-temperature and corrosion-resistant benefits for aero-space vehicular turbine engines, and rotary mechanics applications, (ii)accident-tolerant and long-life REE-Al Intermetallics™ neutron absorbers that can bolster nuclear reactor safety while mitigating the 4000-year high-level radioactive waste of the current silver-alloy technology used in PWRs while neutron-transparent options qualify for nuclear reactor pressure vessels, (iii)the REE-Al Intermetallics™ matrices that can revolutionize field-effect transistor (FET) technologies - the keystone in all communication devices, providing high-temperature applications at least five (5) times higher than some current high-temperature FETs.* Additionally, REE-Al Intermetallics™ novel production methodology can save 1.85 tons of CO_2 per ton of steel from being produced.

Several small-scale prototypes of REE-Al Intermetallics™ matrices have been produced, evaluated by specific instrumentation such as high-resolution electron microscopy imaging, and experimentally tested in extreme environments for corrosion performances. The results thereof demonstrate the innovative assertions of the technology. REE-Al Intermetallics™ alloy products are quickly cast-formed and can be scaled according to the customer's requests after manufacturing. Therefore, REE-Al Intermetallics™ products can range from fine-mesh powders for 3d printing applications, spray deposition, tiny coupons for microelectronic devices, and large sheets, rods, and ingots for structural components. Provided with adequate funding (i.e., sourcing a budget of 10-12 million dollars) with a technology readiness level of at least four (i.e., >4), ARA-NEUK's plans include the establishment of an operating mini REE-Al Intermetallics™ research and prototype production mill whose objective is to pilot a less-than-two-year timeline to market. Therefore, the production of small-scale coupons will have the capacity for commercial testing and consulting application manufacturers.

ARA-NEUK LLC is a sole proprietorship company still in its startup phase after three (3) years. The company was founded by its CEO, Dr. Nickie J. Peters, the inventor and technical lead of REE-Al Intermetallics™ innovative technology. Although Dr. Peters's primary expertise is in nuclear physics and radiation transport, reactor core dynamics, and radioanalytical chemistry, his experiences vastly expand across chemistry, computational coding and simulations, material science, and engineering. Therefore, ARA-NEUK LLC also offers consultancy services in nuclear applications and related fields. However, the service extends to all applications where the potential use of REE-Al Intermetallics™ matrices is viable.

JAN-2024 *NICKIE J. PETERS, PH. D, CEO/FOUNDER*

Splay 2-in-1 Display & Projector

Jon Narvaes, Kapu Solutions, LLC, [802-505-9283], jon.Narvaes@kapusolutions.com

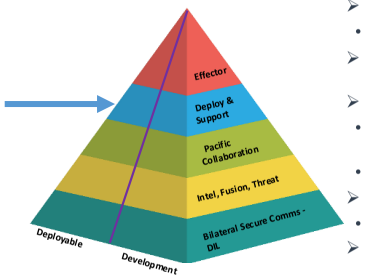
Technology Description / Product:

Splay is a 2-in-1 display and projector that combines a nanomaterial projection screen and an ultra-short throw projector to create the world first and only double-duty display that collapses like an umbrella for ultra compact portability.

Features:
- 24.5" FHD Non-Glare Display (1920x1080)
- Projection Throw up to 80"
- Bulit-In Battery (Up to 4hrs)
- Built-In Speaker
- USB-C Charging Port
- Tripod Deployable
- Ergonomic/Reduced Eye Strain

Specifications:
- 6.5"Wx1.5"Hx7.5" Storage size
- 2.5lbs (3x's less than 20-30" LED)
- 36,000 Hour Service Life
- Display: 800 Nits
- Projector: 260 Lumens
- Never wrinkle, highly durable, no hot spot screen material

Where do we fit in?



2024 Principal Innovation Priorities:
- Counter-C5ISR
  - UAS/EW Ground Station
- Air/Land/Maritime Domain Awareness
- Joint Command and Control
  - Deployability of TOCs, TACs, JOCs, CPs, Air Ops
  - Tactical COP/CIP viewing
- Contested Logistics
  - Reduces logistical requirements
- Humanitarian Assistance/Disaster Response
  - Deployability of EOCs, field hospitals, casualty collection points, Displaced Person Camps

2024 Gen Innovation Priorities:
- Biotechnology
- Quantum Science
- FutureG
- Advanced Materials
- Trusted AI and Autonomy
- Integrated Network Sys-of-Sys
- Microelectronics
- Space Technology
- Renewable Energy Gen & Store
- Advanced Computing and SW
- Human-Machine Interfaces
- Directed Energy
- Hypersonics
- Integrated Sensing and Cyber

Company Information:

Kapu Solutions in collaboration with Arovia provides advanced technology solutions for military and other government requirements.

- Kapu Solutions, LLC (www.kapusolutions.com) is a Native Hawaiian and Service-Disabled Veteran owned technology small business headquartered in Hawai'i. Kapu Solutions' core capabilities include providing Technology Engineering Services, Technology Consultation, Technology Solution Development, and Information Technology Training.

- Arovia (www.arovia.com) is a US based technology small business headquartered in Houston, TX. Arovia's core capabilities involve display technologies and nano fabric engineering.

Splay 2-in-1 Display and Projector

Splay is a 2-in-1 display and projector that combines a nanomaterial projector screen and an ultra-short-throw-projector (USTP) to create the world's first and only double-duty display that collapses like an umbrella for ultra compact portability. Splay replaces COTS displays not purpose built for repeated transit, setup, or use in field conditions with a purpose-built versatile display. Configured as a display, Splay projects its light towards a flexible, elastomeric material which increases contrast, eliminates glare, and improves operation when ambient light is present resulting in less eye strain, better color contrast, and improved viewing angles up to 180 degrees. Splay can serve as a 25.5" display for mission briefs, COP/CIP viewing, Network Operations and Security Center monitoring, UAS Ground Stations, EW monitoring, or any use case where portability is key. Splay can also forward-throw a projection up to 100 inches eliminating the need for a separate projector. The service life of Splay is 36,000 hours which bests conventional projector bulb lives by up to 31,000 hours reducing the need to carry or find replacement bulbs in foreign and austere conditions. Splay is tripod mountable so you can free up all your counter space or raise it up for use with larger groups. Splay also has its own battery that is good for up to four hours when minimal brightness is used. This battery can also be used to charge other mission devices. Splay has been field tested by the 25th Infantry Division, US Army Special Operations Command, and used during multiple Pacific Pathways exercises to great success.

With respect to SWaP, Splay weighs only 2.5lbs and folds up into a 6.5"Wx1.5"Hx7.5" rectangular formfactor making it ultra compact thus freeing up valuable pallet space while simplifying load planning. Fifty-six Splays could replace one 27" LED monitor in a Pelican 1650 transit case. A disaster response team could use that additional space for humanitarian aid or other supplies. Splay is also easy to operate with just three buttons and a replaceable shroud should it get damaged.

Splay uses a silicone-based polymer to form its flexible display. Silicone was chosen as the material since it can be engineered for high recovery (e.g., wrinkle resistance) and can operate over a wider temperature range (-50 degrees C to 230 degrees C) than other types of materials Silicone also exhibits higher tensile strength, tear strength, and chemical resistance compared to other polymeric materials (natural rubber). Silicone also has significantly better resistance to UV, weathering and flame resistance than other polymers (e.g., natural rubber) giving the military user a dependable, durable, and state-of-the-art display solution. A dynamic crossing linking structure doubles the elasticity and wrinkle resistance while transparent particles smaller than 5 micron with a high reflective index manipulate the optic paths eliminating hot spots, supporting resolution up to 2K, and viewing angles up to 180 degrees. Light selective nano particles sharpen peak wavelengths of light and along with color additive to the screen improving contrast by 100% and brightness by 50% so it does not washout in sunlight.

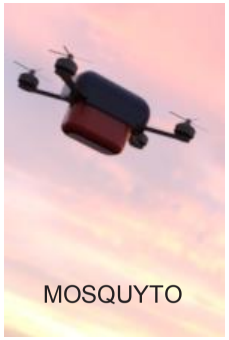
Future Splay development includes increasing the display to 60" and to incorporate EMP protection with a faraday cage. Additionally, the feasibility of Quantum Dot (Qdot) and/or fully flexible Fresnel lens innovation will be explored to reduce depth and add touch screen technology. Scaling up to even larger displays such as those used in TOCs is being assessed.

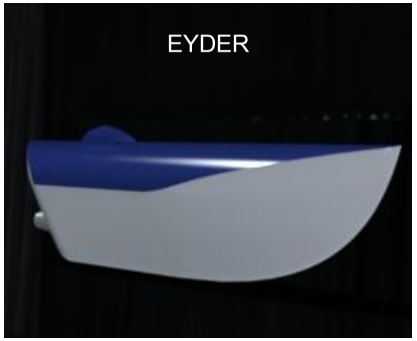
Splay's technology is patented and trademarked in the US, China, India, Japan, Europe, and Taiwan and has sold thousands of units. The engineering team is led by an Optical Engineer, Mechanical Engineer, and Industrial Designer supported by a cadre of technology and military subject matter experts from around the world. The technology is 100% American sourcing critical components from TAA compliant companies. Splay can meet your mission needs now as it is TRL9 and MRL9.

www.kapusolutions.com www.arovia.com

Avian Dynamics Corporation

Nelson Ngouenet, Avian Dynamics Corporation, [267-317-5256], contact@aviandynamics.com





Technology Description / Product

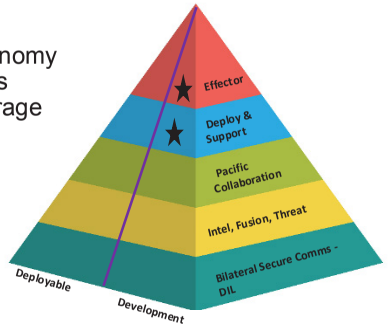
Avian Dynamics Corporation is developing low-cost unmanned aerial, ground and marine systems for contested logistics and humanitarian assistance. The unmanned systems will be capable of delivering cargo without human interactions after initial route plans are given. Payload, Range and Endurance vary based on the system.

- Contested Logistics
- GPS Denied Capable
- Modular Architecture
- Multi-Mission Capable

Where do we fit in?

2024 General Innovation Priorities:
- Trusted Artificial Intelligence (AI) & Autonomy
- Integrated Network Systems-of-Systems
- Renewable Energy Generation and Storage
- Integrated Sensing and Cyber

2024 Principal Innovation Priorities:
- Contested Logistics
- Humanitarian Assistance/Disaster Response



Company Information

AVIAN DYNAMICS CORPORATION

Mailing Address:
P.O. Box 42166,
Philadelphia, PA, 19101

Key Contact:
Nelson Ngouenet, CEO
contact@aviandynamics.com

AVIAN DYNAMICS

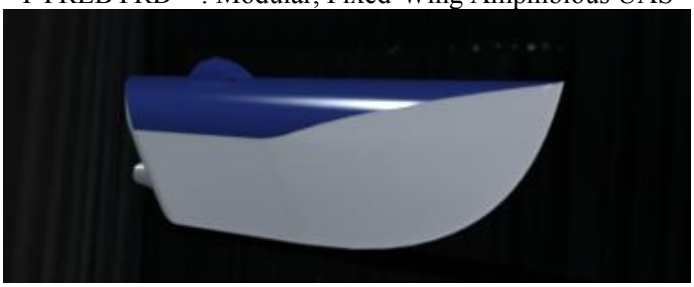
NDIA

Avian Dynamics Corporation is developing low-cost unmanned aerial, ground and marine systems for contested logistics and humanitarian assistance. The modular unmanned systems will be capable of delivering cargo without human interactions after initial route plans are given. Designed with modularity in mind, each system can interface with varying payloads to increase operational versatility. Range and Endurance vary based on the system outfit. Through these offerings, Avian Dynamics Corporation seeks to provide Governmental Agencies with Low Cost, Modular, Quick Build technologies to augment current capabilities.

POSTFX 2024 Showcase

MOSQUYTO™: Multi-Mission Attritable Quadcopter (UAS)

FYREBYRD™: Modular, Fixed-Wing Amphibious UAS



EYDER™: Semi-Submersible USS

The technologies listed above are currently in development and are in the prototyping phase. With the modular system design and varied payload capacity, the systems will have the ability to integrate various sensor and effector payloads.

The systems listed are purpose built for operational excellence and aim to provide the warfighter added capabilities in an ever-changing maritime environment.

As Avian Dynamics Corporation move forward, the next steps are to utilize the prototypes as proof of concepts and continue to build relationships with key stakeholders in governmental agencies to accelerate development and deployment.

Avian Dynamics Corporation, founded in 2023, is a growing USA-Based autonomous systems research, development and manufacturing company.

Check Website and Follow on LinkedIn for up-to-date Info

LinkedIn: https://www.linkedin.com/company/avian-dynamics/
Website: https://aviandynamics.com/

Avidrone Aerospace Contested Logistics UAS

Andy Buck, Avidrone Aerospace, [226-972-1091], abuck@avidrone.com

Avidrone 490TL

Technology Description / Product

Avidrone makes highly efficient Tandem Rotor UAS systems for contested logistics applications. These UAS can deliver cargo without any humans in the loop after a flight route is loaded. Deliveries can be made on the ground, air-dropped, or air-dropped with a parachute.

- Contested logistics UAS systems
- GPS Contested Capable
- C2 Contested Capable
- Modular architecture
- Comms quiet operation
- 50lb payload capacity
- Up to 75 Mile range
- Multi-mission capable

Where Do We Fit In? >>>

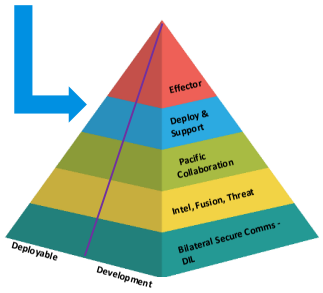
2024 Principal Innovation Priorities:

- Contested Logistics
- Humanitarian Assistance/Disaster Response

2024 General Innovation Priorities:

- Trusted Artificial Intelligence (AI) & Autonomy
- Integrated Network Systems-of-Systems
- Integrated Sensing and Cyber

DEPLOY & SUPPORT



Company Details

AVIDRONE AEROSPACE INCORPORATED

Region of Waterloo International Airport
251 Jetliner Court Breslau, ON N0B 1M0 Canada

AVIDRONE AEROSPACE

CONTACT

Andy Buck, VP Sales
abuck@avidrone.com
+1-226-972-1091
Scott Gray, CEO
sgray@avidrone.com

NDAA COMPLIANT

NDAA Compliant UAS Systems

Manufactured in North America | Founded in 2007

AVIDRONE AEROSPACE

490TL

Electric-Powered Tandem Rotor UAS

EXTENDED-RANGE OVER-SIZED PAYLOAD

- Secure Autopilot System
- Fully Autonomous Long-Range (BVLOS)
- Mission-Critical Automated Resupply Deliveries
- Modular Payload Bay Configurable for Air and Ground Cargo
- GPS and Comms Resilience in Contested Environments

NDAA COMPLIANT

avidrone.com

+1-519-804-3317 info@avidrone.com

DESIGNED AND MANUFACTURED IN NORTH AMERICA

Redefining last-mile contested logistics, the 490TL stands out with its remarkable range and payload capacity. It can be deployed rapidly, requiring no complex ground support equipment. Additionally, it operates covertly in contested environments, maintaining reduced signatures and communication silence for stealth. Its tandem rotor design ensures all-weather stability, guaranteeing mission readiness. Moreover, the 490TL is multi-mission capable, featuring simple payload rails that span over 3 feet in length, along with on-board power availability.

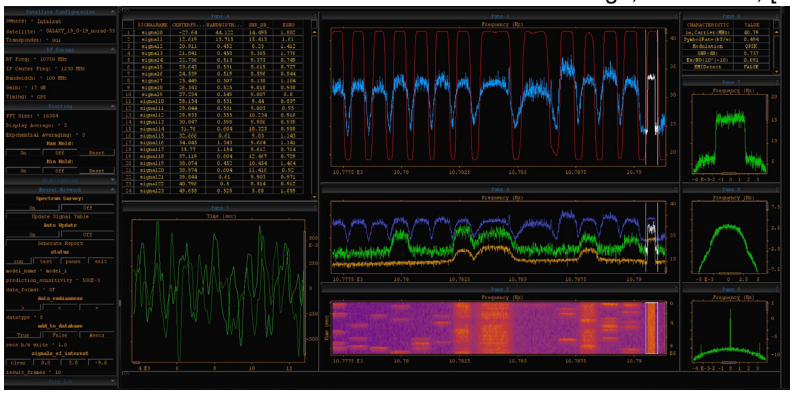
HEAVY LIFT AUTONOMOUS SILENT ELECTRIC

Gross weight	Up to 57kg	Up to 125lbs
Payload (max)	Up to 23kg	Up to 50lbs
Weight, no payload	30kg	65lbs
Max cruise speed	100km/h	60mph
Max ceiling	3,000m	10,000ft
BVLOS capability	Yes	Yes
Rotor diameter	2.4m	7.9ft
Length (tip-to-tip)	4.8m	15.7ft
Payload size (max LxWxH)	1.0x0.4x0.3m	3.4x1.3x1.0ft
Max wind conditions	50km/h	30mph
Operating conditions	-20°C to +50°C	-4°f to +122°f
Range	120km	75mi
Endurance	1.5hrs	1.5hrs
Noise signature (AGL)	Under 65dB @ 20m	Under 65dB @ 65ft
GPS accuracy	XY +/- .85m Z +/- .5m	XY +/- 2.8ft Z +/- 1.6ft

*All specifications subject to change

Artificially Intelligent Signals Analyst (AISA)

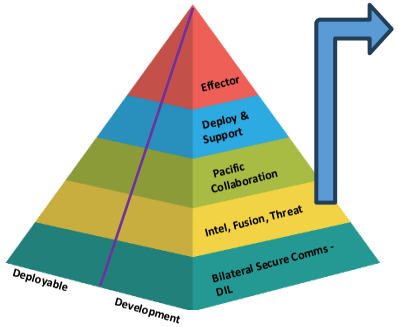
Dr. Patrick Yarbrough, BESL LLC, [719-550-4463], Patrick.Yarbrough@besl.org



Technology Description / Product:

- AISA is a software suite that surveys and characterizes the electromagnetic spectrum and the signals encountered therein using AI/ML models.
- Dynamic and adaptable to any frequency band or resolution.
- Processes wideband signals up to 500 Msamples/sec in real time.
- Database of known satellites, transponders and signals.
- Spectrum monitoring and alarm system to detect changes from the baseline of a satellite.
- Easily integrated across different hardware platforms.

Where do we fit in?



Intel, Fusion, Threat:

- Electromagnetic Spectrum Situational Awareness
- Enhanced intelligence picture beyond what narrowband systems can provide
- Command and control of emitters

Company Information:

- Barnett Engineering and Signaling Laboratories LLC
- Service-Disabled Veteran-Owned Small Business
- Founded in 2006, currently has 44 employees
- Main office in Colorado Springs, Colorado
- Provides key specialized intelligence, technical engineering, and acquisition support services
- Extensive military, government, and industry experience to provide operationally relevant military expertise to including Electronic and Communications Signals Intelligence (SIGINT), Information Operations (IO), and Electronic Warfare (EW).

29 January 2024

AISA: The Artificially Intelligent Signals Analyst

The Artificially Intelligent Signals Analyst, or AISA, is a software solution under development by Barnett Engineering and Signaling Laboratories (BESL) which utilizes machine learning and artificial intelligence techniques to survey, monitor, and perform analysis on wideband radio-frequency (RF) signals in the electromagnetic spectrum. AISA processes many signals, from dozens to hundreds, in a wideband RF spectrum in real time and performs characterization on those signals, monitors them against a known baseline for that satellite in our database, and create alerts when changes in the spectrum are detected. Our technology will augment human signals analysts by enabling them to process many more signals than previously possible and allow them to prioritize the most important and consequential signals encountered.

Our technology is currently under development, although many core capabilities are relatively mature and ready to begin testing in an operational environment, such as our spectrum survey and signal characterization tools.

AISA can be built as a custom software/hardware solution, as standalone software package, or as a module that may be easily integrated into existing systems. AISA is designed to be hardware, frequency, and resolution agnostic, such that it may be easily integrated into different signal digitizer platforms. Our system is integrated into another BESL product called the Secure Linux Baseline (SLB), which is a pre-hardened Red Hat Enterprise Linux (RHEL) operating system that implements all required Security Technical Implementation Guides (STIGs) upon installation. We envision AISA interfacing with different tactical networks and databases to provide services across all of the DoD.

While AISA is primarily designed as a tool for operational missions which require signals analysts, it is also suited to a variety of other tasks such a maintenance and training. We have developed modules which allow users to perform tasks such as manipulating and inserting signals into the rf environment that are useful not only to electronic warfare (EW) missions, but also for training new analysts, as well as testing and maintaining existing systems.

There are many exciting developments underway for AISA that shall be integrated into our baseline soon, including electromagnetic interference detection, signal geolocation, and specific emitter identification, among others. These tools will be developed to allow analysts to create a more comprehensive, timely and informed intelligence picture that shall allow the DoD to maintain awareness and control over the electromagnetic spectrum.

BESL LLC was founded in 2006 in Colorado Springs, Colorado as a veteran-owned and operated small business technology firm to provide key specialized intelligence, technical engineering, and acquisition support services to a wide range of government customers such as the U.S. Air Force, U.S. Navy, U.S. Army, Office of the Secretary of Defense (OSD), Missile Defense Agency (MDA), National Security Agency (NSA), National Reconnaissance Office (NRO), Defense Intelligence Agency (DIA), and the US Intelligence Community (IC).

AtomEngine Simulation & Modeling Platform

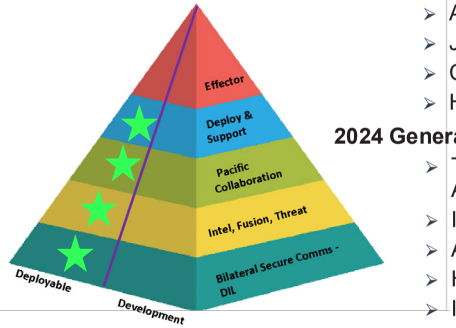
Josh Henderson, Battle Road Digital, Inc. [206-658-7711] josh@battlerd.com

Technology Description / Product:

AtomEngine offers global terrain, infrastructure, assets, and other phenomena within a single turnkey, multiplayer simulation platform. AtomEngine functions as a planet-scale simulation platform and operates in a browser by default, making it easy for users stationed anywhere on earth to securely design, join, and participate in wargames or other simulations via a shared cloud environment, or in an on-prem or air-gapped system.

- Planet-Scale
- Simulation Agnostic
- After Action Reporting
- Analytics Event Generation
- Multiplayer
- Entity Authorship
- APIs
- Weather Effects
- Intelligent Terrain
- HLA Federation
- Radar Effects
- Space Effects

Where do we fit in?



2024 Principal Innovation Priorities:

- Air/Land/Maritime Domain Awareness
- Joint Command and Control
- Contested Logistics
- Humanitarian Assistance/Disaster Response

2024 General Innovation Priorities:

- Trusted Artificial Intelligence (AI) and Autonomy
- Integrated Network Systems-of-Systems
- Advanced Computing and Software
- Human-Machine Interfaces
- Integrated Sensing and Cyber

Company Information:

Website: https://atomengine.com

- Battle Road Digital, Inc.
- Small Business founded in 2021, currently has 25 employees
- Venture-capital backed startup with vetted US based investors
- Founded by video game industry veterans from Xbox, HoloLens, Amazon, Electronic Arts, and mobile game development on Nintendo, iOS and Android
- Extensive experience in hyper-scale cloud architecture, integrated systems, and intuitive user design
- Technology company focused on delivering affordable cloud-based software while reducing integration and development costs as much as possible
- Main office in Boise, Idaho

BATTLE ROAD

At Battle Road, we're on a mission to transform the art of the possible in wargaming with AtomEngine (https://atomengine.com) – the world's first turn-key modeling & simulation platform that's cloud first and purpose-built for accurate large-scale simulations; allowing multiple participants to model massive scenarios at planet-scale, from the division level down to a single soldier and everything in between. AtomEngine simulates millions of entities in a shared, persistent world that's a digital twin of Earth - faithfully populated with data-rich representations of terrain, natural conditions, infrastructure, and geo-political context.

AtomEngine is designed from the ground up to enable user-driven scenario modification and development within the same application used for wargaming. AtomEngine supports multi-user sessions out of the box, meaning the same scenarios built, validated, and executed by planners can be instantly converted to live wargames when needed.

With a focus on all-domain scenarios, AtomEngine supports seamless interaction between entities, whether they operate on land, at sea, in the air, or in space, cyber or information domains. Our common operating picture (COP) allows users to zoom from street level out to planet-scale and back in on smooth interaction, so they can engage at the level that is most relevant to their use case.

AtomEngine is built on a zero-trust architecture and designed to deploy stand-alone to Government cloud environments up to Department of Defense (DOD) Impact Level 6 (IL6). Though built from the ground up to run as a scalable platform on Azure or AWS, AtomEngine can also be deployed locally to an edge device with all the necessary scenarios, terrain, and data layers to support completely disconnected or air-gapped environments. We also offer a portable, airline approved carry on sized kit for this purpose.

AtomEngine is designed as a platform, not just a solution for one customer's use case. This approach is intended to meet customer demands more broadly across organizational boundaries while spanning a myriad of customer domains and scenarios. Our strategy is to significantly reduce the cost to Government customers by offering an extensible, self-serve platform that grows with their evolving requirements without the need for expensive system integrators to develop and customize entities and scenarios. AtomEngine is offered as a low-cost annual subscription under which we are continuously adding new features, entities, behaviors, Artificial Intelligence (AI), data layers, and real-world phenomenon to empower customers to realize continued utility from the platform as their needs evolve.

Battle Road was founded in 2021 by a team of games technology and business veterans from Xbox, Amazon Games, and Electronic Arts who have long seen the demand for innovative gaming technologies across industries and are focused on delivering bleeding edge game industry technologies to revolutionize the tools available to the warfighter and operations planner. Our team of 25 is headquartered in Garden City, Idaho.

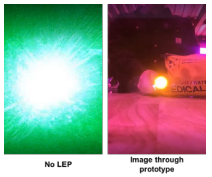
Small Business Cage Code: 962T2 UEI: PPCESNLHLFF7

BioMADE – Products from Biotechnology

Biocement

Domestic source of Natural rubber

Bio-based resin for high temp carbon fiber



Laser eye protection with better visibility and color

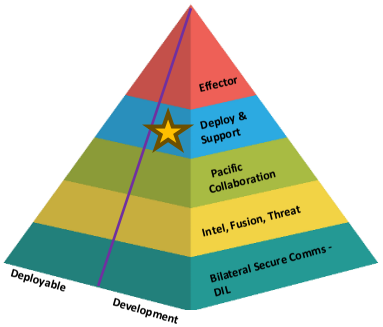
Biocement
- Biocement can create infrastructure on demand in situ – often at lower costs and with local materials – for applications such as construction, commercially available precast products, field-tested shoreline defense and soil stabilization.

Domestic natural Rubber
- Domestic, natural rubber from dandelions can be grown sustainably in the U.S. to provide a consistent and high-quality source of , a strategic material for aircraft tires, textile applications, footwear, and more.

Bio-based thermal protection systems
- Resin created with biomanufactured materials to deliver high-temperature resistant and lightweight composite materials for a variety of applications.

Laser eye protection
- Bio-based additives enable improved dye infusion, reduce haze, quench secondary dye fluorescence, and impart UV protection.

Where do we fit in?



Focus Areas:
- Biotechnology
- Advanced Materials
- Domestic Supply chain

Deploy and Support:
- Reduced carbon footprint
- Improved physical properties and tolerance
- Agile deployment of logistical infrastructure

Company Information:

BioMADE

Dr. Melanie Tomczak
Chief Technology Officer | Head of Programs
hello@biomade.org

BIOMASON CAMBIUM KULTEVAT natural grown quality

NDIA

BioMADE

BioMADE is a Manufacturing Innovation Institute catalyzed by the U.S. Department of Defense. By supporting the development of biomanufacturing technologies, BioMADE and its network of 275+ members across 39 states are strengthening American competitiveness, creating a more resilient supply chain, re-shoring manufacturing jobs, and producing more sustainable products without relying on foreign sources of energy. BioMADE is also building a diverse and globally competitive STEM workforce to ensure American workers are prepared and ready to fill new jobs within this rapidly growing industry. Learn more about BioMADE by visiting biomade.org.

Bioindustrial manufacturing can create products like cement, fire-resistant materials, durable fibers, bioplastics, food products, and other critical commodities. Bioindustrial manufacturing uses biology to convert agricultural feedstocks and waste streams to high-value chemicals, materials, and other defense and industrial base products.

Biocement, from member Biomason, can create infrastructure on demand in situ – often at lower costs and with local materials – for applications such as construction, commercially available precast products, field-tested shoreline defense, soil stabilization, and more. Biocement tiles exceed the physical properties of standard materials for compressive strength, absorption, freeze-thaw, adhesion, and dimensional tolerance, are safer for humans and the planet than comparable materials, and actively sequester environmental carbon. Learn more at www.biomason.com.

Member Kultevat is **producing domestic, natural rubber from dandelions**. This annual crop can be grown sustainably in the U.S. to provide a consistent and high-quality source of natural rubber. End products may include footwear and apparel, rubber-containing components used in the transportation industry, tubes and tires, v-belts, bushings and other products. Learn more at www.kultevat.com.

Bio-based thermal protection systems from member Cambium, which utilize materials such as resveratrol, represent a promising class of protective biomaterials that possess a unique combination of high-thermal stability and mechanical strength to ablative and structural materials. Applications could include protecting airframes from the severe aerodynamic heating and pressure loads experienced during flight, and improving survivability of platforms by reducing catastrophic fire risk. Current thermal resistant materials are made from non-renewable petroleum-based sources and rely on hazardous materials. Learn more at www.cambium-usa.com.

Product and durability testing for **bio-based compounds used in laser-protective eyewear** from member Cambium is currently underway. Use case demonstrations include cockpit, outdoor long-range encounter, and close-range encounter. Laser-protective film could be applied to glasses, sensors, or any other lens. Learn more at www.cambium-usa.com.

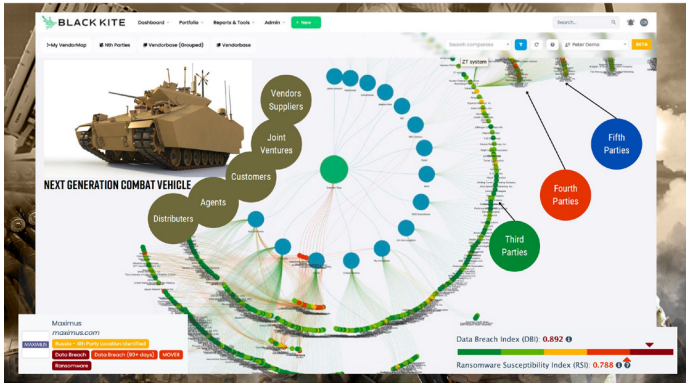
Black Kite

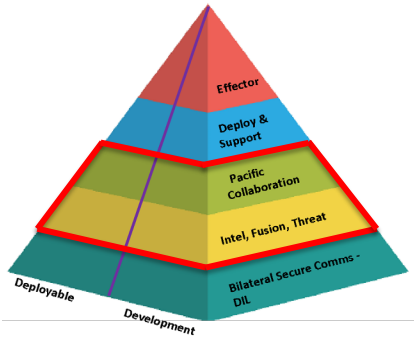
Tony Monell, V.P. Public Sector, [703-342-7296], tony.monell@blackkite.com

Operationalize Cyber Threat Intelligence to Mitigate the Army's Supply Chain Risks

DoD and their affiliated suppliers are the most highly targeted organizations in the world by adversaries, to either steal intellectual property which erodes our MILDEP's competitive advantage or disrupt supply chains to diminish DoD capabilities and readiness.

- Resupplying forward operating bases is constantly at risk by cyber threat actors' intent at disrupting vital supply chain replenishment and sustainment
- Operationalizing real time cyber threat intel is a challenge to take action against agile adversaries
- U.S. forces risk relying on allies and partners to protect critical infrastructure that enable their missions





USE CASES: Contested Logistics

PEOs throughout the entire enterprise can integrate **Black Kite** to its comprehensive cybersecurity risk evaluations from contractor prequalification, selection, and, throughout the program's lifecycle by continuously monitoring all the contractors and alerting PEOs based on its customized risk appetite.

With Black Kite, the Army can operationalize threat data to protect supply chain integrity with a platform that does the heavy lifting through automation, focusing your limited cyber resources on the most impactful areas.

Technology Description

Adversaries are intent on disrupting the Army's mission critical capabilities and readiness by attacking contractors in your supply chains. With thousands of contractors supporting the Army, from kinetic capabilities, energy storage and batteries, castings and forgings, and microelectronics, **Black Kite** illuminates the Army's entire digital supply chain by continuously monitoring and providing actionable mitigation with the same real-time cyber intelligence used by threat actors.

Company Information:

Black Kite
8609 Westwood Center Dr. Vienna, VA

CAPABILITIES STATEMENT

BLACK KITE

DUNS: 08-1054873
CAGE: 81FG0
UEID: DWU8TLAVC1G5

CONTACT INFORMATION

8609 Westwood Center Dr. Ste 110
Vienna, VA 22182
p. 571-335-0222
w. www.blackkite.com

AWARDS

- CISOs Choice Award, Risk Management 2020, 2021, 2022, 2023, Partner in Success 2022, Visionary Company 2023
- Gartner Customer First Technology Provider

NAICS

54151 - Computer Systems Design and Related Services

GSA Schedule
Contract # GS-35F-0511T

DIR-TSO-4317
SHI Government Solutions, Inc.

CDM
DHS/CISA Continuous Diagnostics and Mitigation Approved Products List

Technical Categories:

- Digital Footprint
- Patch Management
- Application Security
- CDN Security
- Website Security
- SSL/TLS Strength
- Credential Management
- Hacktivist Shares
- Social Network
- Information Disclosure
- Attack Surface
- DNS Health
- Email Security
- DDoS Resiliency
- Network Security
- Brand Monitoring
- IP Reputation
- Fraudulent Apps
- Fraudulent Domains
- Web Ranking

Black Kite is a non-intrusive intelligence-gathering platform that identifies critical vulnerabilities, pinpoints compliance gaps, quantifies cyber risk in financial terms and can detect the likelihood of a ransomware attack with high fidelity data.

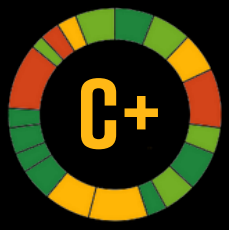
CONTINUOUS SUPPLY CHAIN CYBER RISK MANAGEMENT

The ONLY security ratings service using standards-based methodology

Using data and machine learning, Black Kite's RSI™ discovers the likelihood that an organization will experience a ransomware attack.

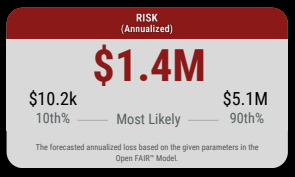
Multidimensional View of Third-Party Risk

MITRE | FAIR INSTITUTE | NIST



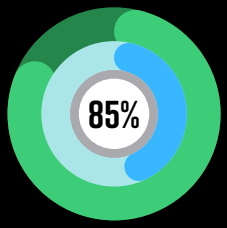
Technical Cyber Rating

- Easy-to-understand letter grades with risk intelligence beyond a rating
- Real-time continuous attack surface monitoring
- Powerful performance behind 20 technical categories
- Trusted, standards-based intelligence



Automated Risk Quantification

- Understand the potential financial impact (risk) to your organization in the case of a cyber breach
- Cost-effectively achieve and maintain an acceptable level of loss exposure
- Effectively communicate risks internally and to the board



Questionnaire & Compliance Correlation

- Automates consumption of a wide variety of questionnaires and internal policies
- Map content to well-known standards and frameworks within minutes, including CMMC, NIST 800-171 and 800-53

Large Data Lake:

- 400M Domain Names
- 4B Subdomains
- 4B Service Fingerprints
- 10B SSL Certificates
- 100B DNS & Whois
- 100B Webpages
- **34M+ Companies**

Reporting & Tools:

- Dashboards
- Scheduled Reports
- Workflow Engine
- Ticketing.& Audit Logs
- Integrations
- VendorMap™

Results in Minutes:

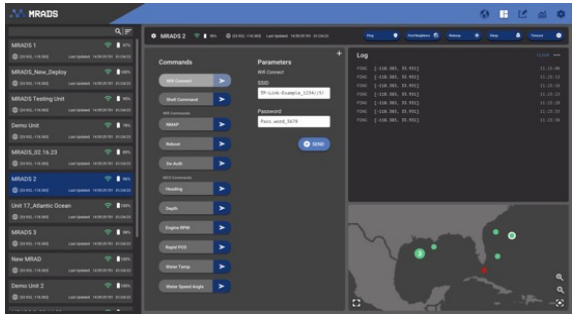
- Summary View Dashboards
- Letter Grade Cyber Ratings
- Standards-Based Risk Quantification
- Automated Compliance Mapping
- Benchmark & Strategy Reporting
- Ransomware Susceptibility

Technology Integrations: ARCHER, servicenow, venminder, OneTrust, LOGICGATE, SUPPLY WISDOM, **& More**

www.blackkite.com | publicsector@blackkite.com

Maritime Remote Access Device Sensornet

Fuchee Vang, vang_fu@bah.com, Booz Allen Hamilton

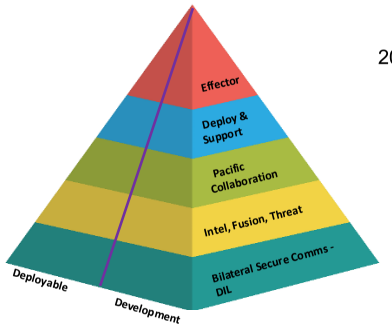


Technology Description / Product:

M-RADS is scalable in size, weight, and power to operate a wide variety of advanced payloads and sensors, including electromagnetic, underwater, and maritime sensing.

M-RADS can be deployed by hand from small boats or automatically deployed from various unmanned underwater vehicles (UUVs) or unmanned surface vehicles (USVs) at predesignated GPS coordinates

Where do we fit in?



2024 Principal Innovation Priorities:

- Counter-C5ISR
- Air/Land/Maritime Domain Awareness
- Joint Command and Control

Company Information:

Booz Allen Hamilton	**Booz Allen Hamilton**
Fuchee Vang	**Joe Sears**
Technical Director	**Integrated Effects Lead**
Tampa, FL	**Tampa, FL**
Office: 703-209-2147	**sears_joseph@bah.com**
www.boozallen.com	**www.boozallen.com**

Introductory Paragraph
A Maritime Remote Access Device/Sensornet (MRADS) is a deployment of one or more buoys which form a mesh network in the ocean for command and control/defensive operations. A mission sensor package resides in each buoy along with a GPS receiver; a self-healing wireless mesh-networking module for C2 and diagnostics; and an AES 256-bit cipher for encryption at transmission/ rest. For ES missions, a software defined radio (SDR) is added, which monitors RF spectrum to detect, classify, and report signals of interest (SOI) with minimal comms/bandwidth.

MRADS is a multi-domain, modular, and affordable solution to engage in various mission sets for the DoD.

Subsequent Paragraph(s) – answer the below

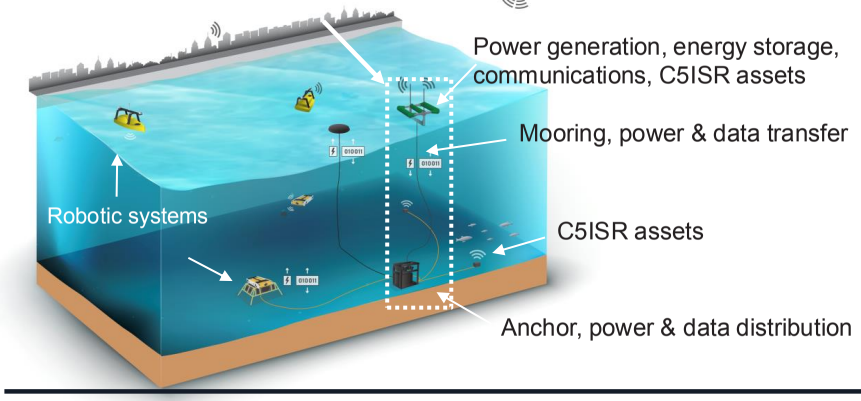
- Is technology ready for use today? How much testing has it undergone to document operational readiness? How quickly can multiple units be produced?
    - Yes. It has been a part of multiple Technical Demonstrations with both USSOCOM and NIWC-LANT and has a Vulcan Scout Card/Assessment done on it already.
    - Multiple units can be built at scale, manufacturing partners already in place.
- Can the technology be integrated into a tactical network? Are there other sensors or platforms with which is it well suited for integration?
    - Yes. At the ACE event held by NIWC-LANT, MRADS had to go through 3 separate events before being accepted to the final event which directly integrated information into the Marine Corp's Command and Control SOI Network.
- How does it align with operational missions? How does it align with sustainment (maintenance, training)?
    - MRADS directly aligns with a variety of operational mission sets. It has already been adopted into USSOCOM Training and Exercise scenario's out of SOFPREP J37.
- Is the technology cyber hardened?
    - MRADS has been tested and includes self-wipe systems and scuttle features in case it has been retrieved.
- What are next steps for technological innovation?
    - Next steps are to put it in a real operational test in an exercise where it can successfully address a specific cyber, rf, or wireless challenge facing our war fighters today.

Concluding Paragraph
As one of the world's largest cybersecurity solution providers, Booz Allen provides multidomain, all-terrain vulnerability research, exploitation, and development across a selectable taxonomy ranging from enterprise and mobile to industrial and weapons systems.

SeaRAY Autonomous Offshore Power System (AOPS)

Reenst Lesemann, C-Power, (434) 212-3127, rlesemann@cpower.co

C-Power SeaRAY AOPS*



Technology Description / Product:

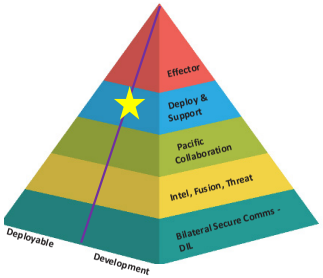
C-Power's SeaRAY Autonomous Offshore Power System (AOPS) is a dual-use platform technology that enables C5ISR and other data-gathering and interventional activities not possible or cost-effective today. It provides uncrewed, persistent power generation and communications support for mobile and static assets located on or below the surface and/or on the seafloor.

Upcoming field demonstrations:

1. U.S. Navy purchased SeaRAY deployed in Washington (3rd deployment underway January-March 2024)
2. SeaRAY Hawaii (4Q23 phase 1 complete, phase 2 scheduled for summer 2024 as part of RIMPAC)
3. SeaRAY Oregon (ready for deployment in 4Q24)

Deployed SeaRAY off MCBH

Where do we fit in?



Principal Innovation Priorities: Counter-C5ISR and Maritime Domain Awareness (MDA)

- SeaRAY AOPS enhances MDA, intrusion detection, seafloor monitoring, mine counter measures, force leverage and more, all while reducing cost, risks to personnel, complexity, and carbon intensity.

General Innovation Priorities: Integrated Network Systems-of-Systems; Renewable Energy Generation and Storage

- SeaRAY AOPS and integrated assets creates a renewable powered system of systems network that enables data collection and transmission at sea

Company Information:

C-Power is an ocean energy company focused on delivering reliable power and real-time data communications in the most critical offshore environments.

- Core technology originated and developed with >$50 million of private capital, and DOE, Navy, and DARPA funded projects
- A decade of engineering, modeling and testing and sea trials alongside 3rd party technical reviews by DNV
- Initial product sold – growing partner and customer pipeline
- iUPDC & UTIC member

C-POWER we make power at sea

TechConnect DEFENSE INNOVATION AWARD 2022

NDIA

cpower.co | https://www.linkedin.com/company/c-power1

The **SeaRAY Autonomous Offshore Power System (AOPS)** is a dual-use technology that has been developed to solve the energy resource challenge for persistent offshore operations. The AOPS converts wave energy into storable forms of energy in situ for consumption, as needed, by mobile and static assets. Functionally, the SeaRAY AOPS is a power generation, energy storage and distribution, and bi-directional communications platform. It is an at-sea 'power strip' and connection to the secure data cloud and designed to be agnostic to the type of asset being supported. An AOPS can operate in moored or drifting configurations and is intended to support assets on the surface (e.g., USVs), in the water column (e.g., UUVs), and on the seafloor (e.g., static data gathering and energy storage assets). For the U.S. Navy, the AOPS is proposed as a solution to the difficulty or inability to deploy and operate certain persistent, unmanned C5ISR assets without ships and sailors being frequently required to be on site in the operational loop. This capability would offer reduced risk to personnel and equipment and help enable cost-effective, widespread, unmanned, persistent, maritime C5ISR activities.

Within an AOPS, there are three primary subsystems: SeaRAY wave power system, mooring system, and seafloor base unit (SBU). See Figure 1 for a view of the subsystems. The SeaRAY AOPS topology originated in the U.S. Defense Advanced Research Projects Agency's (DARPA) TUNA (Tactical Undersea Network Architecture) project. For TUNA, C-Power designed, built, and delivered a 100-watt, drifting system: Wave Energy Buoy that Self-deploys (WEBS). WEBS served as the technical baseline for the SeaRAY AOPS. The SeaRAY was designed and built by C-Power and tested at the National Renewable Energy Lab (NREL) Flatirons campus in 2022 before being delivered to Oahu. At Pier 34 in Honolulu harbor, the SeaRAY AOPS underwent onshore verification and validation, including integration testing with two C5ISR assets. The SeaRAY AOPS completed an in-harbor operational trial in May 2023 and an initial short deployment off Marnie Corps Base Hawaii (MCBH) was conducted in October 2023. In summer 2024, as part of RIMPAC / Trident Warrior 2024, the SeaRAY AOPS will be redeployed off MCBH. The scheduled experiment offers the first opportunity for the SeaRAY AOPS to provide power and data support to two C5ISR assets simultaneously for an extended period in a real-seas environment.

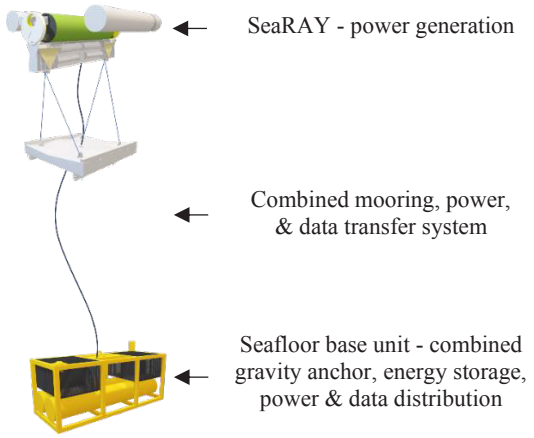
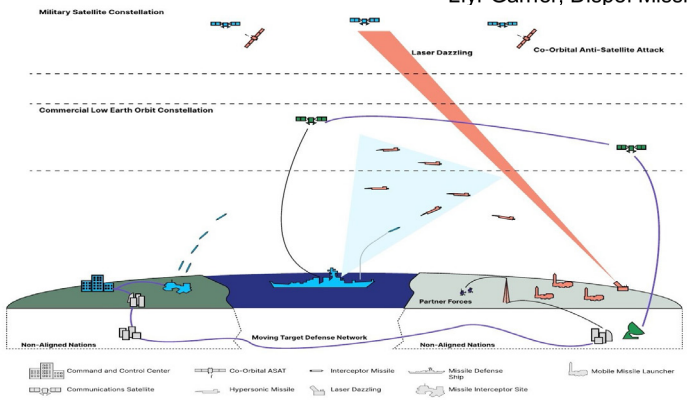


Figure 1. *Moored AOPS graphic rendering*

Founded in 2008, C-Power is an ocean energy company, commercializing innovative offshore energy systems for commercial, defense, security, and research markets. C-Power has received third-party certifications from DNV and holds 51 patents worldwide to date in four patent families covering wave power system and generator technologies. C-Power is headquartered in Charlottesville, VA, USA. The Product Development and Delivery team is based in Corvallis, OR, USA, along with a wholly owned UK subsidiary, C-Power Alba Ltd in Scotland. The Company has twenty-five employees and consultants, in addition to an international team of researchers, manufacturers, suppliers and distribution partners.

Dispel (Misattributable, Secure Traceless Comms)

Llyr Garner, Dispel Missions Systems, (713 564 8081), llyr.garner@dispel.com



Technology Description / Product:

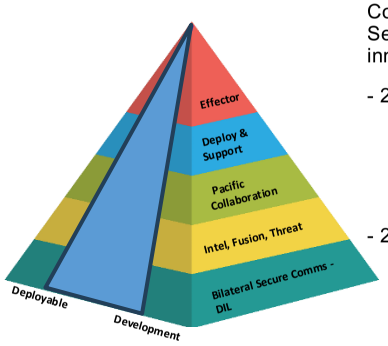
- Dispel technology automates the launch and sustainment of cloud-based, misattributable, traceless, Zero-Trust networks at the tactical edge in support of mission requirements providing TACNET functionality including voice, chat, data sharing, and virtual desktop while reducing operational security risks

- Dispel technology is hardware agnostic, can leverage commercial-acquired/ personal devices, requires no contractor support at the tactical edge, and can easily integrate international partners

- Dispel technology enables person-to-person, person-to-machine, or machine-to-machine communication

- Dispel technology enables warfighter to leverage commercial internet for tactical or long-haul communications

Where do we fit in?



Dispel provides deployable solutions for Pacific Collaboration; Intel, Fusion, and Threat; and Bilateral Secure Comms. Dispel supports the following innovation priorities:

- 2024 Principal Innovation Priorities:
  - Air/Land/Maritime Domain Awareness
  - Joint Command and Control
  - Contested Logistics
  - Humanitarian Assistance/Disaster Response

- 2024 General Innovation Priorities
  - Integrated Network Systems-of-Systems
  - Advanced Computing and Software
  - Human-Machine Interfaces
  - Integrated Sensing and Cyber

Company Information:

Company:
Dispel, 61 Greenpoint Av, New York City
Product:
Fognigma
Website:
www.Dispel.com / www.fognigma.com
Contact info:
Llyr Garner – VP of Mission Systems - llyr.garner@dispel.com

FOGNIGMA

COMMAND THE CLOUD™

Capability Statement

Fognigma provides

SECURITY and COMMUNICATION SOLUTIONS

to **Intelligence** and **Military missions**.

Fognigma Commercial-Off-The-Shelf (COTS) software can serve an entire mission, provide a new capability, or supplement existing missions/capabilities. The missions and capabilities Fognigma can produce or enhance are:

- Offensive/Defensive Cyber
- Open Source Research
- Covert & Clandestine Communications
- Voice, Video, Data, & Messaging
- Data Exfiltration & Remote Access
- Managed Attribution
- Mission Partner Environments
- Digital Dead Drops
- ...and much more

Fognigma provides missions rapidly. This is because the software does all the heavy lifting. It automatically instantiates the technologies, process, and methods needed to run these types of missions. Let's say a user or organization with Fognigma wants to connect to the Internet through an anonymous network. That user or organization can submit a request to their Fognigma software via its web console. Fognigma will generate cloud infrastructure, harden and configure servers, instantiate connectivity, establish authentication protections, set up encryption and employ anonymity techniques all within an hour.

Fognigma provides missions at scale. Let's take the previous scenario and add the requirement that we need a hundred more deployments. With Fognigma, the user or organization's burden is not increased. In fact, it can become simpler. Fognigma can be programed to run autonomously, allowing mission owners to scale their cloud-hosted deployments to any size they need.

Fognigma provides least-privilege & zero-trust missions. One of the greatest advantages of Fognigma's automation and provisioning, is everything used for a mission can be issued at a per-user level. Additionally, there is no inherited trust between the various missions. Every user must be verified before it can use a Fognigma deployed capability.

Fognigma provides discrete mission operation. While in operations Fognigma shrouds each environment with security techniques that make them immune to discovery and detection (such as scanning the Internet or surveillance). When the mission is over, everything is destroyed and no trace of the activity is left behind.

There is no limit to the type of technologies that can operate on Fognigma. If you're looking for a quick way to start new missions or capabilities or to add efficiency to existing ones without the need for contractor services or contractor labor, Fognigma is your answer.

Capabilities

- Voice, video, data, and message communication
- Internet anonymity
- Virtualized environments
- Network points of presence
- Cloud-hosted applications
- Network security

Technologies

- Web-based video teleconferencing (VTCs)
- Telecommunication server (Voice & SMS)
- Data storage and sharing
- End-to-end encrypted messaging (Element.io & Mattermost)
- Virtualized desktops/environments
- Network anonymizing appliances
- Hardware for remote access and data extraction

Benefits

- Always anonymous
- Automated deployment
- Deployable around the world
- Cloud-driven technologies
- Least-privilege deployments
- Destroyed after use
- Employs multiple FIPS 140-2 validated, AES-256 encryption
- Immune to discovery and detection

Echelon Services LLC

Ted Ralston Ted.Ralston@HPFSPS.org (808) 738 6814

Wide-Area Threat Detection

- ★ Chemical - Plume and Residue
- ★ Surface - Decoy
- ★ Anomaly - Out-of-place
- ★ Threat ID / Target / Track / Custody

Concealment / Movement / Formation

Technology Description / Product:

- Rapid acquisition of systems and SETA services through sole-source acquisition
- Operationalizing Innovations in tactical and strategic intelligence through Hyperspectral Imagery supplementing PED cycle (Spectrum Photonics, Solis, CAT, Rapid Flight…)
- Partnering with the full chain of functions necessary to operationalize advanced Threat Detection

Where do we fit in?

- ➢ **Air/Land/Maritime Domain Awareness**
- ➢ **Advanced Materials**
- ➢ **Trusted Artificial Intelligence (AI) and Autonomy**
- ➢ **Human-Machine Interfaces**
- ➢ **Integrated Sensing and Cyber**

Company Information:

Tom Ongies, Chief Strategy Officer/General Manager

(703) 595-5035 | thomas.ongies@echelongov.com

Ted Ralston, Local Representative

(808) 738-6814 | Ted.Ralston@HPFSPS.org

8(a) Native Hawaiian Organization (NHO) Small Business

Echelon Services LLC is a Native Hawaiian Owned Defense Contractor with extensive field experience in accelerating new technologies to support the warfighter. Remote sensing, UAS, and the Process-Exploit-Disseminate (PED) cycle are central to themes practiced by Echelon and its partner companies. A particular interest has been taken in the use of Hyperspectral imagery in the tactical environment, essential in forthcoming engagements. The critical intelligence functions of anomaly detection, target recognition, track fusion, and track custody will be increasingly challenged by opponent use of maneuver, cover, concealment, decoy, and deception in both land and maritime environments. New technologies do not self-actualize; they must undergo Force Integration to become operational. Echelon and its partners provide seasoned support for this effort.

The Native Hawaiian Owned designation under DOD and SBA rules for Echelon is designed to enable rapid sole-source procurement of systems, training, and SETA services for Government agencies.

For POST FX Echelon and certain of its partners will demonstrate (UNCLAS) UAS-based aspects of hyperspectral imagery exploitation for enhanced ISR-Hsi-MASINT PED under a Force Integration framework. Thus, partners Computer Access Technology will illustrate stratospheric airplane strategic intelligence collection; RapidFlight will illustrate insitu-fabricated 3D printed UAS for tactical ISR intelligence collection; Spectrum Photonics will illustrate ultra-compact Hyperspectral sensors; and Solis will illustrate the HSI PED process.

Furthermore, we expect to form new partnerships at FX with other companies in attendance who demonstrate UAS, sensors, and UAS systems such as radios, automation, alternative fuels, and flight operations from the perspective of Force Integration for the multi-mission.

Tom Ongies, Chief Strategy Officer/General Manager Echelon Services LLC

(703) 595-5035 | thomas.ongies@echelongov.com

Ted Ralston, Local Representative

(808) 738-6814 | Ted.Ralston@HPFSPS.org

8(a) Native Hawaiian Organization (NHO) Small Business

Elevated Health Systems, LLC

Ann Alexander DuPuis, Elevated Health Systems, LLC [316-706-4167] ann.dupuis@esp-dlux.com

ESP-DLux® Automated UVC Infection Control System

Continuous Air Disinfection
When Room is Occupied

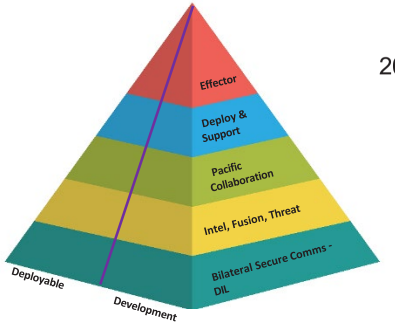
Direct Surface and Air
Disinfection When Room is Empty

Easily-deployable and energy-efficient ESP-DLux® eradicates 99.9% of viruses including COVID-19 and other life-threatening pathogens in enclosed spaces, without creating antimicrobial resistance

Technology Description / Product:

- Portable size (24”x6”x8”, <25 lbs) for rapid deployment in response to pandemic viruses and other infectious diseases
- Can be used as a stand-alone device or networked into large systems for wireless, comprehensive infection control
- Enhances biological weapon preparedness and protection
- Optimizes performance through improved environmental hygiene and reduced losses due to illness
- Enhances safety in patient movement by air, ground and sea throughout the continuum of care
- Includes patented scheduled disinfection and a continuous log of all operations for precise documentation of usage

Where do we fit in?



2024 Principal Innovation Priorities:

- Humanitarian Assistance/Disaster Response

2024 General Innovation Priorities:

- Biotechnology
- Future Generation Wireless Technology (FutureG)
- Integrated Network Systems-of-Systems
- Space Technology
- Human-Machine Interfaces
- Integrated Sensing and Cyber

Company Information:

Elevated Health Systems, LLC
9432 W. Wyncroft Street
Wichita, KS 67205
For more information & video, see www.esp-dlux.com

Management Team:

- CEO and President: Dr. John DuPuis, M.D Founder, Chairman and COO
- Ann A. DuPuis Engineering/Finance
- Clair Strohl, Mindspring LLC Manufacturing Dir
- Brian Weinstein, Chapco, Inc., Marketing Consultant
- Michael Miller, Wildhorse Labs

Elevated Health Systems, LLC owns 5 U.S. patents covering the ESP-DLux® automated UVC system, with patents granted in Canada, UK and the EU. EHS also owns 3 registered U.S. trademarks: Elevated Health Systems®, ESP-DLux®, and Safety-Net®, as well as UVSentry ™. The ESP-DLux® Series 100 (Stand-alone) is TRL 8, delivery 3rd Qtr. 2024. Series 300 (Networkable) is TRL 7+, delivery 4th Qtr. 2024 with pre-orders.

Elevated Health Systems, LLC, (EHS) has developed the ESP-DLux® Automated UVC Light Infection Control System which provides continuous disinfection of air and periodic disinfection of hard surfaces by combining industrial-strength UVC light, sensors and electronic controls. When the sensors detect a room is occupied, a rotating shutter on the light fixture remains closed and an array of fans/filters circulates sanitized air throughout a room. When the sensors detect the room is unoccupied, the rotating shutter opens, exposing both the air and surfaces to direct UVC disinfection. A continuous log is maintained, documenting that air and surfaces have been irradiated for a prescribed length of time and, thus, that pathogens have been eradicated.

The ESP-DLux® is offered in 2 models: the stand-alone Series 100 is rapidly deployable, while the Series 300 model features advanced Safety-Net® technology, allowing multiple UVC fixtures to be networked and controlled throughout a facility. Both provide powerful, automated UVC disinfection. Typical usage of the ESP-DLux® would be in barracks, medical treatment rooms and facilities, laboratories, cafeterias, locker rooms, offices, conference rooms and any enclosed environment in which personnel are vulnerable to the spread of infectious disease.

EHS does have a limited number of fully-functional ESP-DLux® beta units which can be purchased at this time. The beta units have undergone extensive testing at Iowa State University; those tests and results are posted on the EHS website www.esp-dlux.com, in the "About Us" section. Other tests posted there include two tests of the prototype design from Via-Christi Regional Research Center and one test of the prototype bulb, which eradicated 100% of live MRSA in 15 minutes, with testing done at Affiliated Medical Services Labs, in Wichita, KS.

EHS has recently produced a Go-To-Market iteration which has passed UL-Level Safety Certification and is being finalized for mass production. With pre-orders, Series 100 can be delivered 3rd Qtr. 2024, and Series 300 can be delivered 4th Qtr. 2024. EHS's ETL-Certified manufacturing partner is Chapco, Inc. (www.chapcoinc.com). As EHS scales sales, Chapco has the capacity to scale production up to 10,000 units per month.

The ESP-DLux® has the capability to be integrated into larger and diverse systems, whether tactical or into commercial "Smart" buildings. EHS's Intellectual Property umbrella of 5 U.S. patents makes many other embodiments possible. The patents cover all frequencies of UVC Light (200nm-280nm), any UVC light source including LEDs, any kind of sensor capable of detecting occupancy/vacancy (passive infrared, pressure, ultrasonic, CO2, etc.) and any electronic control element with memory capacity. With this flexibility, hardening of the product is very doable. In general, the ESP-DLux® supports any operational mission which involves humans in an enclosed environment.

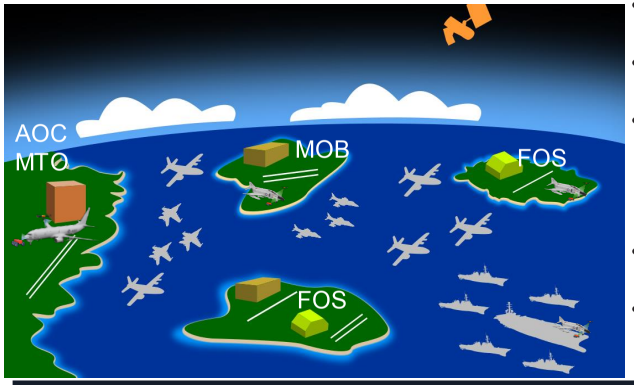
Elevated Health Systems, LLC (Wichita, KS) was founded by Ann Alexander DuPuis in 2012. Dr. John DuPuis, M.D. joined the company soon thereafter. They are the core team, who have been joined by subject matter experts in critical areas. The purpose of the ESP-DLux® product and licensable Intellectual Property is to optimize the germicidal power of UVC light while keeping humans safe from direct exposure, in as many environments as are needed for optimal infection control.

POC: Ann DuPuis, Chairman/COO 9432 W. Wyncroft St., Wichita, KS 67205 316/706-4167
ann.dupuis@esp-dlux.com

UNCLASSIFIED

KeenAI™: Autonomous Inspection, Damage Classification, and Repair Support System for Expeditionary Aviation Maintenance

Cliff Hudson, Emerging Technology Ventures, Inc., [575-446-9337], cliff.hudson@etvamerica.com

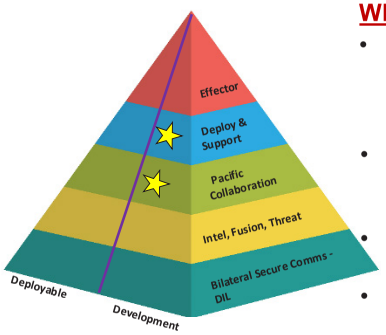


- M&S development of inspection plans
- Autonomous air/ground execution
- Multi-modal sensing

- Edge AI/ML anomaly detection/prediction
- AI/ML SME assisted repair through mobile devices and MR devices

Technology Description / Product:

- KeenAI™ delivers patent pending autonomous workflow services to "sense-understand-decide-act" in complex operational environments (TRL 7)
- Model Based Systems Engineering environment utilizing asset digital twins
- Adaptable and scalable to aircraft, ships, and infrastructure using digital twins
- Multimodal sensing/fusion (Visual, LiDAR, IR, IoT, etc.)
- Analytics engine using edge/hybrid cloud computing to support predictive/active analytics to identify and classify anomalies
- Knowledge aids to support maintainers through over-the-shoulder AI driven or live subject matter expert coaching and guidance using mobile devices and mixed reality (MR) headsets
- Digital twin of asset is updated to maintain currency and support logistics operations and work orders for repair parts and deferred/future maintenance



TRL 7 with MVP Demo

Where Do We Fit In?/DoD Value

- Delivers expeditionary aviation maintenance for Agile Combat Employments, Distributed Maritime Operations, and Expeditionary Advanced Base Operations faced with reduced personnel/staffing
- Delivers inspection (predictive/active anomalies) and maintenance services by aircraft tail number utilizing asset digital twin
- Edge (off-network) and hybrid cloud operations depending on tactical operating environment
- 4D visualization of the asset with time-driven, layered maintenance history
- Flexible fly-away kit capability to support integrated, Joint Service missions

Company Information:

- Founded in 2014 in Alamogordo, NM; with satellite office in Las Cruces, NM (2023)
- UEI: CVNALNBF8Z15; CAGE: 74Z22
- Economically Disadvantaged, Woman-Owned and HUBZone Small Business
- 2020 US Navy SBIR Phase I ADAPT – Autonomous Inspection, Damage Classification, and Repair Support System for Expeditionary Aviation Maintenance (Phase II Submitted)
- 2021-2024 NASA STTR Phase I & II – Digital Twin Data Acquisition System for Institutional Facility Management
- IBM Accelerator/Partner Program for KeenAI™ integration with IBM Maximo® and implementation of trusted AI protocols and standards
- Intellectual Property: KeenAI™ and provisional patent in place.

Technology Overview

KeenAI™ delivers an aircraft inspection, damage classification, and repair support system for tactical environments with limited maintenance personnel. The system utilizes autonomous air and ground platforms to execute aircraft inspection utilizing pre-programmed plans developed by tail number in a modeling and simulation environment with a digital twin of the aircraft. KeenAI™ uses multi-modal sensing and fusion, AI/ML predictive analytics, hybrid computing (edge/cloud), and AI/ML over-the-shoulder repair guidance through mobile devices including tablets and mixed-reality (MR) headsets. The fly-away system addresses the challenges faced through agile distributed operations with limited personnel to enhance aircraft readiness and turnaround.

Technology Status

KeenAI™ was initially developed under a Department of Navy (DoN) Small Business Innovative Research (SBIR) contract under the Accelerated Delivery & Acquisition of Prototype Technologies pilot program. The project delivered a minimum viable prototype (MVP) and is currently at a Technology Readiness Level 7 after evaluation in an operationally relevant environment. Production planning has been completed with other KeenAI™ variants and can be validated and qualified with first unit delivery within nine (9) months.

KeenAI™ is designed to be operated at the edge as a local instance with hybrid cloud reachback when operational conditions permit through tactical network connectivity. The system can also integrate with force protection, logistics, and communications sensors and platforms to support utility across operations.

KeenAI™ was designed with expeditionary, distributed operations in focus across Agile Combat Employment, Distributed Maritime Operations, and Expeditionary Advanced Based Operations. The fly-away capability delivers mobile assets, mitigating the challenges faced with limited personnel to enhance aircraft readiness and turnaround.

Initial vulnerability assessments have been completed on the KeenAI™ system to support preparation for Authority to Operate (ATO) test and evaluation as the product design is finalized. A stand-alone instance to allow edge operation has been developed to support expedited deployment while an ATO is completed.

KeenAI™ continues to mature with application in maritime and critical infrastructure environments through ongoing work with the National Aeronautics and Space Administration and proposed efforts with the DoN for ship inspection and maintenance. Intellectual property is secured through trademarks along with provisional and non-provisional patents.

Company Overview

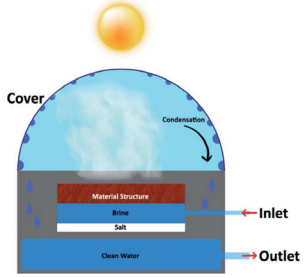
Based in Alamogordo, NM, Emerging Technology Ventures, Inc. is Woman Owned, HUBZone small business. Its fifteen (15) hardware/software teams and facilities support research, development, and manufacturing of integrated, cross-domain (air, ground, maritime) autonomous system solutions with AI/ML-driven edge analytics in precision agriculture, critical infrastructure inspection, aerospace, and Defense sectors.

UNCLASSIFIED

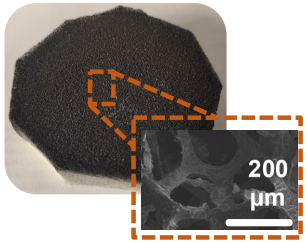
Energy Transport and Conversion Lab at the University of Hawai'i

Sean Blanks and Woochul Lee, University of Hawai'i, [808-389-5065], [808-956-2370], sblanks@hawaii.edu, woochull@hawaii.edu

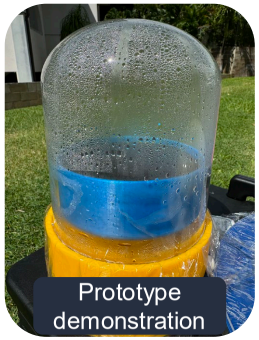
Research, Development, Testing & Evaluation of Solar-thermal Desalination



Solar-thermal Desalination Concept



Efficient photothermal evaporator



Prototype demonstration

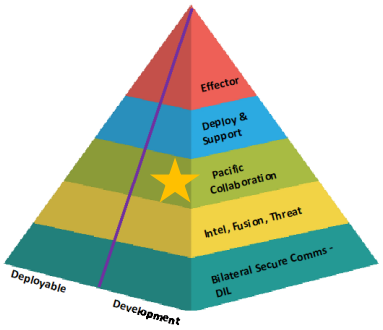
Technology Description / Product:

The Energy Transport and Conversion Lab aims to solve key questions related to heat and utilization of heat energy for a sustainable future of which can be demonstrated with solar-thermal desalination.

With photothermal graphite nanoflakes, localized high surface temperatures heated by solar energy can be achieved to drive efficient saltwater evaporation for collection as drinking water.

Off-grid & portable desalination

Where do we fit in?



Focus Area of Humanitarian Assistance and Disaster Relief

- The Pacific is a water-stressed region aggravated by frequent natural disasters that affect local communities, including Lahaina Maui, where access to a low-cost and off-grid source of fresh water can make a life-saving difference.
- Off-grid operation removes the dependency on grid networks susceptible to disasters.
- High efficiency solar desalination allow portable sized devices for the quick aid and relief of individual drinking water needs.

Organization Information:

Energy Transport and Conversion Laboratory at the University of Hawai'i at Manoa

https://stormarea.wixsite.com/woochulleegroup

1000 Pope Rd
Honolulu, HI 96822

Sean Blanks: sblanks@hawaii.edu
Woochul Lee: woochull@hawaii.edu

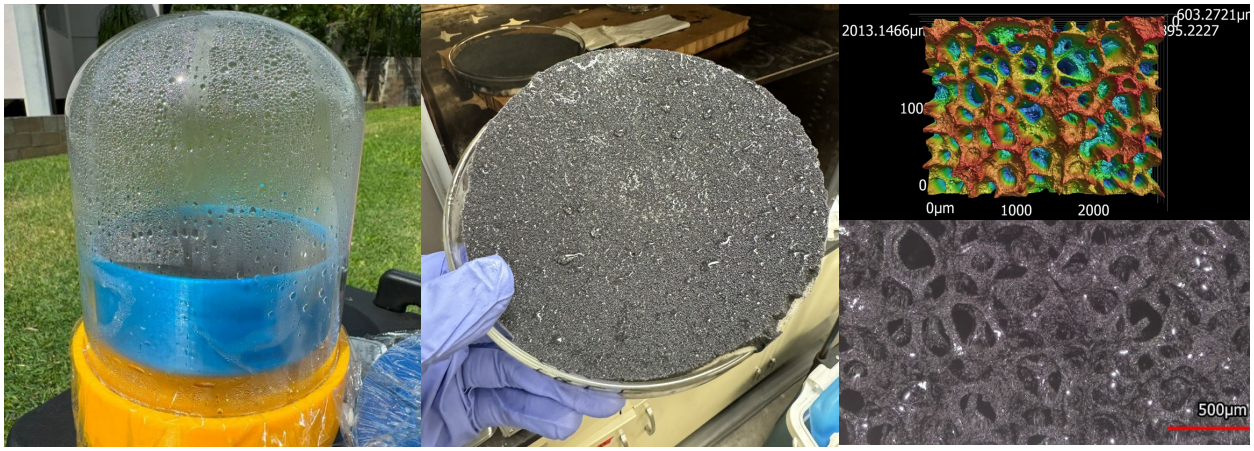
UNCLASSIFIED

The **Energy Transport and Conversion Laboratory at the University of Hawai'I at Manoa** is a research group operating within the Department of Mechanical Engineering that aims to solve key questions related to heat and utilization of heat energy for a sustainable future. At POST FX 2024, applications of our research toward humanitarian aid and disaster relief are showcased with the current developments of improving efficiencies for off-grid solar-thermal desalination technologies.

The Pacific is currently a water-stressed region aggravated by frequent natural disasters that adversely affect communities, including local Lahaina Maui of Hawaii. With access to a low-cost and grid independent source of fresh water, access to this critical resource can be more securely guaranteed. Preemptively investing in simple and inexpensive technologies with solutions for irreplaceable needs such as fresh water has far reaching impacts especially for situations where preplanned response can pay back dividends for security and wellbeing.

Almost all sources of water in communities are taken from centralized collection and distribution infrastructure or natural reservoirs susceptible to contamination and damage from natural or manmade disasters. When these sources are disrupted or stressed beyond their initial designs, the only source of drinking water available is limited to stored water from sheltered reservoirs or bottled water that often have a significant load on stressed logistics or relief networks.

Solar thermal desalination technologies offer a promising solution to these critical issues. While the traditional thermal distillation process for desalination, which involves evaporating water and then cooling the vapor to produce distilled water, has longstanding maturity and deployment, the demonstrated localized solar thermal interfacial desalination offers distinct advantages over contemporary distillation methods. The demonstrated prototype desalination device is made up of a porous foam substrate with a graphite nanoflake (GnF) and polydimethylsiloxane (PDMS) composite solar absorber coated on the top surface for a resilient and effective evaporator. The porous foam transports water to the top surface where solar energy is converted into heat at the localized water-air interface, significantly increasing the temperature and water evaporation at the surface interface. The resultant vapor is then condensed and collected as fresh distilled water. Due to the localized concentration of heat at the air-water interface, this method is more efficient than traditional thermal distillation, where the entire water volume is heated.

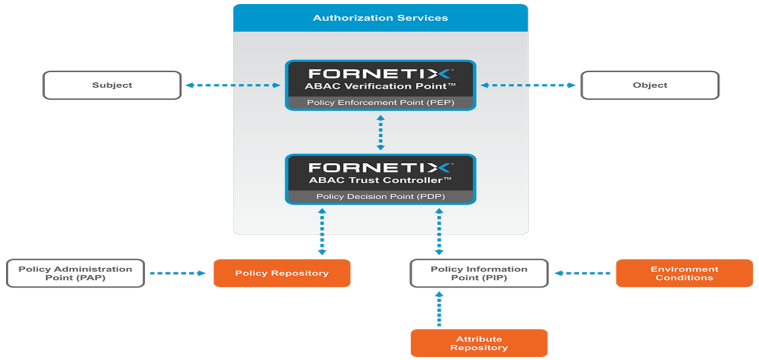


Left: Solar-thermal desalination prototype, Center: GnF/PDMS coated evaporator, Right: Imaging of evaporator

FORNETIX

Honeywell

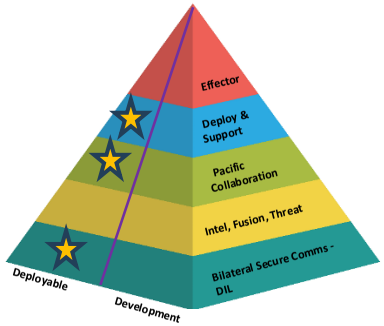
Siegfried Ramil, Fornetix, [808-227-0245], sramil@fornetix.com



Technology Description / Product:

- Attribute based access control Zero Trust Policy Decision Point
- ABAC enabled XMPP Chat Policy Enforcement Point that supports mobile, and workstation deployments
- ABAC enabled and Quantum hardened Key and Certificate Management
- Ultra-secure Connectivity with Quantum-hardened Encryption that conceals data, preserves privacy, disguises your location. It's the future of High-stakes, Low overhead Data security.
- End-to-end encrypted and obfuscated communications for commonly used commercial operating systems.
- Pre-configured hardened devices and tailored uniquely for warfighter safety and mission readiness.

Where do we fit in?



- Provide a mobile quantum secure communication
- Attributes based communication between Joint and Multi-National Partner
- Joint Command and Control
- Contested Logistics

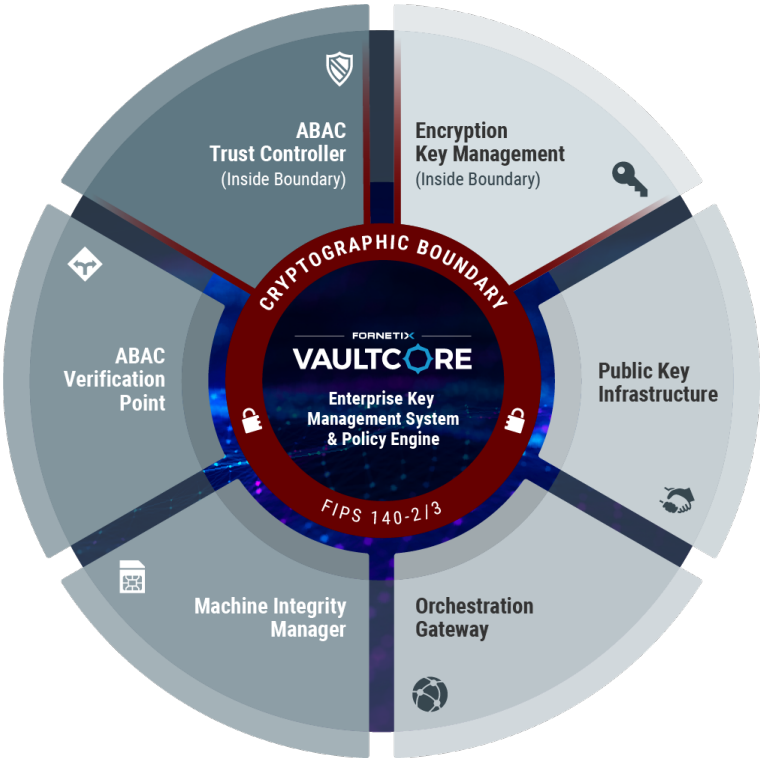
Company Information:

- Fornetix is a company that offers a cybersecurity platform (VaultCore) enabling Zero Trust while delivering critical encryption automation, access controls, authorization services, machine identity, and ICAM solutions to the federal government and enterprises around the globe.

NDIA

FORNETIX

Fornetix VaultCore implementation of a **Policy Decision Point isolated inside a FIPS cryptographic boundary** delivers secure key/certificate management as well as Attribute-Based Access Control (ABAC). This unique combination is a powerful solution for Zero Trust Architecture. With VaultCore, you can confidently implement a robust Zero Trust model, ensuring trusted interactions and safeguarding your sensitive data against evolving threats.



Encryption Key Management

Centralizes and orchestrates encryption key lifecycle, cryptographic operations, and policy tools using industry-standard KMIP (Key Management Interoperability Protocol).

Orchestration Gateway

Extends our VaultCore platform to integrate with unique and proprietary third-party technologies.

ABAC Verification Point

Policy Enforcement Point: Enforces authorization decisions in Zero Trust Architecture.

Public Key Infrastructure

Establishes foundational digital Trust and Management capabilities for the Public Key Infrastructure and enables the ability to generate and sign certificates for digital identity and secure communications.

Machine Integrity Manager

Integrates IoT/OT systems and devices for verified integrity down to the chip level.

ABAC Trust Controller

Policy Decision Point: Makes authorization decisions for itself and other systems in a Zero Trust Architecture.

During POST FX, the Fornetix team successfully provided a joint solution with Honeywell for **mobile, quantum-secure, attribute-based communications** between all Mission Partners, even in contested environments.

Geeks and Nerds Corporation

Jonn Kim, jonn.kim@geeksandnerds.com

Technology Description / Product:

MOSAIC: Modular scalable ISO Containerized Instrumentation System
SCETI: Outdoor full motion sensor and instrumentation testing system
SPECTRE: Modular programable software defined radio system for RF signal analysis and electronic warfare (EW) signal generation
SGT NERDS: AI/ML enhanced data analytics and interactive display system
AGILE FORGE: Digital Engineering Architecture and T&E development eco system for test and evaluation system development and life cycle support
Qtrack: Location tracking system using low frequency RF signals for resilient
SGT SAFER: Low-cost electromagnetic field exposure monitor for RF radiation exposure monitoring

2024 Principal Innovation Priorities:

- Counter-C5ISR
- Air/Land/Maritime Domain Awareness
- Joint Command and Control
- Contested Logistics

2024 General Innovation Priorities:

- Quantum Science
- Trusted Artificial Intelligence (AI) and Autonomy
- Integrated Network Systems-of-Systems
- Advanced Computing and Software
- Human-Machine Interfaces
- Directed Energy
- Hypersonics
- Integrated Sensing and Cyber

Company Information:

Geeks and Nerds Corporation
11247 South Memorial Parkway
Huntsville, AL 35803
CAGE CODE: 3W6H9

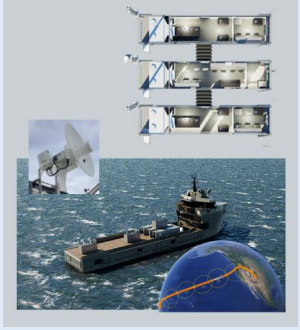
CEO: Jonnathan Kim
jonn.kim@geeksandnerds.com

Geeks and Nerds Corporation

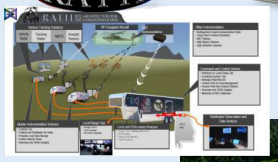
Products/Services

T&E SYSTEMS

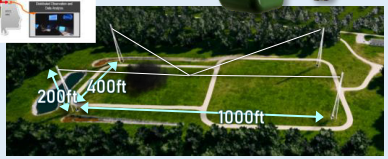
MOSAIC



RATH

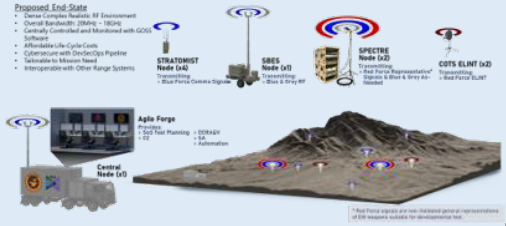


SCETI



ELECTRONIC WARFARE

Integrated System of Systems EW Environment



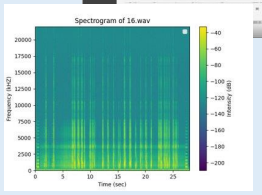
SPECTRE

SOFTWARE PROGRAMMABLE EW & CEMA THREAT REPRESENTATIVE ENVIRONMENT

SGT HSS

ML/AI

AC/DC



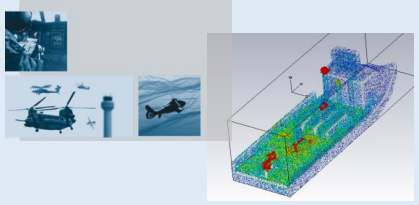
TRVLR

SGT NERDS

SUPER GEEK TECHNOLOGY — NOVEL ENTERPRISE REPORT DEVELOPMENT SYSTEM

SYSTEM & DIGITAL ENGINEERING

PEO AVIATION

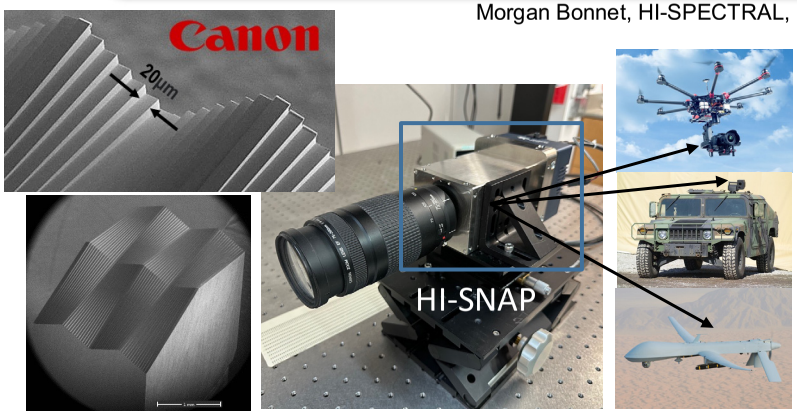


HWIL AVSTIL

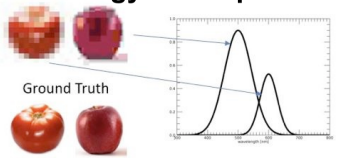
GEEKS AND NERDS

HI-SNAP: Compact Snapshot Hyperspectral Imager

Morgan Bonnet, HI-SPECTRAL, [415-846-2560], morgan.bonnet@hispectral.com



Technology Description / Product:

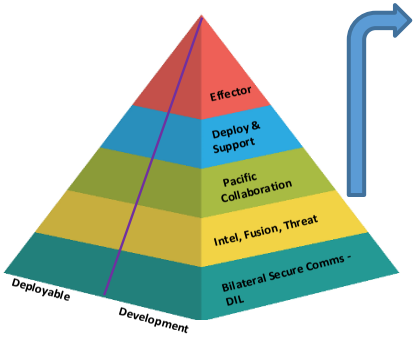


Hyperspectral Imaging (HSI) is a technique that captures detailed chemical composition information (spectrum) for each pixel in an image, far surpassing what standard color cameras or human eyes can provide.

- Existing compact solutions have low sensitivity/efficiency
- Existing high performance solutions are bulky/fragile and sensitive to misalignment

=> Our HI-SNAP system produces **real-time, full-field (snapshot) high resolution data in a very compact/robust and flexible system**, which is ideal for hand-carried systems, drones and aircraft-based systems.

Where do we fit in?



Intel, Fusion, Threat

Real-time Hyperspectral Imaging:

- Advanced Threat/Target Detection and Characterization
- Battlefield Ground Bearing Assessment
- Air/Land/Maritime Domain Awareness
- Remote Sensing

Company Information:

Haosheng Lin, CEO, is an Astronomer with 30+ years of expertise in developing advanced instruments and a proven history of successfully completing major projects. Morgan Bonnet, COO, is an Engineer with 20 years of experience in mechanical and optical engineering (Industry + Academia).

- (2018) Technology was originally designed for the DL-NIRSP Instrument on the $350M Daniel K. Inouye Solar Telescope (DKIST) on Haleakala (Maui, HI), the largest and most advanced solar telescope in the world.
- We worked with the semiconductor manufacturing R&D division of Canon (Japan) to manufacture our optical system.
- (2023) We spun out of the University of Hawai'i to bring our technology to other markets. HI-SNAP was born.

TEAM: Haosheng Lin, CEO, Lead Scientist | Morgan Bonnet, COO, Lead Engineer

HISPECTRAL

Snapshot Hyperspectral Imaging (HSI) Systems

Market Differentiation:

HISPECTRAL developed **HI-SNAP**, a high-performance real-time spectral imaging system with **unmatched** characteristics:

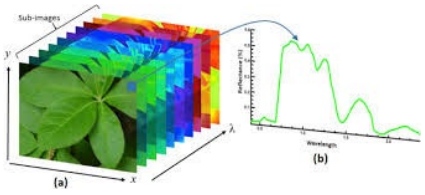
- **~20x smaller**
- **very robust/rugged**
- **not sensitive to misalignment**

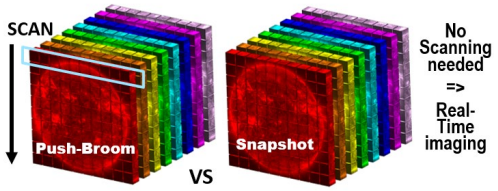
(Compared to systems with equal performance)

	HI-SPECTRAL	Cubert	Ximea	Princeton Inst.	Corning
Dispersing Technology	Grating	Filter	Filter	Grating	Grating
Snapshot Capability	✓	✓	✓	✓	✗
High Spectral Resolution	✓	✗	✗	✓	✓
High Spatial Resolution	✓	✓	✓	✓	✓
High Efficiency	✓	✗	✗	✓	✓
Large# of Spectral Channels	✓	✗	✗	✓	✓
Small/Compact	✓	✓	✓	✗	✓
Robust/Rugged	✓	✓	✓	✗	✓
Multiplexable	✓	✓	✓	✓	✓

Ideal for deployment on multiple platforms: hand-held devices, small drones, vehicles/tanks, UAVs, small satellites.

Hyperspectral Imaging (HSI) is a technique that captures detailed chemical composition information (Spectrum) for each pixel in an image, far surpassing what standard color cameras or human eyes can provide.



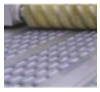


When imaging moving subjects or imaging from an unstable platform Snapshot is highly preferred

Markets:


Vegetation Canopy Monitoring


Cancer Cells Margin Determination


Production Quality Monitoring


Space Awareness, Astronomy

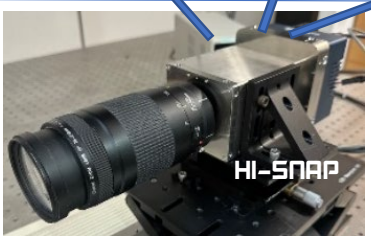

Mining Exploration

The Global HSI system market size reached USD 15.23 Billion in 2021

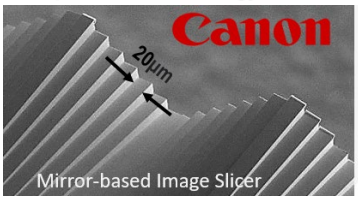
https://www.emergenresearch.com/industry-report/hyperspectral-imaging-system-market

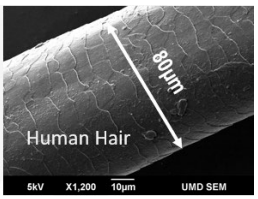
Military / Defense Applications

Defense: Defeat Camouflage, Identify Ground Disturbance (IED, landmines), Assess Ground Bearing Capability, Taggants, Exhaust ID...
Border Security: Increase the Probability of Finding Threats, Illegal Goods, Narcotics, Biohazards, and Terrorism related Materials.



HI-Spectral's Technology





HI-Spectral's patent pending design (**HI-SNAP**) is integrating miniature slicer mirrors as narrow as 20 µm. This contributed to the ground breaking miniaturization of the full system.

Traction to Date:

- First gen. design (MISI-36) validated in lab, to be commissioned at the Daniel K. Inouye Solar Telescope. Wide-field version (MISI-116) is being manufactured at Canon.
- Prototype of second gen. design (MICS1.0), which integrates dispersing elements, validated in lab. Similar design to be used for a US Air Force funded project to study Solar Flare, via the University of Hawaii. Subsequent designs under development (MICS1.5, 2.0 and 3.0), with increased efficiency, versatility and reduced cost.

Path Forward:

- Secure Intellectual Properties. (Applications submitted)
- Further refinement of system design.
- Development of mass production fabrication process.
- Development of data reduction pipeline, end user tools.
- Ongoing discussions with stakeholders in the Defense, Astronomy, Earth Science and Medical fields.
- Customer Discovery: raise awareness of the new technology and its novelty / potential. Better understand potential customer needs.
- Obtain Commercial Contracts and SBIR Grants.
- Participated in i-Corps, Mass Challenge, Quest Accelerator (Decisive Point)
- xTech Pacific Competition Winner. (US Army)
- Completed a Preliminary Design Contract with the Univ. of Arizona for a large space telescope instrument project. Awaiting next step.

HI-Spectral, LLC – 02/28/2024

Hidden Level, Inc.

Mark Elszy, Hidden Level, Inc., [315-238-5137], mark.elszy@hiddenlevel.com

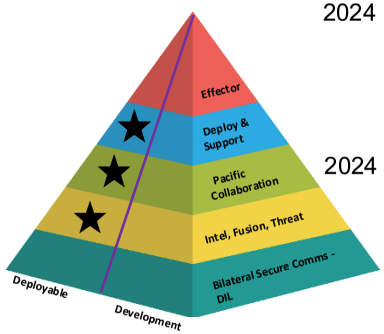
Picture/OV-1:

Technology Description / Product:

We design and manufacture multi-function RF sensors with passive detection and direction-finding capabilities. Our sensors can also be programmed to detect and locate other signals of interest. Our core competencies include:

- RF Data as a Service
- Multiband Passive Radar
- RF GEO location for tipping and cueing
- Advanced Airspace Awareness
- Long Range UAS Detection and Monitoring

Where do we fit in?



2024 Principal Innovation Priorities:

- C5ISR
- Air/Land/Maritime Domain Awareness
- Joint Command and Control

2024 General Innovation Priorities:

- Integrated Network Systems-of-Systems
- Integrated Sensing and Cyber

Company Information:

Hidden Level was founded in 2018 to bring game-changing, small form factor, RF sensing capabilities to the most challenging use-cases in defense and commercial industries. We are experts in sensing, identifying, tracking, sharing and analyzing electronic signals to support critical decision-making. Our team has decades of experience in advance radar, EW systems, RF energy, c-UAS, air traffic management, and multiple federal programs of record.

Hidden Level

Hidden Level produces a suite of multi-function passive RF sensors. These sensors can perform RF signal detection, location, and passive radar across a wide frequency range. This technology has been widely deployed as infrastructure in the United States and has been extended to the US Army in a mobile environment to provide an air picture of UAS, other RF signals, and potentially manned aircraft without a transmit source. Passive detection is of paramount importance in the current threat environment as active systems are quickly detected, targeted, and jammed in conflicts with sophisticated adversaries. A wide frequency range is important to counter the variety of threats facing our forces and to be flexible in the host RF source for passive radar. These capabilities packaged in a single device saves cost, platform real estate, and prime power.

Hidden Level sensors are TRL-9 and deployed today. In our infrastructure deployments, sensor networks have been online and operational for years with high reliability and minimal downtime. These sensors have undergone mil-std environmental and EMI testing and qualification. The US Army has validated performance and utility in solider operated test exercises for mobile variants. Hidden Level is currently scaling production to produce hundreds of units per year.

Hidden Level sensors are network ready, being integrated with a simple API to a variety of platforms. The US Army has integrated the sensor data into a CUAS system of systems.

This technology is well aligned to operational missions and has proven value with current customers. The low sensor cost enables the main sensor to be a single LRU, greatly reducing the maintenance overhead for users. Training material is available for end users.

These sensors are cyber hardened with industry best practices such as communication via encrypted SSH tunnels and public/private key exchange across the network. Further hardening is currently being evaluated and implemented.

The flexible and broad frequency sensors provide a platform for developing many new operational innovations. With a software defined, open architecture, new functionality can be developed at the speed of software. Example innovations include feeding advanced ML/AI algorithms for signal intelligence, performing passive multi-static radar off an expanded set of friendly and adversary transmitters, and augmenting exquisite systems to enhance range and resist electronic attack.

Hidden Level was founded in 2018 to bring game-changing, small form factor, RF sensing capabilities to the most challenging use-cases in defense and commercial industries. We are experts in sensing, identifying, tracking, sharing, and analyzing electronic signals to support critical decision-making. In 2023, Hidden Level was awarded $10M in DoD APFIT funding to accelerate the fielding of advanced RF sensing capabilities with the US Army. Our team (70+) has decades of experience in advance radar, EW systems, RF energy, c-UAS, air traffic management, and multiple federal programs of record.

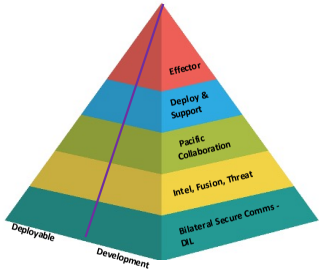
Honeywell Tactical Communication kit

Mark Hedden, Honeywell, 850-694-1857, mark.hedden@honeywell.com

Technology Description / Product:

- Tactical broadband/wideband communication terminal
  - Weighs less than 8lbs, in durable water resistant package
- VersaWave+5G SATCOM terminal – SATCOM + Cellular
  - Global connectivity
  - Auto-failover across networks
- Uses Thales or Harris tactical batteries or external power
- Data Rate 200 Kbps Background IP Connectivity, Streaming 8, 16 and 32 Kbps
- Inmarsat's L-band network, enabled by four global coverage satellites
- Antenna has magnetic vehicle mount
- On-board processing
- Quantum applications and security
  - Zerotrust architecture, Network ID obscuration/Misattribution
  - Quantum encypted VPN tunnel
  - Decentralized PKI certificate generation
- Teaming with Fortenix, Glacier, and R4I

Where do we fit in?



2024 General Innovation Priorities:

- Quantum Science
- Future Generation Wireless Technology (FutureG)
- Integrated Network Systems-of-Systems
- Microelectronics
- Advanced Computing and Software
- Integrated Sensing and Cyber

2024 Principal Innovation Priorities:

- **Joint Command and Control**
- **Contested Logistics**
- **Humanitarian Assistance/Disaster Response**

Company Information:

Honeywell Aerospace
1944 E Sky Harbor Cir
Phoenix, AZ, 85034
CAGE CODE: 7X000

President of Defense & Space: Matt Milas

POC: Mark Hedden
Director, Defense & Space
Mark.hedden@honeywell.com
Work: 850-694-1857

Honeywell STARK (SATCOM-in-a-Ruck)

Honeywell's and R4 Integration(R4I) STARK kit is a tactical self contained communication system. The communication system is based on the Honeywell VersaWave+5G system that was designed for Size, Weight, and powered constrained vehicles, such as Group 2 and 3 UAV's, Air Mobility, or small aircraft. Honeywell has also demonstrated the effectiveness of the VersaWave+5G on ground vehicles. Additionally, there is an edge compute device called the Air Data Controller (ADC). This edge device provides network management, Quantum applications (GoSecure) and edge device management and processing. Honeywell worked with R4I to combine these systems into a man-packable ruggedized system. Using a battery mounting system that utilizes any of the current tactical batteries available, Thales or Harris, it can run on 5 batteries in excess of 6 hours. It also allows external power for vehicle mount. The antenna is an omni-directional antenna that has built in magnetic mounts for vehicle placement.

VersaWave+5G is a 1.0 Kg SATCOM and cellular communication system. It utilizes ViaSat/Inmarsat SwiftBroadband services. The system also does 3/4/5G LTE cellular networks with a world-wide cellular modem. The on-board processor manages the links. VW+5G executes a transparent tunnel, which allows auto-failovers and single IP configurations. So if you look cellular the system will automatically transition to SATCOM, and then go back to cellular when that networks become available again. The SATCOM system is rated up to 200Kbps, and has global access, except for the polar regions.

Honeywell's ADC with GoSecure is an edge compute device. Honeywell GoSecure provides protection for digital footprint with Honeywell's secure communication for moving platforms across all domains. GoSecure provides secure messaging, email, Voice-over-IP, and can add specific tactical applications such as Android Team Awareness Kit (ATAK). GoSecure is a secure encrypted tunnel for moving platforms across all domains, utilizing a zero-trust architecture for enhanced, untraceable connectivity in high vulnerability environments. It leverages Honeywell's trusted applications and quantum-hardened encryption to significantly increase entropy, protect individual data, and stay invisible to ISPs. With its user-friendly interface, low overhead, detailed monitoring, and full audit trail, GoSecure Comms stands as a superior alternative to open VPNs.

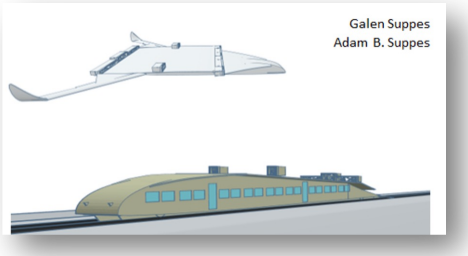
GoSecure is perfect solution for low signature network communications. In military operations, secure and real-time communication is paramount. GoSecure Comms ensures that operators can transmit mission-critical information securely and obfuscated data transit, preventing interception by hostile forces. Military drones and unmanned vehicles rely on data connectivity for surveillance and reconnaissance. Quantum-hardened encryption ensures that data streams from these devices remain confidential, preventing enemy forces from intercepting or interfering with critical intelligence. GoSecure Comms can be used to protect communications in contested environments. It maintains the integrity of location data, safeguarding troop movements and identity in insecure operating locations.

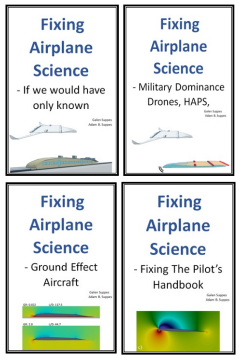
GoSecure Communications leverages an obfuscation network and hardened keys to secure communications. The ingress and egress points and IP stack can be rotated periodically or on demand, disassociating individuals and their locations, while keeping content away from Internet Service Provider (ISRP) visibility. Data packets are masked as nominal traffic through common ports and header information to hide in plain sight no matter the actual contents. Endpoints retrieve VPN tunnel configuration data from the obfuscation network coordinator and use encryption keys generated with Quantum Key Material to encrypt data. These GoSecure communication architectures can be configured for each user and can be tailored per the operations area and types of operations.

Fixing Airplane Science

Galen Suppes, PhD, HS-Drone LLC, (573) 673-8164, gjsuppes@gmail.com

A **Book** Series on Kindle (by Amazon)





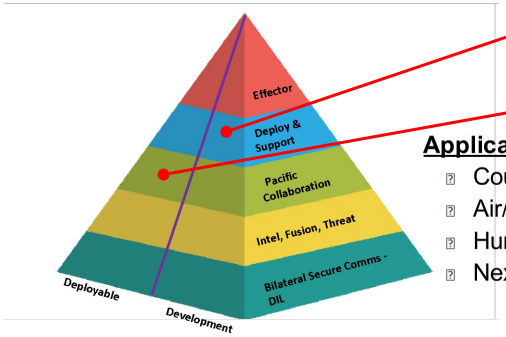
Technology Description / Product:

- **DETAILS** – see **Book** Series on Kindle (by Amazon)
- **Books** – target public awareness and learning opportunities because established professional communities will not engage.

1. **Ground Effect Flying Railcar** – uses existing railway tracks for 50% to 80% reduction in time and cost over best alternatives.
2. **Ground Effect Flying Navel Ship** – water-based ground-effect flight enables high lift in robust structures giving ships speeds up to 400 mph –control technology is the key.
3. **Airborne Aircraft Carrier, HAPS, 1 ¢/kWh Electricity anywhere**

… and more.

Where do we fit in?



Where we are.

Where we want to be.

Applications:

- Counter-C5ISR
- Air/Land/Maritime Domain Awareness
- Humanitarian Assistance/Disaster Response
- Next Generation Weapons

Company Information, HS-Drone LLC:

- HS-Drone LLC uses digital prototypes and computational fluid dynamics (CFD) to advance understanding, innovate, and patent.
- **HS-Drone is winning the battle** on understanding and digital prototypes of new generations of infrastructure and weapons that will dominate economies and battle theatres.
- **WE SEEK PARTNERS AND LICENSING TO BRING THE NEW AIRCRAFT PLATFORMS TO SOCIETY AND OUR MILITARY.**
- Includes: Renewable energy generation and storage.

https://hs-drone.com/
@GalenSuppes

See https://hs-drone.com/
@GalenSuppes

FIXING AIRPLANE SCIENCE & The Transformational Aerial Platforms

Understanding and Innovation – Explanations of aerodynamic flight have been in error for over a century. This is a problem because the human mind uses the simple explanations to make transformational advances, and Tech Scouts use simple explanations—consciously or subconsciously—to screen potential military technologies. In the absence of accurate but-simple explanations, the aerospace industry has been dominated by incremental advances for seven decades. During these decades the gap between what is possible with enabling technologies and what is in place has widened—this translates the potential for transformational advances that can change political and military dominance quickly and unexpectedly. The term "disruption" applies!

HS-Drone LLC has identified and published an accurate and enabling explanation of aerodynamic flight in the Kindle (by Amazon) e-book series FIXING AIRPLANE SCIENCE. As the innovations started to emerge in 2023, it became obvious that a "fixed science" will be higher impact than expected. The impacts are on militaries, national economies, and even "shame" on a national scale—shame for not being able to recognize the accurate science and/or shame for not fostering a nationwide environment where innovation is rewarded.

Bullet Summaries – HS-Drone LLC makes rapid advances using computational fluid dynamics and digital prototypes. Example transformational products are below. Currently, the focus is on understanding and patent protection.

- Readiness – Only with partnering or licensing, then multiple units in 12 months.
- Integration in tactical networks – Yes. New aerial platforms complement other tech.
- Align with missions and sustainable – Yes. But only with partnering/licensing.
- Hardened – Partially through digital prototypes.
- Next Steps – a) expand educational materials (i.e., books), b) PCT Patent Application in March or July, c) acquire non-dilutive funding that will justify investment in worldwide patent protection, and d) connect with two **strategic partners** to take **two technologies** toward physical prototypes.

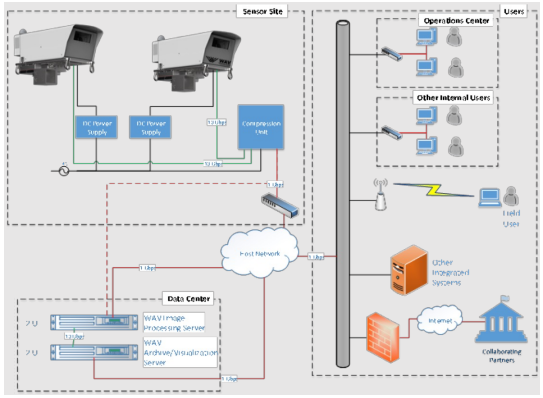
Immediate Needs and Transformational Products – HS-Drone LLC specializes in advancement of aerial platforms and understanding using digital prototypes and CFD. Patent are filed prior to publication. We need partners to make new generations of aircraft happen faster and better. The following is the start of the list of key strategic innovations that have a patent pending status:

- **Gound Effect Flying Railcar** – The flying railcar uses the ground and rails to block loss of aerodynamic lift resulting in a 50% to 80% reduction in per-passenger energy consumption versus the best alternatives with worldwide access through use of rail infrastructure and high speeds due to air suspension. The country that develops this technology is positioned to win the economic war; the loser is positioned to follow the path of the Soviet Union.
- **Ground-Effect Flying Ship** – Ground effect flight over water can approach the performance of the Flying Railcar; this vessel is stable in water and able to attain flight with high lift forces for heavier payloads and speeds in excess of 400 mph.
- **Airborne Aircraft Carrier** – Patent-pending bifacial wing technology increases the amount of surplus energy for both 24/7 flight and powering drone aircraft towed by the carrier.
- **1 ¢/kWh Electricity anywhere** – By directly using solar panels as aircraft lifting body sections, greenfield/brownfield costs are eliminated and higher levels of solar cell productivity leading to electric power costs less than 10% that of alternatives (other than nuclear); with transfer to the ground these costs are still less than 3 ¢/kWh.

UNCLASSIFIED

WAV Surveillance System

Jonathan Ray, Innovative Signal Analysis, [214-709-4988], jonathan.ray@signal-analysis.com



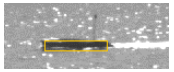
WAV Surveillance System provides unmatched wide area, high resolution video that is…

- **Panoramic**
- **Persistent**

Enabling…

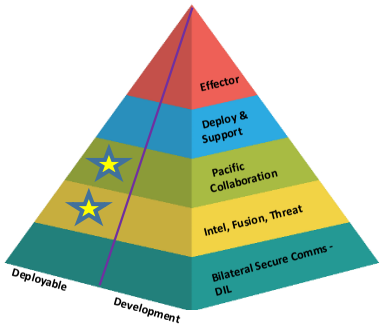
- **Wide Area Situational Awareness**
- **Force Multiplication**
- **Automation and Collaboration**

Technology Description / Product:



- WAV is a Patented Electro/Optical InfraRed Imagery System
- WAV Provides…
  - Wide Area Coverage (90 Degrees per System)
  - Persistent Coverage
  - 24/7 High Resolution Imagery
  - 30 Day Forensic Archive
- WAV includes Software based…
  - Detection
  - Tracking
  - Geo-Location
  - Geo-Fence Alerting
- Supports Multiple Users/Missions
- Performing Multiple Independent Missions
- With **ONE** Consolidated / Interactive Image
- Without Resource Conflicts

Where do we fit in?



Air/Land/Maritime Domain Awareness

Persistent, high resolution, 90° field of view for domain awareness in battlefield management

Provides situational awareness for multiple groups in the kill chain

Advanced Computing and Software

- Real time image processing to detect potential targets in the field of view
- Geolocation and tracking

Integrated Sensing and Cyber

- API enables forwarding system data to other systems in the kill chain

Innovative Signal Analysis, Inc.

A leading provider of real-time signal and image processing systems

wavcam.com

3301 E. Renner Rd Ste. 200

Richardson, TX 75082

Jonathan Ray, Director of Domain Awareness Systems

Jonathan.Ray@signal-analysis.com

214-709-4988

ISA INNOVATIVE SIGNAL ANALYSIS, INC.

WAV SURVEILLANCE SYSTEMS BY INNOVATIVE SIGNAL ANALYSIS, INC.

NDIA

UNCLASSIFIED

WAV Surveillance System

The WAV Surveillance System developed by Innovative Signal Analysis, Inc. combines wide area video coverage and full resolution imagery to produce the ISA patented WAV image. WAV output is a 90-degree horizontal field of view captured once per second. The WAV Surveillance System captures, processes, archives, and distributes video and associated metadata to users in real-time, which is truly one of a kind.

The WAV Surveillance System provides a panoramic, persistent, and passive system for monitoring an expansive field of view during day and night.

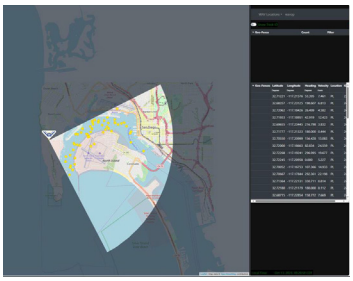
While the cameras used in the WAV System are impressive, they are only the front end of the larger system. Behind the cameras, is ISA developed software and algorithms managing the operation of the system and the processing of the video to detect, geo-locate, and track motion in the sensor's field of view.

Multi-Mission Support: The WAV Surveillance System supports multiple missions by simultaneously distributing the WAV video data to multiple users without the need to have a single user in control of the WAVcam sensor.

Surface Based Detection: The WAV Surveillance System's detection capabilities have been showcased in the detection of multiple surface based objects. By utilizing and improving on ISA developed motion detection algorithms, the WAV surveillance system has been able to detect and geo-locate moving objects within the WAVcam sensor's field of view.

Operator Interface: The WAV LIV2, is a web-based user application to view video and metadata collected by the WAV Surveillance System. LIV2 features a geo-referenced map to display WAV system locations. From the map, a user can zoom into a location and see current motion tracks in the active WAVcam sensor's field of view. Selecting a track will open a detailed window about the track. On the map, the user has the ability to draw Geo-Fences that will alert the user when a track enters or is detected inside the fence.

LIV2 viewer is accessible from the map and is a live video stream of the active WAVcam Sensor. At the top of the LIV2 is the full field of view of the WAVcam sensor and below is an expanded view of a portion of the field of view. This section can be set to run an automatic pan of the entire sensor field of view.



LIV2 supports multiple user defined virtual pan and zoom windows. This feature is unique to each user and allows multiple users to zoom within the same WAV field of view without interfering with other users zoom windows. Indicators on the field of view and the zoom window allow the operator to identify each zoom window in relation to the overall field of view.

ISA
INNOVATIVE SIGNAL ANALYSIS, INC.

Jonathan Ray, Director of Domain Awareness Systems
Jonathan.Ray@signal-analysis.com 214-709-4988
wavcam.com

AI Enabled First Person View (FPV) Tactical, Mixed Reality Goggle System – MSU01

Tom Yoakum, ISEEYOU360 Inc. [231-833-0098], tom@iseeyou360.com

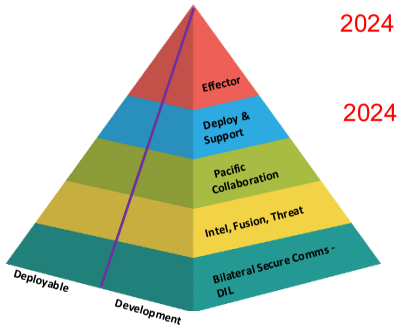
- Tactically deployable interoperable First-Person View (FPV) goggle system with proposed AI enhancement – Hardware (HW) and Software (SW)
- AI enabled situational awareness (SA) threat detection SW user interface

(Conceptual Image Above)

Technology Description / Product:

- Protect drone operators while conducting missions by providing enhanced visuals and automated situational awareness for their immediate physical surroundings.
- Developed for operators of Unmanned Aerial Systems (UAS), Unmanned Ground Vehicle (UGV), Ground Control Systems (GCS), to become less reliant on outdoor tablet, laptop, digital displays, and visual aids by integrating all into a customizable immersive picture in picture.
- Tactically deployable interoperable AI enabled FPV goggles system for operators of UAV, UGV, and USC systems providing SA of operations involving persistent threat surveillance
- Digital eyes - live streaming forward/rear visual; drone, robot, & video feed; C2 video and data (training/mapping); thermal optics;
- Reduces light strain, sun bleaching of tablet display, and light detection

Where do we fit in?



2024 Principal Innovation Priorities:

- Counter-C5ISR

2024 General Innovation Priorities:

- Trusted Artificial Intelligence (AI) and Autonomy
- Integrated Network Systems-of-Systems
- Human-Machine Interfaces

Company Information:

Website: https://www.iseeyou360.com/

Past Performance of Technology and Company:

- Camp Mabry Texas sUAS squadron - field tested & trained operators on goggles, fielding comms boxes from kit, supporting development
- Dyess AFB EOD formally supporting goggle kit development efforts
- AF Civil Engineering Center EOD at Tyndall AFB
- Tulsa OK Fire Department with Skydio demo
- Houston Fire Department with Boston Dynamics demo
- 2023 – Texas Public Safety Robotics Summit, United States Bomb Technician Association (USBTA) Robot Rodeo, Joint Interagency Field Experimentation (JIFX)
- Office of Undersecretary of Defense support

ISEEYOU360 Inc. www.iseeyou360.com 231-833-0098 Tom Yoakum

ISEEYOU360's MSU-1 goggle system is a tactically deployable interoperable First Person View (FPV) goggle system designed to protect drone operators while conducting missions by providing enhanced visuals and automated situational awareness for their immediate physical surroundings. Developed for operators of Unmanned Aerial Systems (UAS), Unmanned Ground Vehicle (UGV), Ground Control Systems (GCS), to become less reliant on outdoor tablet, laptop, digital displays, and visual aids by integrating all into a customizable immersive picture in picture. The operator is provided a set of "digital eyes," providing a live stream of forward and rear facing visuals, concurrent with a live feed of the drone or robotic device. This feed can include AI enabled situational awareness (SA), thermal optics, and data collection for Command and Control (C2), training, and mapping.

As a tactically deployable interoperable AI enabled FPV goggles system for operators of UAV, UGV, and USC systems, the technology provides SA of operations involving persistent threat surveillance. Acting as digital eyes – the system provides live streaming forward/rear visual; drone, robot, & video feed; C2 video and data (training/mapping); and thermal optics. It reduces light strain, sun bleaching of tablet display in sunlight, and light detection when used in nighttime operations. It is designed to be interoperable with Unmanned Aerial Vehicle (UAV), Unmanned Ground Vehicle (UGV), and Unmanned Surface Vehicle (USV) operation. The technology meets the USD (R&E) Critical Priority Technology Area of Human-Machine Interfaces by enhancing the safety and situational awareness (SA) of operations involving persistent incident awareness utilizing unmanned systems.

The technology has been successfully demonstrated in the field and used in operational training conditions to test for performance. The system includes goggles with a case, ROADFI360 Wi-Fi comms box, battery, charger, body unit, cabling, and helmet mount. A portion of the system (ROADFI360) is mature and is being commercialized.

The unit has been exposed externally to the elements and performed as agreed in multiple locations. It has been extensively demonstrated and field tested for multiple use cases, both in military and law enforcement/public safety settings. It is TRL 4/5. Today's prototypes provide all functionality required for current use and can move to market. Additional enhanced features to be incorporated into the goggle system require further development. The MSU-1 goggle system pairs with current systems such as ATAK into a tactical network. Field testing and demonstrations continue to test the unit with sensors and various platforms for connectivity as the technology progresses.

ISEEYOU360 was founded in 2017 by Tom Yoakum. It is a targeted security solutions company primarily engaged in research, design, development, manufacture, integration and sustainment of advanced technology products. The company has successfully navigated multiple AFWERX SBIR contracts to develop the technology to its current stage from its headquarters in Grove, Oklahoma.

LEVANTA TECH Sea-Launched Group 2, 3, & 4 UAS

Kelly A. Echols, LeVanta Tech Inc., 8016643403, kechols@levantatech.com

Unlimited On-Station Time – Persistent sea-air interface

- Rough sea float
- High-speed flight
- Surface transit mode
- Low detectability
- Vessel or shore deployed
- Asymmetric pop-up
- Low cost
- Rapid manufacture
- Attritable, yet survivable

Technology Description / Product:

Motors off while floating, preserving power – unlimited on-station time

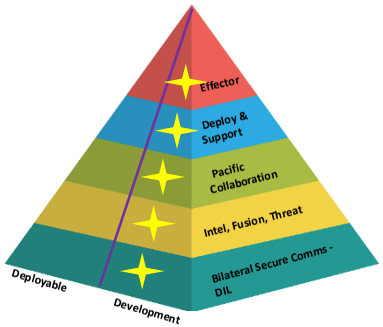
Group 2 UAS - 8' x 7' x 2' dimension – alpha prototype testing Q1/Q2 2024

- Confirm rough sea float
- Test surface transit mode
- Validate flight characteristics

Group 3 & 4 proposed products:

- HALIA – S: battery electric; 50-100 lbs. payload; 250+ mile range; 100-150 knot cruise
- HALIA – M: jet turbine; 100-200 lbs. payload; 500-1000 mile range; 100-150 knot cruise
- HALIA – X: jet turbine; 2200 lbs. payload; 3000 mile range; 100-150 knot cruise

Where do we fit in?



2024 Principal Innovation Priorities:

- Air/Land/Maritime Domain Awareness
  - Deploy mini-UUVs in littoral zone, retrieve data, and exfil/relay data
  - Monitor shipping lanes/choke points
  - Critical Infrastructure Protection
- Joint Command and Control
  - Comms relay
- Contested Logistics
  - Ship-to-shore resupply
  - Blockade buster

Company Information:

- U.S. small business, HQ:MO, 1-10 employees, outsourced manufacturing
- Accepted into Gulf Blue Navigator – target flight June 2024
- Accepted into ANTX Coastal Trident 2024 – target demo Sept. 2024
- Invited to FLEX 2024 Key West

Roadmap

- Conduct Group 2 UAS demos Q3/Q4 2024
- Group 2 UAS testing accelerates Group 3 & 4 development
- Q3 2024 begin Group 3 & 4 UAS beta prototype design, construction, and testing
- Target Group 3 & 4 UAS product launch 2026

LeVanta Tech Inc.
405 N. Jefferson Ave., Springfield, MO 65806
POC: Kelly A. Echols, 8016643403, kechols@levantatech.com

LeVanta Tech is developing sea-launched Group 2-4 UAS ("float-and-fly" drones or FFD). "Float-and-fly" provides a persistent sea-air interface with the ability to fly at high speed (100-150 knots) with low detectability. The drones can float for days/weeks/months in rough seas with a low profile. As needed, the drones can fly with low detectability into a contested zone. "Float-and-fly" fills a gap in current technology by having high endurance; rough sea float, takeoff, and landing; and high speed. The float-and-fly drones are attritable, yet survivable.

Float and Fly drone operational differentiators: Aerial drones have limited endurance when carrying heavy payloads and have limited on-station time. Seaplane drones cannot land and takeoff in rough seas. USVs have endurance but are slow and present a larger radar cross section for counter-detection efforts. LeVanta Tech's float-and-fly drones (FFD) are capable of quickly inserting into a contested area via flight, land and operate as a surface drone on the ocean with a small detectable cross section to provide long-endurance ISR and communications relay to support to littoral operations, MDA, and CIP. Upon mission completion the drone can rapidly egress. Similarly, the LeVanta Tech platform can patrol a large area in flight mode and then land to investigate contacts of interest. Free float and the surface hydro-foil propulsion mode allows the platform to minimize energy consumption to provide more persistent sensor and communications relay coverage.

Technology readiness: Group 2 UAS alpha prototype undergoing in-water testing. Wind tunnel testing validated energy consumption modeling. Alpha prototype dimensions are 8' x 7' x 2' (3/4 scale HALIA-M Group 3 UAS). Alpha prototype testing Q1/Q2 2024: confirm rough sea float; test surface transit mode; and validate flight characteristics. We have been accepted into Gulf Blue Navigator. Flight is targeted for June 2024. We are also accepted into ANTX Coastal Trident 2024. We plan to demonstrate deployment of a mini-UUV from our Group 2 UAS, land on the ocean, receive data from the UUV, and then exfil with the data for secure download. We have been invited to participate in FLEX 2024 naval exercises off of Key West in October.

The current Group 2 UAS alpha prototype was manufactured with a scalable manufacturing process. The goal is to develop a rapid, high-throughput, low manpower, manufacturing process for attritable, yet survivable drones. HALIA-M and HALIA-X, Group 3 & 4 UAS, respectively, will be developed in parallel to Group 2 UAS alpha prototype testing. HALIA-M (Group 3 UAS) and HALIA-X (Group 4 UAS) product launch is planned for 2026. Target is high-volume manufacture of the Group 2 UAS. Production target for HALIA-M (Group 3 UAS) and HALIA-X (Group 4 UAS) is at least 10 units per month each.

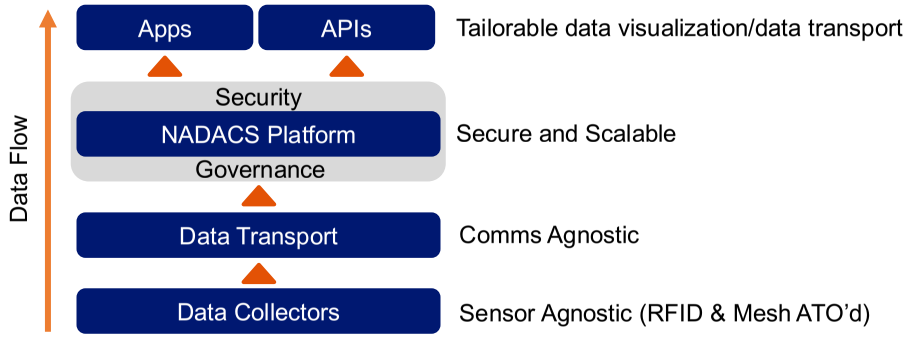
Basic platforms will be UMAA compliant. Non-limiting sensor/payload examples include: EO/IR, satellite/RF Comm., acoustic modem, mini-UUV deployment, LiDAR, energetics/kinetics, MAD sensor, passive or active SONAR, AI enemy recognition, and winch-deployed sensors. Cyber-hardened subsystems, components, and materials already used by DoD will be selected to aid integration and to limit new parts introduced to ship-board/base inventories. Final designs will maximize storability on vessels. Training and maintenance plans will be developed.

LeVanta Tech is a U.S.-based startup. LeVanta Tech has a lean staff and outsourced manufacturing. LeVanta Tech is developing U.S. manufacturing partnerships and creating U.S. jobs. The high-throughput, low-cost manufacturing process will be capable of producing attritable, yet survivable drones. Our goal is to develop manufacturing processes capable of implementation in the U.S. and/or in the Indo-Pacific partner regions.

Naval Autonomous Data Collection System (NADACS)

Jared Summers, LMI Consulting, jared.summers@lmi.org

OV-1



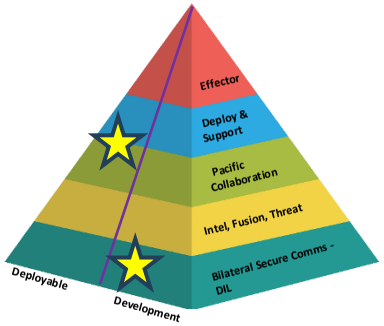
Technology Description / Product:

Naval Autonomous Data Collection System (NADACS) is a continuous asset visibility and business intelligence system which improves data collection, accuracy, and availability enterprise-wide to enhance mission effectiveness and readiness. Benefits include:

- Government Owned and OSD-approved
- Sensor and Comms Agnostic
- Secure – Holds an Authority to Operate (ATO)
- Scalable – Cloud-based architecture
- Tailorable – Rapidly customizable based on use case (warehouse, ITV, etc.)

NADACS is uniquely positioned to facilitate the flow of data from the tactical edge to the systems that feed decision making in a rapid and cost-effective manner at scale.

Where do we fit in?



Focus Areas:
- Contested Logistics
- Joint Command and Control

Company Information:

LMI is a consultancy dedicated to powering a future-ready, high-performing government, drawing from expertise in digital and analytic solutions, logistics, and management advisory services. We deliver integrated capabilities that incorporate emerging technologies and are tailored to customers' unique mission needs, backed by objective research and data analysis. Founded in 1961 to help the Department of Defense resolve complex logistics management challenges, LMI continues to enable growth and transformation, enhance operational readiness and resiliency, and ensure mission success for federal civilian and defense agencies.

LMI

Naval Autonomous Data Collection System (NADACS)
Presented by LMI Consulting

NADACS is comprised of sensors that collect data at the tactical edge (e.g., passive RFID or wireless sensor mesh sensors), a back-end data environment to collect, store, and transform that data to make it useful to users or move the data to other enterprise systems, and a front-end web interface to visualize the data. NADACS is a government-owned system developed by Naval Supply Systems Command (NAVSUP) and housed in a Navy-operated Amazon Web Services cloud environment. This makes the capability scalable as new data sources are connected to it over time. *NADACS holds an authority to operate (ATO), meaning it can be leveraged to speed up delivery of edge sensor capabilities to the warfighter, particularly for mission critical logistics processes.*

Applications:

- Warehouse Inventory Automation – NADACS enables automated reconciling supply records with on-hand inventory, saving time and increasing inventory accuracy.
- In-Transit Visibility – NADACS enables near real-time tracking of materiel during transportation which is a significant improvement from current in-transit visibility systems which provide visibility at the last node in the distribution network (shipments are "read" when they pass through fixed readers at DOD installations when the nodal reader is functioning). NADACS can also be configured to monitor shipments on the move to protect against theft for high-dollar value for sensitive items or spoilage for temperature-controlled materiel.
- Improved Inventory Management – In locations that manage, store, and distribute large inventories (like depots), NADACS can help personnel quickly locate stocks and materiel, proactively reorder stocks that are expired/end of useful life, and assist personnel in intervening when environmental conditions (i.e., temperature, pressure) become detrimental to item serviceability.

NADACS is ready for use to support the above applications and can be leveraged to rapidly address novel use cases. A wireless sensor mesh network is *currently operational* with Fleet Readiness Center East and NADACS is currently being adapted for deployment in Naval Shipyards, NAVSUP Warehouses, and in a series of field assessments with the U.S. Army. Air Mobility Command is also testing NADACS for ITV and fuel sensing at Exercise Valiant Shield. Data from NADACS can move across tactical networks and connect to enterprise systems and data environments. RFID devices and some mesh sensors are included in the current ATO. The priorities for continued innovation include adding additional sensors and data collectors to the ATO, integrating new communications pathways for sensor data backhaul, integrating mesh and RFID, and developing standardized deployment/installation and user training processes.

Today more than ever, operational superiority in contested environments hinges on the ability to maintain supremacy over an adversary by making faster, more intelligent decisions while denying or rapidly mitigating disruptions to readiness and sustainment support. LMI's user-centered solutions are developed in close coordination with our clients and through our steadfast commitment to innovation at the pace-of-need for our clients and are paired with our unmatched logistics expertise that spans DOD.

Jared Summers, VP, CTO, Defense
jared.summers@lmi.org

Dave Markle, VP of Integrated Deterrence
dave.markle@lmi.org

Affordable & Scalable Transonic Effector

Tony Jones, Mach Industries, [737-999-2986], tonyjones@machindustries.com

- Vertical Takeoff, Low Observable, Transonic Unmanned Aircraft delivering payloads hundreds of miles downrange for an attritable cost.
- Mass manufacturable on a highly automated production line.

Technology Description / Product:

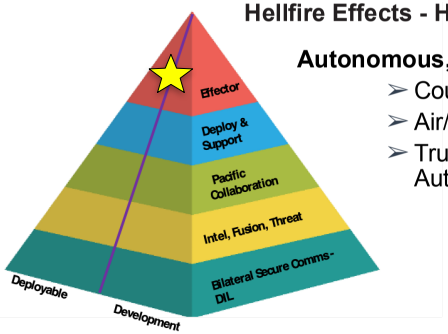
Viper: Optimization of performance and flexibility in a mass manufacturable design.

- Range: 400 NM
- Payload: 20 lb
- Cruise Speed: Mach 0.8
- Cruise Altitude: 30,000 ft
- Length: 79”
- Wingspan: 39”
- Weight: 75 lbs
- Launch: Vertical takeoff

Manufacturing: Production capacity to manufacture of over 300 Vipers/month.

- Design: Modern aerospace technology from an automotive assembly line
- Facility: 110,000 SF, 32’ clear height, 10 automation stations

Where do we fit in?



Hellfire Effects - HIMARS Range - Cruise Missile Speed

Autonomous, Transonic Effector Delivery Vehicle

- Counter-C5ISR
- Air/Land/Maritime Domain Awareness
- Trusted Artificial Intelligence (AI) and Autonomy

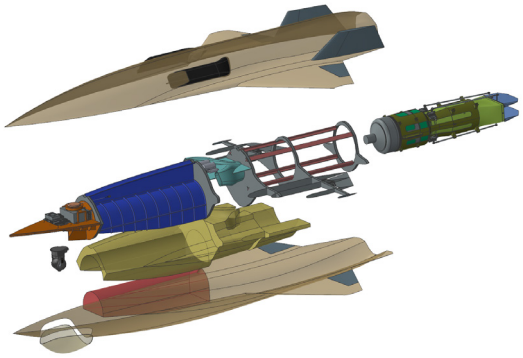
Company Information:

Aerospace and manufacturing company working to scale defense technology production.

- VC-backed
- Over $80M raised in 2023
- Offices and manufacturing in Orange County, CA.
- Offices in Austin, TX

Low Observable, Vertical Takeoff, Transonic Unmanned Aircraft
delivering payloads hundreds of miles downrange for under $150K per vehicle
Presented by Mach Industries

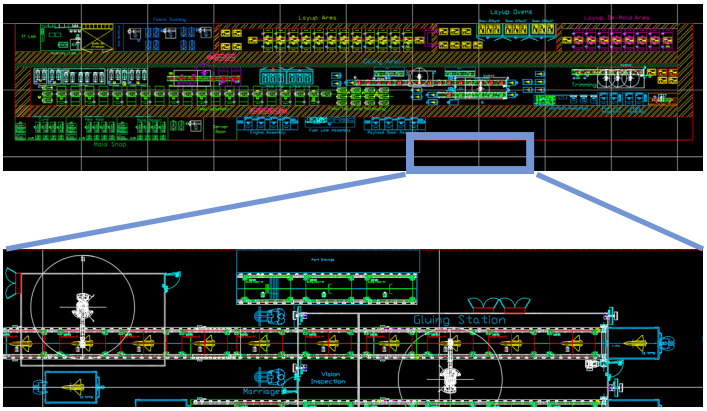
Mach has integrated lower-cost commercial-off-the-shelf components into a small modern strike aircraft design and leveraged in-house rocket expertise to create a high-performance vertical takeoff and landing airframe called Viper. Designed for mass manufacturing, with oversight and input from world-renowned manufacturing experts, Viper extensively leverages modular design philosophies throughout all stages of development. The vehicle offers a 20-inch x 7-inch cylindrical internal bay for carrying a wide range of payloads - from specialized electronic warfare sensors to Hellfire-II warheads.



Mach envisions Viper initially as an Army asset that increases maneuver force lethality at the company to the brigade levels—enabling organic close air support at the edge. Viper's range allows for it to be launched from beyond enemy radar range, reducing the probability of detection and increasing launch team survivability. Alternative uses of Viper include delivery of micro drones or insertion of intelligence gathering devices in contested regions.

With Viper as an organic precision strike asset, tactical maneuver units can engage and prosecute high-payoff targets, such as radar arrays and artillery pieces, well beyond the forward line of troops. This will provide a capability to suppress enemy air defense systems in addition to reducing reliance on other high-demand, low-density fire support capabilities.

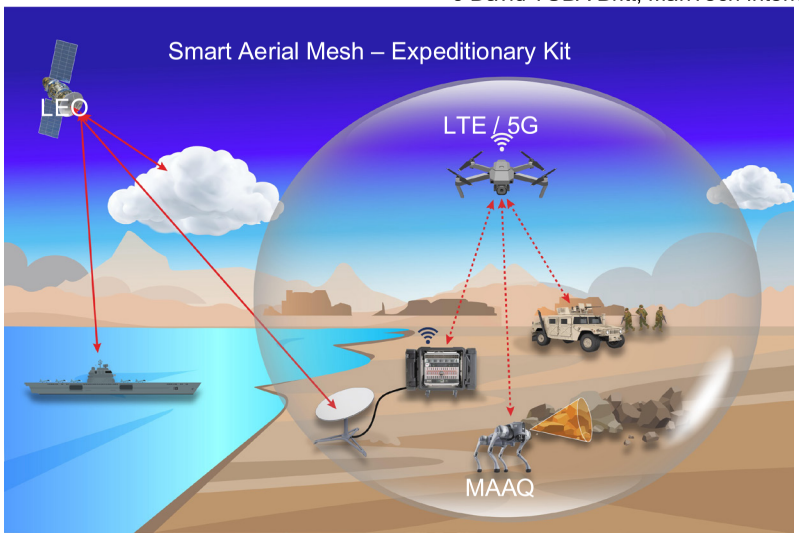
To help address recent production rate challenges, Mach has made a significant investment in our in-house manufacturing team, which is led by personnel who have designed and stood-up automotive production lines, and the establishment of flexible tooling for mass manufacture of Viper and other products in development. Mach recently acquired a ~110,000 sq. ft. facility manufactures at scale and will have a capacity of 300 Vipers per month by December 2024.



Mach Industries was founded in the fall of 2022 to bring novel designs to market at relevant scales to deter and counter threats around the world. In 2023, the team raised over $84M and added expertise with extensive military, aerospace and defense, and automotive manufacturing experience to rapidly design, test, and manufacture new age defense technologies at scale.

ManTech SAM-Ex Kit

J David TUBA Britt, ManTech International, 240.431.9596, jenks.britt@mantech.com



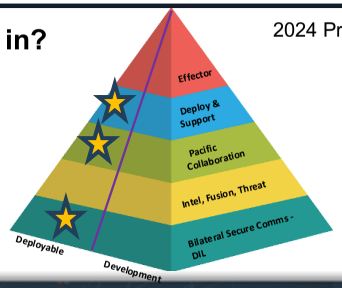
Technology Description / Product:

ManTech's SAM-EX consists of a composable and configurable network on the move that establishes a WiFi / LTE / 5G spectrum 'bubble' of connectivity with available low earth orbit (LEO) Ku/X band backhaul. The physical solution consists of three medium-sized, mountable, hard-cases that contain: 1) ManTech-built Defender UAS 2) ManTech Assembled Autonomous Quadropod (MAAQ) and 3) ManTech Secure Tactical Edge Processor (ST3P) which provides our tactical 5G Core & radio access network (RAN) as well as optional LEO ground station kit.

ManTech's Defender UAS is equipped with WiFi / LTE / 5G communications package for expanding site C2 and a modular electro-optics package.

The MAAQ connects as a physical network extension to ST3P or to the Defender provided comms footprint. The MAAQ deploys with an installed LIDAR and electro-optics package, microphone and speaker as well as a modular mission package that can be tailored to the required mission.

Where do we fit in?



2024 Principal Innovation Priorities:

- Humanitarian Assistance/Disaster Response
- Air/Land/Maritime Domain Awareness
- Joint Command and Control

Company Information:

ManTech Advanced Systems International, Inc. (ManTech)
2251 Corporate Park Drive
Herndon, VA 20171

ManTech Securing the Future

NDIA

ManTech International's Smart Aerial Mesh Expeditionary (SAM-Ex) Kit Proof of Concept Demonstration

Introduction

Humanitarian assistance and disaster relief (HA/DR) operations are of great importance in maintaining international relations and fostering military cooperation in the Indo-Pacific Region. Delivering mobile, quickly deployed command and control (C2) solutions that are scalable in form factor and mission objectives is key to delivering stabilizing effects to affected areas during an HA/DR event. Deployed C2 nodes must be interoperable with existing in-place technologies such as cell networks and internet of things (IoT) style devices. ManTech's solution to this mission set is our Smart Aerial Mesh Expeditionary Kit (SAM-Ex). The SAM-Ex consists of a composable and configurable network on the move that establishes a WiFi / LTE / 5G spectrum sphere of connectivity (at the users' discretion) with available low earth orbit (LEO) Ku/X band backhaul capability. The physical solution consists of three medium-sized, mountable, hard-cases that contain:

1. ManTech-built Defender UA: Connectivity Extender
2. ManTech Assembled Autonomous Quadropod (MAAQ): Autonomous Robotic Scout
3. ManTech Secure Tactical Edge Processor (ST3P) which provides our tactical 5G Core & radio access network (RAN): Edge Core Network, Collection Processing and Dissemination Hub
4. (optional)) LEO mobile ground station kit: High bandwidth backhaul

ManTech's Defender UAS is a Flyte X4E Defender UAS which serves as our airborne swiss Army knife. Our UAS has a payload capacity of up to 5lbs, 1+ hour of endurance with onboard mission systems and folds for compact storage and transport. We have equipped the SAM-Ex Defender with a small form WiFi / LTE / 5G communications package for expanding site C2 and a modular electro-optics package.

MAAQ connects as a physical network extension to our ST3P or directly to the Defender for expanded comms footprint. The MAAQ deploys with an installed LIDAR and electro-optics package, microphone and speaker as well as a modular mission package that can be tailored to the required mission.

ST3P is ManTech's modular edge-deployed software defined communications, collection, processing, exploitation and dissemination hub built on a reference architecture that can be rapidly reproduced or digitally twinned.

SAM-Ex Kits can be deployed in a variety of configurations and capabilities. They are modularly designed and built to deploy in an interconnected fashion in order to scale to the desired mission set. They can connect to unclassified networks, but for higher classification networks they must be accredited. They have been deployed with cross domain solutions in the past.
This version of the SAM-Ex Kit has not undergone operational testing, however the Defender UAS (TRL 8) and ST3P (TRL 9/production ready) have both been operationally assessed by the US Navy, and ST3P is in use by the US Army for field applications. All SAM-Ex Kits can be cyber hardened and deployed with ManTech's Zero Trust Architecture as required.

ManTech International

ManTech's SAM-Ex can meet not only HA/DR mission sets but also Joint C2 and C5ISR Domain Awareness missions. ManTech has been solutioning DoD challenges for over 54 years. Our 12,500 employees are 48% veteran and over 70% are cleared for secure work. We are headquartered in Herndon, VA but are located in 26 states, including Hawaii, and over 30 countries across the globe.

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Metrea DRACO 10G

David Casas, Metrea, [443-691-6434], dca@Metrea.aero

Tactical Cyber Point of Presence Solutions:
- Echo One 5G
- SWIFTWEAR
- COMPANION
- PANDA GEN2
- SWIFTPi

Remote C2 Software:
- StudioX

Self-contained HF-DF system:
- 1.6MHz – 30MHz
- NVIS & Groundwave
- Traditional DF methods:
  - AOA
  - TDOA
  - FDOA

C2 Software:
- SCEPTRE
- RaptorX
- ROVER

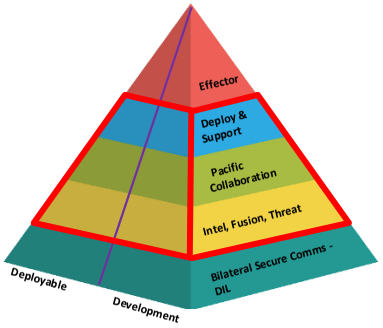
Technology Description / Product:

Metrea's ECHO FoS is a suite of cyber point of presence devices that provide force protection, indications & warnings, and cyber launch points through Echo-enabled handsets, wearable devices, and drone-mounted sensors. The ECHO FoS surveys 2G, 3G, 4G and 5G cellular networks as well as TETRA, Bluetooth (classic & LE), 802.11 (A, B, G, N), and TPMS protocols in a variety of mission profiles (unattended, static, mobile, and airborne) to provide "visualized" Electronic Order of Battle and illuminate electronic and cyber threats, including critical capabilities and vulnerabilities.

Metrea's StudioX software enables remote C2 of multiple ECHO devices and provides additional cyber operation capability through our secure cloud enabled environment.

The Draco product is a complete self-contained solution for HF Direction-Finding and Geolocation, providing a ruggedized solution with very low size, weight, and power consumption. Draco supports a variety of configurations such as fixed-site, vehicular, maritime, airborne, and manpack. Draco has been designed to minimize installation footprint and deployment time by integrating a powerful four (4) channel wideband receiver directly into our popular Crux low SWAP HF antenna array. No routing of RF cables is required, simply mount the Draco DF/Geo head and provide DC power and Ethernet connections. The Draco may operate as a standalone system, or directly interface with a 3rd party system to add HF DF capability to existing systems. The Draco is compatible with the entire family of existing Corsair antenna kits (Orion, Lynx, Cygnus, etc).

Where do we fit in?



2024 Principal Innovation Priorities:
- ▶ Counter-C5ISR
- ▶ Air/Land/Maritime Domain Awareness

2024 General Innovation Priorities:
- ▶ Integrated Sensing and Cyber

Company Information:

Metrea

1054 31st Street NW
Suite 215
Washington, DC 2007

Website: www.Metrea.aero

POC:
David Casas
Head of Commercial (US)
Email: dca@Metrea.aero

Multi-Mission. Multi-Domain. Effects-Based.

Metrea is built on the idea that commercial business models are the only way to deliver outsized contributions for the free world to defend its people, values, and interests.

NDIA

Metrea DRACO 10G & ECHO FoS:

DRACO:
The Draco product is a complete self-contained solution for HF Direction-Finding and Geolocation, providing both strategic and tactical capability at low size, weight, and power consumption. It supports various configurations and can be easily installed. The Draco system provides superior SWaP for any mobile platform, measuring 16" x 16" x 2" H and weighs less than 18lbs. It can be set up and calibrated by one person in less than 10 minutes and is available in two variants. The Draco receiver frequency range is ~3MHz to ~30 MHz, with full instantaneous bandwidth. It also supports wideband DF, sophisticated analysis tools, and geolocation using fusion.

- DRACO aligns perfectly with any high-frequency (HF) direction finding (DF) or geolocation (GEO) mission. DRACO is optimal for HF groundwaves and can successfully align with other HF missions (NVIS, skywave) when paired with our external antenna options. DRACO is a low SWaP and ruggedized sensor that is configurable to align with numerous mission profiles (ground-based, static, vehicular). DRACOs are supported by a limited warranty and can be maintained through Metrea's RMA process. We also provide new equipment training, refresher courses, and troubleshooting support to all end users.

ECHO FoS:
The Metrea ECHO FoS is a passive, Small Form Factor (SFF) system that allows forward operators and command level elements to sense, survey, and assess the EMS environment. It provides data visualization directly to the user and can be remotely viewed and analyzed. Metrea's cloud infrastructure allows higher level organizations to receive sensor data for near-real-time situational awareness and analysis. The system's architecture develops each ECHO sensor into a "cyber point of presence," making them offensive cyber delivery platforms.

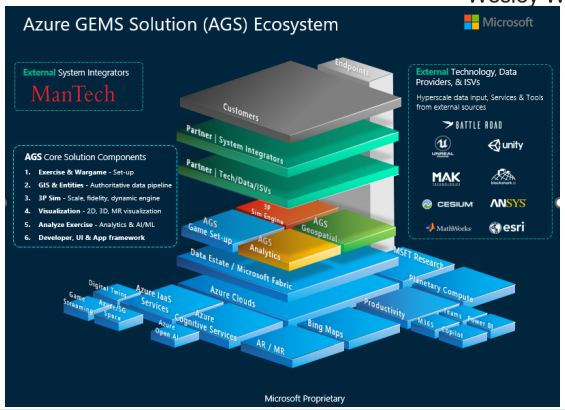
- ECHO FoS is ideal for an IBCT team deployed to map an operational area for electromagnetic environment signal emissions. As an "electronic screen" the MAX systems provide a forward line of sensors for the brigade to visualize electronic order of battle prior to placing soldiers within threat ranges for detection and engagement. Group 1 and Group 2 UAV-equipped soldiers, as well as unmanned ground vehicles, carry lightweight (software in some instances) MAX sensors with them in their flight path and ground routes. In real time, these sensors are surveying emissions of cellular networks (GSM, UMTS, CDMA, EVDO, and LTE networks, narrow-band IoT LTE, 5G NR), wi-fi signals (802.11 A, B, G, N, AC packet captures), and Bluetooth technologies (if within range) at minimum. With tethered SDRs, these platforms can add survey capability of GPS, TETRA, and a variety of push to talk (PTT) systems. Data backhaul takes place over an encrypted, proprietary Virtual Private Network (VPN) with multiple entry and exit points to analytical and command nodes for further exploitation and analysis compared with national and tactical signals intelligence databases.

Metrea provides effects-as-a-service to national security partners in five domains and over a dozen mission-centric solution areas, including airborne ISR, electronic warfare, communications, aerial refueling, space-based ISR, and advanced simulation. Metrea employs over 1000 personnel around the globe from our headquarters in Washington, DC.

UNCLASSIFIED

Microsoft

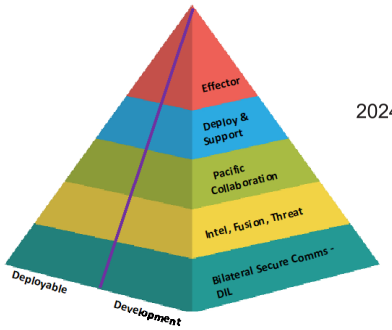
Wesley Williams, Microsoft, 404-452-0109, wewillia@microsoft.com



Technology Description / Product:

- AGS is a compelling **cloud-based extensible platform** for delivering digital GEMS at the strategic, operational & tactical levels of warfare.
- It will **improve readiness** and enhance **exercising important decision-making** scenarios in great power competition.
- Staff can: (1) Setup the game/exercise: (2) Play the game/exercise; and (3) Analyze the game/exercise **faster than anything currently available**
- AGS **addresses USINDOPACOM JLVC** themes as it combines the digital and physical world.
- This solution has the potential to impact every mission-related program from the Pentagon to the expeditionary tactical edge.
- While Microsoft provides the enabling platform technology and GEMS analytical tools, the solution is empowered by a **large partner ecosystem** including software (third-party mod/sim tools that are GOTS or COTS) and hardware (laptops, desktops, radios, sensors etc.)

Where do we fit in?



2024 Principal Innovation Priorities:

- Air/Land/Maritime Domain Awareness
- Joint Command and Control
- Contested Logistics
- Humanitarian Assistance/Disaster Response

2024 General Innovation Priorities:

- Future Generation Wireless Technology (FutureG)
- Trusted Artificial Intelligence (AI) and Autonomy
- Integrated Network Systems-of-Systems
- Microelectronics
- Advanced Computing and Software
- Human-Machine Interfaces
- Integrated Sensing and Cyber

Company Information:

AGS is developed by Microsoft, a global leader in cloud computing, artificial intelligence, enterprise productivity tools, and software engineering.

Microsoft Contact Information:
Wesley Williams
Mission Senior Director
(404) 452-0109
wewillia@microsoft.com

NDIA

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Microsoft Azure GEMS Solution

The Azure GEMS Solution (AGS) is a cloud platform that creates and enables a secure, scalable, and AI-supported digital stadium (that can be paired with the physical world) for wargaming, exercising, modeling and simulation, as well as an enterprise grade collaboration suite to conduct the Joint Planning Process (JP 5-0). However, with regards to JP 5-0, AGS can be easily refactored to align to any other process or methodology (e.g. JIPOE, Joint Targeting Cycle, building a Joint Mission Essential Task List, etc.).

- Is technology ready for use today? How much testing has it undergone to document operational readiness? How quickly can multiple units be produced?

AGS is ready for use today and can be deployed in any Azure cloud environment. It was engineered for IL6 (Azure Secret) and has previously been deployed and used in IL2 and IL4 both at Microsoft and National Defense University. It can be reproduced quickly through automation and many of the underlying components of AGS are standard Microsoft offerings, as such they have undergone extensive operational readiness testing evaluating efficacy, accuracy, speed, and resilience.

- Can the technology be integrated into a tactical network? Are there other sensors or platforms with which is it well suited for integration?

AGS can be integrated into a tactical network, as it supports various data formats, protocols, and standards. The "digital stadiums" that AGS creates are replicas of real-world production systems, as such there is no difference between real-world systems and those employed in an AGS. Relatedly, AGS can also interface with other sensors or platforms, such as simulation tools, hardware devices, and software applications and provide live views and observation of the digital and physical wargame/exercise environments.

- How does it align with operational missions? How does it align with sustainment (maintenance, training)?

AGS can be used to complete the Joint Planning Process, but this could be refactored to other processes, and/or other processes could be added to AGS. It provides wargame/exercise design templates, with AI assistance for setup, execution, and in game/exercise and post-event analysis. AGS aligns with sustainment by reducing physical infrastructure, personnel, and travel costs.

- Is the technology cyber hardened?

AGS is cyber hardened, as it employs various security measures, such as encryption, multi-factor authentication, role and attribute-based access and auditing. AGS is backed by the same Microsoft enterprise security controls and practices, and DoD rules and regulations that exist for real-world production environments.

- What are next steps for technological innovation?

Our development team is currently finishing an architecture for ICD 503 (Azure Top Secret) deployment and the incorporation of the latest AI models (Copilot, OpenAI, etc.), AI memory, and GIS pipeline. Lastly, continues integration work for third party hardware and software, whether GOTS or COTS.

Microsoft, a global leader in cloud computing, artificial intelligence, enterprise productivity tools, and software engineering. Microsoft has over 40 years of experience in providing innovative solutions for various industries and sectors, including the DoD.

Modula-S Inc. (Drone Depot)

Robert Rutherford / Modula-S Inc. / 208.720.3762 / robert@modula-s.com

Modula-S Test Building in Florida and Alaska

AFCEC Tyndall AFB, FL

USACE CRREL. Fairbanks. AK

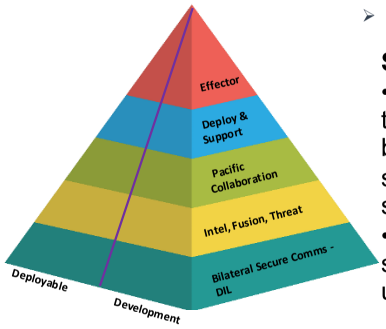
Technology Description / Product:

•All Buildings and Facilities
- One building platform for all hot and cold climates
- All New Construction
- R60+ in only 6 inches

"Through the Fighting Ebola Grand Challenge, USAID funded Modula S to develop and refine modular, rapidly deployable treatment and isolation units for infectious patients." - Avery Waite, Program Analyst, USAID Bureau for Global Health

Where do we fit in?

2024 Principal Innovation Priorities:
- Contested Logistics
- Humanitarian Assistance/Disaster Response



Solution

•Patented, high R-value, super insulation technology performs like a two foot thick wall, but in only 6 inches, enabling efficiency, sustainability and resiliency for all building systems.

•We make buildings perform better with a single building envelope design that can be used anywhere in the world.

Company Information:

2024 General Innovation Priorities:
- Renewable Energy Generation and Storage

MODULA S

Modula-S designs and builds modular, energy efficient, net-zero buildings for all environments. Our patented, high R-value, super insulation technology performs like a 2 foot thick wall, but in only 6 inches, enabling efficiency, sustainability and resiliency for all building systems. We make buildings perform better with a single building envelope design that can be used anywhere in the world.

MODULA S

Modula-S designs and builds modular, energy efficient, net-zero buildings for all environments. Our patented, high R-value, super insulation technology performs like a 2 foot thick wall, but in only 6 inches, enabling efficiency, sustainability and resiliency for all building systems. We make buildings perform better with a single building envelope design that can be used anywhere in the world.

We are a recent recipient of an SBIR Phase I award for the Pacific Open Topic (DoD SBIR 2023.4). In this project we are applying our building insulation system to a Portable Power Platform, aka SustainmentBox, to protect and enhance portable power storage and generation systems like batteries and fuel cells. Our proprietary building insulation system is a trade secret and we have US Patent Number 9702138 covering aspects of our designs.

Modula-S is currently in the middle of an SBIR Phase II project designing H2F (Holistic Health and Fitness) Facilities for the Army. We have been selected by the Army to design and build up to 110, forty-thousand sq. ft. buildings for the H2F program. The Army has selected three companies, so we anticipate building between 35 to 50 buildings each. Our first building should be for the 10th Mtn Division at Ft. Drum, NY and then additional buildings at Ft Moore, Ft Liberty and/or Joint Base Lewis McChord.

Modula-S is a recipient of the following SBIRs and other Awards:

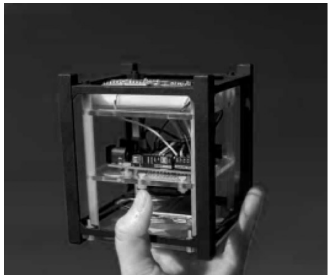
- AFWERX / NORTHCOM US Air Force SBIR Phase 1 & 2 - Contract for construction and testing of our Ultra-Efficient NetZero Smart Test Building at CRREL Permafrost Tunnel in Fairbanks, AK and Tyndall Air Force Base in Panama City, FL
- USACE / CRREL / ERDC / NORTHCOM SBIR Phase 3 - Contract for relocation and permanent installation of our Ultra-Efficient NetZero Smart Test Building to the CRREL Farmers Loop Site in Fairbanks, AK
- US Army Futures Command, AAL SBIR Phase 1 & 2 - Contract for Architecture and Design/Build of NetZero Holistic Health & Fitness (H2F) Facilities
- U.S. Army Combat Capabilities Development Command (DEVCOM)-Pacific, U.S. Army Pacific (USAPAC), and Hawaii Technology Development Corporation (HTDC) SBIR Phase I - Contract for feasibility study of Portable Power Platform, aka SustainmentBox
- Idaho APEX Accelerator - SBIR Small Company of the Year
- Ebola Grand Challenge award for the design of a NetZero Expeditionary Medical Clinic, granted by USAID, the White House OSTP, the Center for Disease Control and Department of Defense.

AFCEC Tyndall AFB, FL

USACE CRREL. Fairbanks. AK

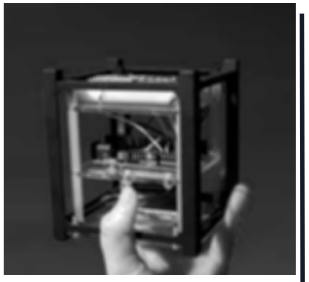
Robert Rutherford / Modula-S Inc. / 208.720.3762 / robert@modula-s.com

MorphOptic, Inc.



1U Cubesat, “Ground truth”

Synthesized LEO image from largest current USAF ground telescope (AEOS, Maui)

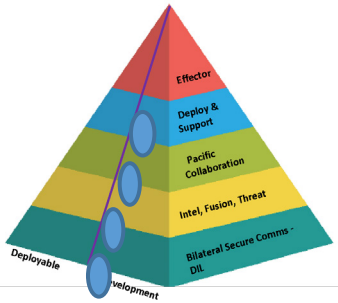


Synthesized LEO image w/ proposed MorphOptic optical system

Ultralight mirrors for sensitive near-Earth communication, reconnaissance & surveillance with:

- 10X lower mirror weight, 10X lower mirror cost
- Ultra-high optical resolution to see much finer object detail both from ground & space-based applications
- High bandwidth optical communication and dense satellite networks

Where do we fit in?



Innovation priorities:
Space Technology & Advanced Materials.

- UC1: Swarm ISR
- UC2: Sensitive early warning for missile and space debris detection
- UC3: Cislunar SSA and reconnaissance
- UC4: LEO space “optical-internet” secure communications
- UC5: Ultrahigh resolution ground-based near-Earth surveillance

Company Information:

Located on Maui, HI

For MorphOptic inquiries please contact:
Jeff Kuhn, PhD, CEO
jeff@morphoptic.com 808 268 5086,

or Cynthia Warner, Business Development
cindywarner@morphoptic.com 808-283-2552

Non-confidential. Additional details available with signed Non-Disclosure Agreement

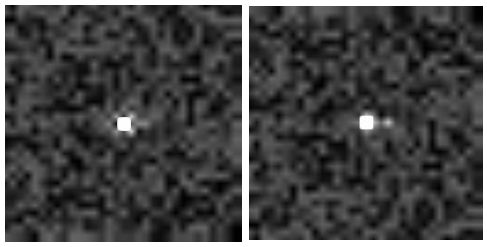
Leading A Mirror Optics Revolution

Founded in 2015, MorphOptic (MO) is making break-through scalable, precise optical mirrors for novel and powerful applications. Telescopes made from such mirrors are the heart of high-bandwidth optical communication, and the key to remote intelligence, surveillance and reconnaissance (ISR) improvements. Today MO is demonstrating a powerful new telescope building block for communication and ISR called an “unobstructed” or “off-axis” reflecting optical system. Our 10cm aperture “Honu” telescope demonstrates the intrinsic advantages of this kind of system over conventional telescopes. When combined with our ultralight (2mm thick) mirror technology this system can revolutionize space-based ISR and communications because of the significant decrease in satellite launch mass in combination with improved optical detection capabilities and data and optomechanical pointing bandwidths.

The Honu concept allows target detection and tracking at small angles from extremely bright background sources like the Sun or the Moon. During this demo we will observe much fainter night-time sources during full daylight conditions within about 20 degrees of the Sun. For example, the waning lunar crescent and Venus can be seen even at visible wavelengths (weather permitting).

Comparing observations of a faint intruder with conventional and Honu telescopes

Figure 1: LEFT: Simulated image of a distant satellite and a faint (5% intruder) in presence of background noise. RIGHT: The same observation using the unobstructed (Honu) telescope clearly shows the nearby intruder



MorphOptic

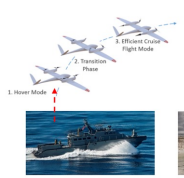
MorphOptic.com

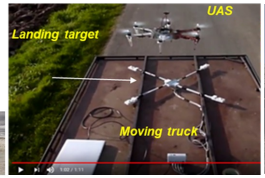
UNCLASSIFIED

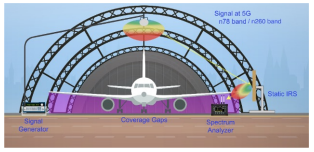
FCT Precision VTUAS Recovery (PVUR), CWP VTUAS, Intelligent Reflective Surface (IRS), Expeditionary Fabrication (XFAB), Balance of Systems-Edge Compute (BoSEC), Advanced Life Sign Monitoring (ALiSM), and Orb Aerospace

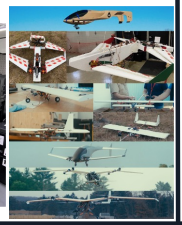
Naval Information Warfare Center Pacific – Hawaii (Code H)

James Latson, NIWC Indo-Pacific, james.l.Latson.civ@us.navy.mil





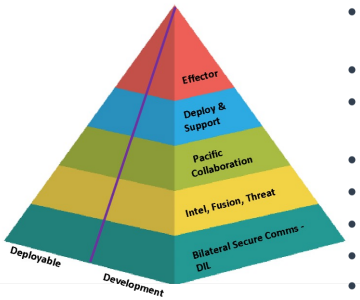




Technology Description / Product:

- **FCT PVUR** – Autonomous landing pad using ultrasound positioning to recover VTUAS without vision or GPS
- **CWP VTUAS** – Autonomous VTOL UAS paired with remote triggered MUM/T ISR tasking
- **IRS** – Improve 5G network signal coverage through liquid metal providing reconfigurable intelligent metasurfaces
- **XFAB** – Rapid fabrication of various types of materials to meet warfighter demand
- **BoSEC** – Focus on solar harvest, battery life cycle management and demand management of power utilizing and optimizing AI/ML edge compute capabilities
- **ALiSM** – Increase survival rates for casualties through immediate detection of vital signs
- **Orb** – Airborne mobile infrastructure and transport

Where do we fit in?



Focus Areas:

- Maritime Domain Awareness (MDA) and Maritime Security
- Health security and COVID/Pandemic
- Humanitarian Assistance Disaster Response/Relief (HADR)
- Counter Improvised Explosive Devices (C-IED)
- Border Security
- Operations in the Urban Environment
- Contested Logistics and Operational Energy
- Devastating wildfires (Prevention and Low-cost Solutions)

James L. Latson
Engineer – UAS Lead
Unmanned Systems Experimentation - Strategic Development
Advanced Development and Experimentation (Code H56H)

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Naval Information Warfare Center PACIFIC

NDIA

Naval Information Warfare Center (NIWC) Pacific mission and vision is to conduct research, development, engineering, and support of integrated command, control, communications, computers, intelligence, surveillance and reconnaissance, cyber, and space systems across all warfighting domains, and to rapidly prototype, conduct test and evaluation, and provide acquisition, installation, and in-service engineering support. NIWC will demonstrate several technologies during the POST FX event.

Foreign Comparative Testing Precision Vertical Takeoff and Land Unmanned Aircraft System (VTUAS) Recovery (FCT PVUR) – Autonomous landing pad using ultrasound positioning to recover VTUAS with accuracy on a moving platform in day/night conditions without pilot presence or operating skills. This technology will also use the Dannar Mobile Power Station (MPS), which is used by the Office of Naval Research Next Strategic Technology Evaluation Program (ONR NextSTEP) for the Electric Tactical Humanitarian Operations Response (eTHOR) project to use as the Unmanned Ground Vehicle (UGV) for the moving platform.

Coalition Warfare Program VTUAS (CWP VTUAS) – Demonstrate full system cycle evaluation of CWP VTUAS mission set (launch, tasking, recovery, and recharging). This technology will also incorporate FCT PVUR for the landing accuracy of the system.

5G Intelligent Reflecting Surface (IRS) – A 5G comm link over a line of sight (LoS) path is susceptible to outages caused by blockage and misalignment. To maintain connectivity in 5G-enabled dynamic operational environments, there is a need for beyond LoS (BLoS) capabilities. This effort will deliver sub-6GHz/mm Wave liquid-metal and graphene IRS technology that: Enables connectivity not supported by traditional LoS links. Supports advanced multi-user multi-input multiple-output (MU-MIMO) communication.

Expeditionary Fabrication (XFAB) – Advanced manufacturing in the United States Marine Corps (USMC) which allows a way to position factory to the front line. This type of capability provides technological advances in additive manufacturing and three-dimensional printing that make it possible to produce and maintain equipment close to where troops are engaged in battle. Providing these capabilities in forward areas makes it easier to deliver needed items in a timely manner and reduce transportation and energy costs.

Balance of Systems-Edge Compute (BoSEC) – This technology will build upon the installation and operations of force protection systems various installations to study and analyze the energy BoS in different micro-climates.

Advance Life Sign Monitoring (ALiSM) – A UAS-based biometric radar system for monitoring multi-subject vital signs. This consists of a lightweight dual radar sensor for recognition and monitoring of life-signs including heart and respiration rates, from a moving platform. Physiological motion can be measured at up to 100m through clothing, walls, and body armor.

Orb Aerospace – Orb Hybrid eVTOL aircraft that are multi-capable air platforms designed to self-deploy anywhere in the world and establish their own power, communications, and navigation infrastructure. This will enable regional aerial logistics in response to natural disasters, humanitarian aid crisis, and contested regions. Orb also has a capability know as Advanced Bionic Robot Arm for Huge Aircraft Manufacturing (ABRAHAM), which is a 6-axis robotic arm with a tool head change for additive and subtractive manufacturing and finishing aircraft components and molds.

Patented Technology

Hot Patch On Demand (HOTPOD)

Zac Graber – necoTECH – (833) 444-6326 - zgraber@necotech.com

Typical Cold Patch **Hot Patch on Demand**

Technology Description / Product:

- Self-contained, rapid hot mix asphalt system.
- Working temperature hot asphalt ready in approximately 5 minutes.
- Enclosed within a standard ISU 90 (Conex-type) storage container.
- Must use proprietary prefilled HOTPOD asphalt tubes.
- Each tube contains approximately 5-gallons of asphalt.
- Designed by USACE ERDC for AFCEC for rapid airfield repair.
- Powered by diesel generator.
- Tested by the Royal Canadian Air Force for extreme cold weather.
- Test by ERDC for hundreds of fighter plane passes.
- Exclusive Patent.

Where do we fit in?

2024 Principal Innovation Priorities:

- Contested Logistics
- Humanitarian Assistance/Disaster Response

2024 General Innovation Priorities:

- Advanced Materials

Company Information:

- necoTECH's core competencies are in working with CE teams within the DoD to develop innovative and sustainable technologies that improve infrastructure performance and increase safety
- The team includes entrepreneurs, veterans, engineers, former Fortune 500 executives, and experts in complementary industries and technologies
- 4 technologies in the top 30 of the Flightline of the Future Challenge
- CRADA's in place with AFCEC and the U.S. Army ERDC
- Selected as one of Fast Company's 2023 World's Most Innovative Companies
- Selected as 1 of the 16 Most fundable companies in America by the annual Pepperdine Graziadio program

Hot Patch On Demand (**HOTPOD**) is a self-contained system that creates working temperature hot mix asphalt (HMA) in ~5 minutes. **HOTPOD's** proprietary heating system and 3-phase diesel generator are enclosed within a standard ISU 90 (Conex-type) storage container. The proprietary prefilled **HOTPOD** asphalt tubes have an unlimited shelf life and contain 5 gallons of asphalt each. **HOTPOD** was designed by the U.S. Army Corps of Engineers - Engineer Research and Development Center (USACE ERDC) for the Air Force Civil Engineer Center (AFCEC) for rapid airfield repair and necoTECH holds an exclusive patent. **HOTPOD** provides the performance of hot mix with the convenience of cold mix year-round. Repairs can now be made in any weather conditions or geographic location, even in remote locations where commercial plants are not available.

Dr. John Rushing of ERDC, does a great job of explaining exactly how serious this problem is and what HOTPOD can do to help, "Our airfields are some of our most valuable assets of the military, and they are the launching points for some of the most critical weapon systems. When they get damaged that puts our operations at risk. The materials that we have right now to go out and do the expedient repairs, sometimes at remote places around the globe, they don't work. They simply can't handle the loads that are imparted from our fighter aircraft. When we put (**HOTPOD**) to the test, we found that it could survive hundreds of passes of those aircraft."

HOTPOD is TRL 8 and ready for use today. It has gone through an Air Force SBIR Phase II contract and has been tested at:

- Goose Bay, Canada (Tested by the Royal Canadian Air Force for extreme cold weather)
- Fort Wainwright, AK
- Fort Drum, NY
- Fort Huachuca, AZ
- Bradshaw Army Airfield, HI

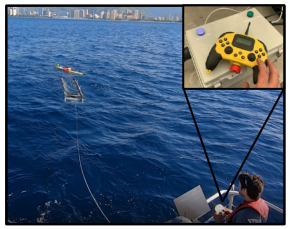
The next step for technological innovation is to set up manufacturing to build the units and tubes at scale. We have a partner who can help build units, a partner for creating the proprietary mix, and a design for a rapid tube filling system. With proper interest and funding, (seeking Phase III) we could have multiple units ready for sale in 2024. **HOTPOD** allows operational missions to take off and is key to base sustainment and airfield maintenance and should be integrated into a plan for rapid recovery.

necoTECH's core competencies are in working with civil engineering (CE) teams within the DoD to develop innovative and sustainable technologies that improve infrastructure performance and increase safety. We are currently completing our 3rd Air Force Phase II contract in partnership with CE. The team includes entrepreneurs, veterans, engineers, former Fortune 500 executives, and experts in complementary industries and technologies. necoTECH has had 4 technologies in the top 30 of the Flightline of the Future Challenge, has CRADA's in place with AFCEC and ERDC, was selected as one of Fast Company's 2023 World's Most Innovative Companies, and was selected as 1 of the 16 Most fundable companies in America by the annual Pepperdine Graziadio program.

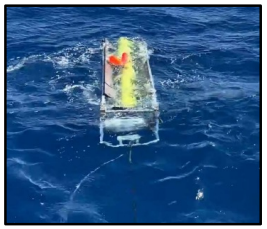
PacMar Technologies

Caddie UUV Launch & Recovery System

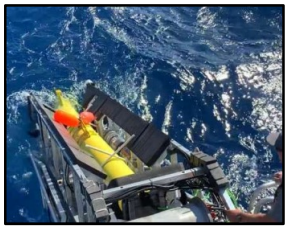
Remote operated system, No in-water support required



Captures and Secures UUV up to Sea State 3



Deploys & recovers via ramp & winch or crane



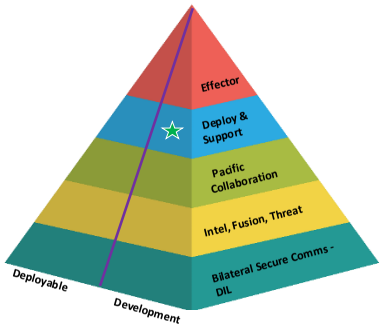
Technology Description / Product:

The Caddie is a remote UUV Launch and Recovery system. It utilizes thrusters along an aluminum chassis for propulsion, a retention system to capture and secure the UUV, and a handheld controller for an operator to control the system remotely. The system is deployed via ramp or crane and is remotely driven (much like an ROV)

ADVANTAGES

- Improves safety of UUV L&R operations in high sea states
- Reduces personnel required to conduct L&R operations
- Scalable design accommodates various UUV models
- Portable system that can be carried on / off desired platform

Where do we fit in?



2024 Principal Innovation Priorities:

- Counter-C5ISR
- Air/Land/Maritime Domain Awareness

2024 General Innovation Priorities:

- Trusted Artificial Intelligence (AI) and Autonomy
- Microelectronics
- Human-Machine Interfaces

Company Information:

https://www.pacmartech.com/

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Honolulu, HI 96813

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syamashita@pacmartech.com
bgrinnell@pacmartech.com

PACMAR TECHNOLOGIES

Core Business Areas

- Platform Design & Prototyping
- Autonomy & Data Science
- Power & Energy
- Advanced Materials & Manufacturing

NDIA

Caddie UUV Launch & Recovery System

Caddie Description: The Caddie is a remote controlled UUV Launch and Recovery system. The Caddie uses an aluminum frame with thrusters to provide propulsion in the x-y-z directions and a deploy & capture system to secure the UUV safely in a padded stowage cradle. The portable system is deployed using a stern ramp or a crane and easily integrated onto various platforms. During L& R operations, the Caddie is remotely driven (much like an ROV) to launch a UUV a safe distance from the vessel or to capture/secure the UUV inside the chassis, and then driven back to the parent vessel. This operation does not require any in water support (no divers or support boats). Typical use case is for launch and recovery of a UUV from the stern ramp of a vessel in open waters. The benefits of our system are that it is portable, improves the safety of current L & R operations by not requiring in water support, and Caddie is versatile and scalable to fit various UUV models and sizes.

This technology has been successfully tested at both ½ scale (~6" dia UUV), as well as a full scale (~12" dia UUV) prototype. The first generation prototype completed a series of launch and recovery operations in calm water as well as an open ocean environment with sea states up to SS3. The Caddie can provide the UUV launch and recovery logistics for various platforms equipped with a stern ramp or crane. The system also has low maintenance overhead. A virtual simulator using the Unreal Engine is under development to help train and provide operators experience driving the system.

Next steps for Caddie: The next steps planned for the Caddie are the design & full scale fabrication of a second generation system integrating lessons learned from the first generation as well as CONOPS specific requests from end users (ECD September 2024). After the second build is complete, the team plans to develop an autonomy package for the system such that the Caddie can locate and recover a UUV autonomously (ECD Sept 2025).

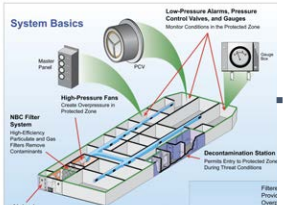
About PacMar Technologies: PacMar Technologies was founded in 1978 with its home office and headquarters in Honolulu, Hawaii. PacMar Technologies is a Hawaii-based small business with 139 employees. Smaller offices on the mainland are strategically located near partners in Portland, ME; South Kingstown, RI; Ann Arbor, MI; and Washington, D.C. Historically, PacMar Technologies' largest customer has been the U.S. Navy's Office of Naval Research (ONR) with significant recent growth with the Defense Advanced Research Projects Agency (DARPA), the United States Marine Corps (USMC), Special Operations Command, and the Naval Sea Systems Command (NAVSEA).

PacMar Technologies' research team has world-class expertise in advanced ship hull hydrodynamic research, naval architecture, alternative energy, autonomy and artificial intelligence, and other maritime technologies. PacMar Technologies produces innovation through research—inventing, innovating, developing, building, and testing advanced technologies (hull designs, autonomous vehicles & systems, and marine vehicles to improve ship efficiency and energy savings). This ability to transition from concept to modeling and simulation to prototypes in the hands of end users is extremely unique of a company this size.

Pandemic/CBRN Force Protection for Bases, Ships, Subs

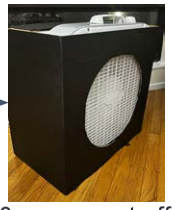
Devabhaktuni Srikrishna, Patient Knowhow, Inc., [617-877-5944], sri@patientknowhow.com

Hard: ColPro
(Collective Protection)



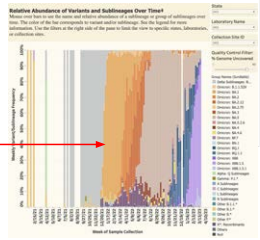
Costly, power-hungry, "breaks down" hard to maintain, fragile to leaks or internal-release or contagion

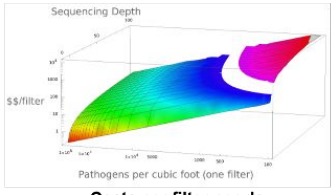
Easy: Supplementary Air Filtered Exchanges (SAFE) + Spike-Triggered Virtualization (STV) + AI



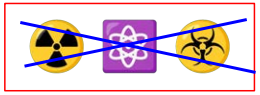
10x more cost-effective, power-efficient, maintainable, protects from external leaks and internal releases, and tracks contagion to its source

Technology Description / Product:



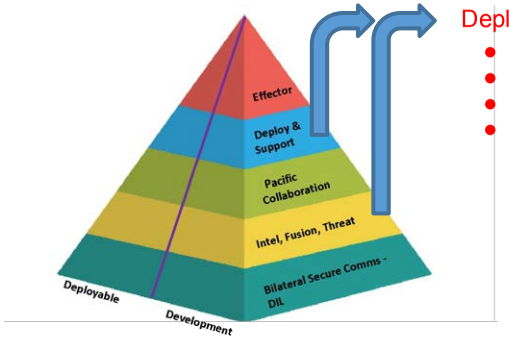


Costs per filter per day



* STV + AI (patented): Efficient detection network for novel biothreats with high-quality gene sequencing
* SAFE (open-source): 12+ ACH economically with low-noise, air filtration typically $0.5 to $1 per sq. foot
* SAFE air sampling substitutes for dry filter units (DFUs) plus it cuts toxic aerosol risks in lieu of ColPro.
* SAFE is peer-reviewed, deployed across USA

Where do we fit in?



Deploy & Support, Intel, Fusion, Threat

- Improve Readiness
- Reduce Risk to Deployed Forces
- Contested Logistics
- Biotechnology

Company Information:

- STV: Biodetection Technology received US patent #11555764 (2023)
- SAFE: Published in Science of the Total Environment (peer-reviewed)

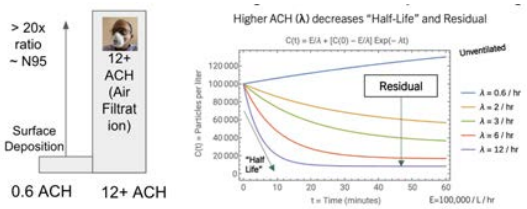
Devabhaktuni Srikrishna, CEO, was previously CTO/founder of Tropos Networks (acquired by ABB) that developed resilient wireless (Wi-Fi) mesh networks for public safety deployed in over 1000 cities. MS (MIT), BS (Caltech).

- Research publications include infectious diseases, environmental science, clinical oncology, wireless networks, parallel computer architecture, quantum computing, nuclear security, and biosecurity.
- Published in Lancet, JAMA, Genome Medicine, Science of the Total Environment, IEEE Communications, IEEE Computer, Physical Review A, Harvard Business
- Review, Washington Post, Los Angeles Times, and Scientific American.
- https://www.sciencedirect.com/science/article/pii/S0048969722029813

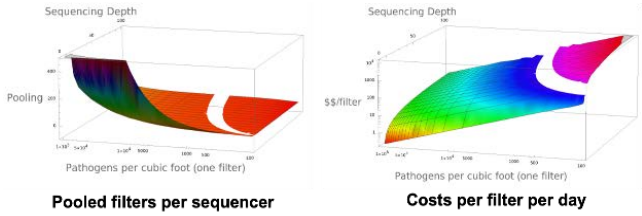
Pandemic/CBRN Force Protection for Bases, Ships, Subs

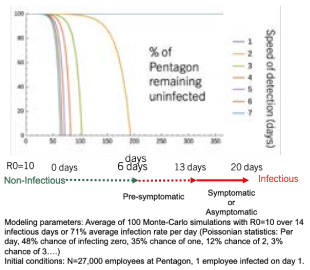
Background: Biothreats in the air are not limited to biological select agents and toxins (BSAT) and can include novel, single nucleotide polymorphisms (SNPs). Accurate detection of novel biothreats (NBT) and bioaerosols needs high-quality gene sequencing which is costly and time-consuming. In 2022, the Pentagon Force Protection Agency (PFPA) found threat-agnostic detection of NBT to be "not feasible for daily operations" due to costly reagents, instruments, and time-consuming labor to interpret results. Similar operational difficulties may extend to many of the 280,000 buildings (2.3 billion square feet) at 5000 secure DoD military sites and 250 Navy ships and beyond in civilian buildings. COLPRO (Collective Protection) can mitigate bioaerosol threats but is unused in most buildings because it "breaks down," hard to maintain, power-hungry, costs in excess of $5 per square foot. COLPRO may fail with external leaks, internal-release, or contagion.

Capability #1: Low-SWAP COLPRO-like solution for Force Protection and Readiness:
Supplementary Air Filtered Exchanges (SAFE)[1] is *"COLPRO for the masses"* offering scalable resilience from natural pandemics, synthetic biological weapons, environmental hazards, and CBRN threats. **SAFE** is an open-source, low-SWAP, low-noise, COLPRO-like capability at 10x lower cost including long-term maintenance tools. SAFE has been peer-reviewed[2], and documented in long-term operation at numerous sites across the US.[3] Airborne infections were cut 80% with indoor air cleaning at 5 to 6 air changes per hour (5-6 ACH)[4] on the basis of which CDC recommended minimum 5 ACH in all occupied spaces.[5] 5-6 ACH of outside or filtered air is often cost-prohibitive with HVAC systems alone. 12 ACH is similar N95 level protection at a distance (but not up close).[6] SAFE at 12+ air changes per hour (ACH) costs $0.5 to $1 per square foot (using typical 10 foot ceilings), compared to $2 to $5 for consumer HEPA purifiers. **SAFE** overcomes vulnerabilities of COLPRO (external leaks, internal-release, or contagion). **SAFE** runs on AC power with no cyber elements (networking or computation). **SAFE** can be manufactured for use DoD-wide with North American components.
Readiness for use: Aerosol filtration piece is ready to be field-tested on any bases, ships, subs "from hollywood to bollywood." Gaseous filtration piece needs to be verified in lab (e.g. US Army Devcom)



Capability #2: Efficient Early Warning System for Novel Biological/Bioaerosol Threats for Force Protection and Readiness (patented): Spike Triggered Virtualization (STV) incorporates cost-effective early warning for both BSAT / NBT with open-source, air cleaning (**SAFE**) to control/remove threats between release and detection/identification (US patent #11555764). **STV** addresses the challenges experienced with costly reagents, instruments, and labor to interpret results and makes it 10x more cost-effective on a daily basis. **STV** works in a threat-agnostic manner by dynamically pooling samples from dry filter units (DFUs), whereby pooling and sequencing depth are automatically modulated based on novel biothreats in the sequencing output. By running at a high average pooling factor, daily and annual cost per DFU can be reduced by 10x - 100x depending on chosen trigger thresholds. Artificial intelligence (AI) enhances sensitivity of **STV** triggers. Continuous air cleaning (24x7x365) with **SAFE** bridges gap between release and detection up to 24 hours later, and doubles as bioaerosol collectors (in lieu of DFUs).
Readiness for use: Next steps are to develop and test cost-effectiveness of **STV** with **SAFE** at 12+ ACH for identifying simulated biological agents in typical buildings lacking tightly sealed design of COLPRO.

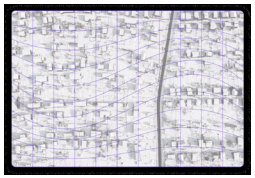


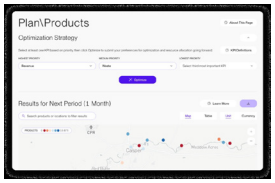


[1] https://www.patientknowhow.com/safe.html
[2] https://www.sciencedirect.com/science/article/pii/S0048969722029813
[3] https://www.medrxiv.org/content/10.1101/2022.11.05.22281734v2
[4] https://www.reuters.com/world/europe/italian-study-shows-ventilation-can-cut-school-covid-cases-by-82-2022-03-22/
[5] https://www.cdc.gov/coronavirus/2019-ncov/community/ventilation.html#how-much-ventilation
[6] https://www.medrxiv.org/content/10.1101/2022.08.09.22278555v8.full-text

Patient Knowhow, Inc. For questions or additional information email sri@patientknowhow.com

Pendulum





Navigate helps you to reach your destination and improve asset tracking, when traditional navigation systems are unreliable or unavailable, ensuring operational continuity. TRL: 7-8

Plan uses forecast and inventory data to optimize procurement, allocation and distribution, making supply chains dramatically more effective at calibrating supply to demand, and in so doing make communities more resilient and more secure in the face of climate impact. TRL: 6-7

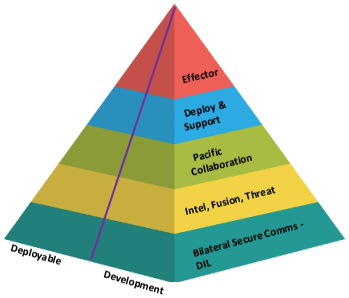
Technology Description / Product:

- AI to transform supply chains from liability to differentiator
- Deep expertise in AI & Supply Chain across industries
- Capabilities: Pendulum tunes supply chains to make companies more profitable, America and its allies safer and the planet healthier.
- Differentiation Interoperable and system agnostic, Pendulum layers intelligence, insight, and foresight onto existing systems.

Trusted by global leaders

FORTUNE 10 COMPANY · USAID FROM THE AMERICAN PEOPLE · BILL & MELINDA GATES foundation · DirectRelief · BAYER · U.S. AIR FORCE · FORTUNE 500 COMPANY · U.S. ARMY · THE WORLD BANK

Where do we fit in?



Use Cases

- Where are my assets? Pendulum Delivers Navigate, assured enhanced geolocation.
- What will change in the future? Pendulum delivers Predict, AI-first forecasting.
- What should I do to shape the future? Pendulum delivers Plan, optimized procurement and allocation.

Company Information:


Benjamin Fels
CEO
Finance and AI


Suvrit Sra, PhD
Chief Scientist
AI Optimization


Drew Arenth
CBO
Supply Chain


Jeni Stockman
Product Deployment
Global Health


Emily Gooding
Director Product
Logistics


Stephen Guerrera
Principle Engineer
National Security

Contact Us

Hello@pendulum.global Drew.arenth@pendulum.global

Navigate

Reduce GPS dependency with **Artificial Intelligence**

GPS-interference dominates modern conflicts

Sides in every conflict are successfully disrupting GPS signals. From downing 2,000 drones a week in Ukraine, to the 141 miles of undocumented tunnel networks under Gaza, our overreliance on GPS opens the door for adversaries to disrupt critical operations. Connectivity issues as well as landscape and atmospheric conditions also create further operational challenges in both a military and civilian context. More reliable and resilient sources of assured positioning, navigation, and timing solutions are therefore crucial.

Navigate mitigates against:

- Jamming & spoofing
- Cyber attacks
- Direct attacks
- Geological features
- Weather conditions

Partnering with:

Assured PNT with Pendulum Navigate

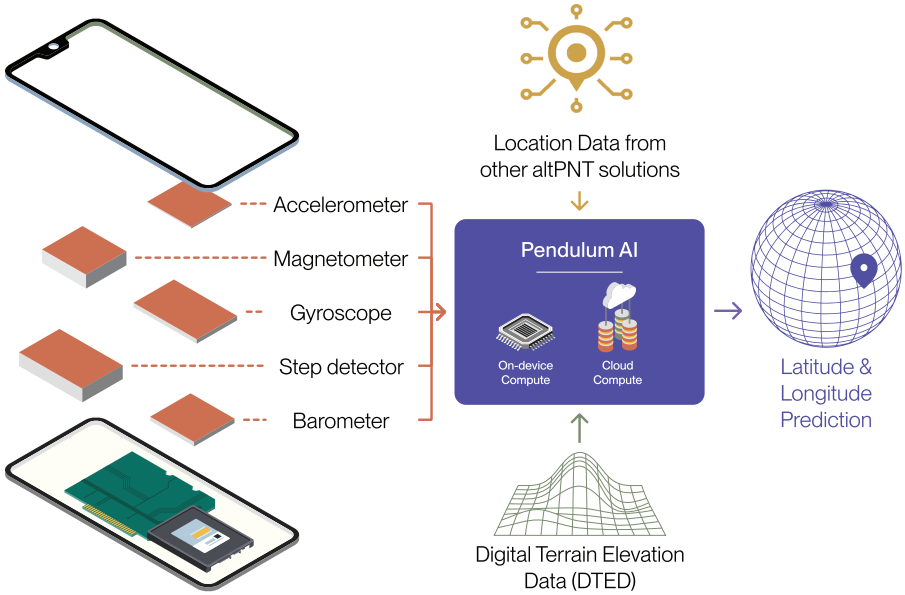
Pendulum Navigate is an AI-powered geolocation solution designed to operate at the edge. It enables accurate positioning, navigation, and timing in GPS-denied environments. Available on mobile devices, as well as being integrated within the Android Team Awareness Kit (ATAK), Navigate provides a real-time geolocation solution across land, sea, and sky where GPS can be a single point of failure.

Navigate integrates with existing software solutions. It. It requires no additional hardware and runs on consumer-grade devices to minimize any additional power usage. In recent field tests sanctioned by the US government, Navigate proved **reliable to within 20 meters per kilometre travelled** in environments where GPS was subject to jamming.

Resilient and easy-to-use AI

Navigate's proprietary machine learning models combine both relative indicators like sensor data from smart devices and wearables, as well as absolute data like elevation maps to provide accurate, real-time PNT in air-gapped environments.

- **Data-centric**: Integrates any relevant customer and public data regardless of type, quality, or quantity - incorporating more data prior to and feedback loops after deployment.
- **Deployable at the Edge**: Works on handheld devices and in air-gapped environments at the operational front line.
- **Integrated**: APIs that seamlessly integrate into customer's existing data systems and work processes.



About Pendulum
Pendulum is an AI company that optimizes critical supply and demand networks.
Our products integrate with existing systems to geolocate assets, predict demand, and plan supply.

Find out more
www.pendulum.global
navigate@pendulum.global

Picogrid: Unified Platform for Autonomous Systems

Martin Slosarik, Picogrid, 650-395-8327, solutions@picogrid.com

Picogrid Helios is a sensor and comms kit for tactical operations in the Pacific

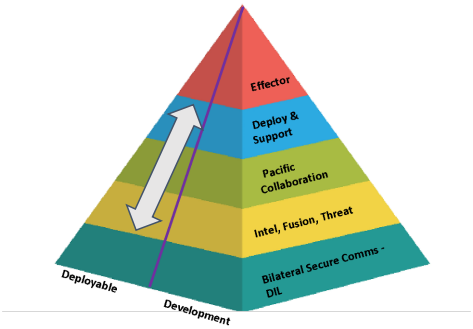
Picogrid Lander used for perimeter security at Patrick Space Force Base and 5 other DoD installations

Picogrid Orion's common operating picture software.

Technology Description / Product:

- C5SIR technology to consolidate disparate defense systems into a unified command and control framework.
- At the heart of our technology is **Legion**, cloud-based API that connects sensors, devices, and autonomous systems with C2 platforms
- Hardware platforms with industry-leading SWaP supporting ISR integration
  - **Helios:** Man-portable C2 station for ACE, allowing warfighter to connect mobile devices (e.g. ATAK, laptop) and sensors (e.g. radar, camera, thermal, remotely-controlled FPV UAVs) to DoD networks as a part of the PACE plan.
  - **Lander:** Heavy-duty C2 station providing rapid, semi-permanent integration of new equipment at installations with up to 10+ year autonomous operation.

Where do we fit in?



Mission Relevance:

- CJADC2 Integration
- Force Protection
- Airfield Seizure & Operations
- Special Reconnaissance
- Communication (incl Disaster Relief)

2024 General Innovation Priorities:

- Integrated Network Systems-of-Systems
- Integrated Sensing and Cyber

Company Information:

- Picogrid is a C5ISR technology company based in El Segundo, CA, with $12M in private venture funding
- Awarded more than 17 federal contracts including $950M Air Force ABMS/JADC2 IDIQ
- Deployed dozens of locations including 6 major DoD bases and combat-proven with Ukraine Defense Forces
- Operational within branches including the Air Force, Space Force, and Army.

Picogrid: Unified Platform for Autonomous Systems

https://www.picogrid.com

To counter near-peer adversaries in priority AORs, the warfighter must sustain an informational edge in forward-deployed operations.

DoD has partnered with Picogrid across missions and domains to connect information sources and address capability gaps in system interoperability. With Picogrid, the warfighter can deploy ISR equipment in austere locations, control it from a stand-off distance, and leave it behind if needed.

Our hardware, Helios, is a man-portable command and communication station for agile combat employment, allowing the warfighter to connect mobile devices (e.g. ATAK, laptop) and sensors (e.g. radar, camera, thermal, remotely-controlled FPV UAVs) to DoD networks as a part of the mission PACE plan.

Our software, Legion, is a common backbone to connect fielded systems and various C2 interfaces to share data and promote interoperability from the tactical to the command level.

TRL: The technology is at TRL-9 and ready to be fielded with new DoD systems.

Network Integration: Picogrid systems are designed to accelerate integration with an ecosystem of sensors, autonomous systems, and C2 interfaces.

Mission Relevance: Base Defense/Force Protection, Airfield Seizure & Runway Operations, Special Reconnaissance, Communications

Cyber: Picogrid maintains a fully separate instance of Legion exclusively for government customers.

About Us: Picogrid builds a unified platform for autonomous systems. The El Segundo, CA-based company builds hardware and software systems to connect sensors, cameras, and unmanned systems with the software systems that increasingly depend on them. Picogrid serves customers including the US Department of Defense, PG&E, and CAL FIRE across the United States and beyond. The company has 17+ defense contracts, including a notable $950M CJADC2 IDIQ, and $12M in venture funding from leading Silicon Valley investors.

Helios is shown with 512th Airlift Wing, 82d Airborne Division, and Ukraine Defense Forces

Combat Logistics Company 33, Expeditionary Fabrication Unit (XFAB)

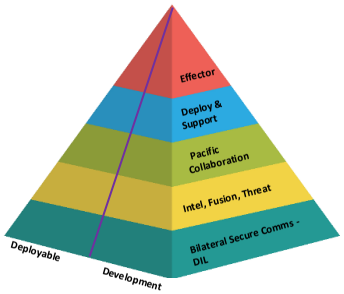
Operational checks of the XFAB to ensure expeditionary advanced manufacturing capabilities.

External power to the XFAB.

Technology Description / Product:

- The X-FAB—which stands for expeditionary fabrication—facility is a self-contained, transportable additive manufacturing lab that can deploy with battalion-level Marine maintenance units. It is a unique force multiplier for a commander due to its ability to quickly and efficiently scan, prototype and fabricate items unique to military equipment.
- The capabilities contained inside consist of a multiple 3D printers, scanning technology and associated software required. The XFAB comes with its own network system to keep data secure that can connect to MCEN. Some of its uses are printing low risk parts for quick repairs, creating data plates and building technical data packages that may be needed to complete a mission.

Where do we fit in?



- The XFAB is currently postured to push advanced manufacturing closer to the warfighter.

Example of what the XFAB looks like on an MK-18 with PLS trailer in transport.

Company Information:

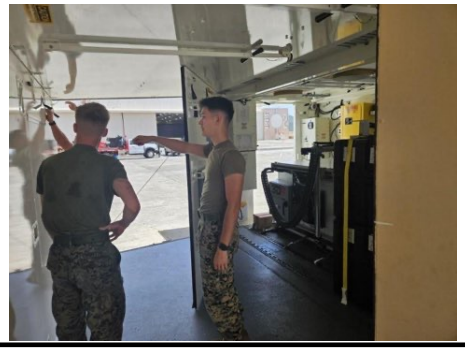
The Combat Logistics Company (CLC) 33 provides command support functions including intermediate ground supply and maintenance, medical logistics, landing support, engineer support, medium and heavy-lift motor transport and recovery in a General Support role to Marine Corps Base Hawaii and tenant III Marine Expeditionary Force units.

CLC 33, Engineer Ordnance Maintenance Platoon was tasked with packing, transporting, and assembling the XFAB unit for POST FX.

Combat Logistics Company 33, Expeditionary Fabrication Unit (XFAB)

Commander's Comments: Combat Logistics Company 33, Engineer Ordnance Maintenance Platoon, had the task of packing, transporting and assembling the Expeditionary Fabrication Unit, to put on display for the Pacific Operational Science & Technology (POST) Conference. The XFAB is a unique force multiplier for a commander due to its ability to quickly and efficiently scan, prototype and fabricate items unique to military equipment. The capabilities contained inside consist of a multiple 3D printers, scanning technology and associated software required. The XFAB comes with its own network system to keep data secure that can connect to MCEN. Some of its uses are printing low risk parts for quick repairs, creating data plates and building technical data packages that may be needed to complete a mission. The XFAB had a lot of traffic while displayed at the Science & Technology Conference, the Marines briefed multiple O6 and below sister service officers, while providing industry with an overview of how the Marine Corps is currently postured to push advanced manufacturing closer to the warfighter.



Top Left: Example of what the XFAB looks like on an MK-18 with PLS trailer in transport. **Top Middle:** Example of what the XFAB looks like with the doors extended **Top Right:** Marines add power to the XFAB via 100K panel **Bottom Left:** Marines plan on the next steps to unload the XFAB **Bottom Middle:** Marine conducting operational checks of the XFAB **Bottom Right:** EOMP Marines briefed multiple sister service and civilian partners on the expeditionary advanced manufacturing capabilities of the Marine Corps.

Reveal Technology: "Farsight" Edge 3D Mapping

Trevor Howard, Reveal Technology, [814-203-2662], trevor@revealtech.ai

Farsight 3D Model displayed over ATAK base Map

Farsight 3D Model processed on EUD

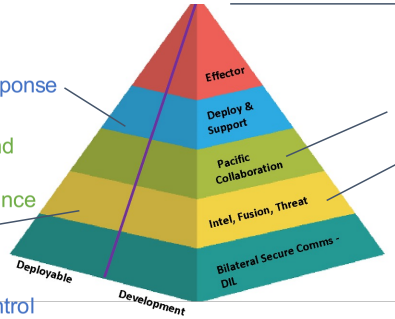
Technology Description / Product: Farsight is a software platform that gives *disconnected* and distributed teams access to *actionable* ISR, rapid modeling, & advanced analytics at the tactical edge.

-Farsight builds maneuver-quality real-time 2D maps and near real-time 3D models. Models are available for post-processing analysis in as little as 2 minutes.
-**All** processing is done with no network connection required and is based on the compute power of something as small as an EUD/FCDW (Galaxy S20).
-Farsight is platform agile and interoperable with the DoD's legacy, current, and future UAS arsenal. All Farsight-produced modeling and analytics can be integrated into ATAK via plug-in and shared across the tactical network or zipped for export.
-Analytics include: Line of Sight Analysis / AI Route Planning / HLZ Surveying / AI Measurement / Terrain Analysis & Graphing / LZ & DZ Assessment

Where do we fit in?

2024 Priorities
General Innovation / Principal Innovation

-Humanitarian Assistance/Disaster Response
-Advanced Computing and Software
-Trusted Artificial Intelligence (AI) and Autonomy
-Integrated Network Systems-of-Systems
-Joint Command and Control



-Space Technology
-Human-Machine Interfaces
-Air/Land/Maritime Domain Awareness

Company: Reveal Technology, Inc.

Product: Farsight

Website: https://www.revealtech.ai/

Product Overview: https://vimeo.com/598449203

Contact info: trevor@revealtech.ai / (814-203-2662)

REVEAL TECHNOLOGY, INC. | BOZEMAN, MT

REVEALTECH.AI

ACTIONABLE INTELLIGENCE AT THE EDGE

REVEAL TECHNOLOGY
FARSIGHT

Farsight is a receive-only software solution that provides disconnected and distributed teams access to actionable ISR (intelligence, surveillance and reconnaissance), rapid modeling, and advanced analytics. Farsight processes sensor-collected imagery to create maneuver-quality 2D & 3D models in near real-time.

With Farsight, our nations warfighters can produce their own actionible intelligence, in contested environments, using only a drone and an end user device they already carry. All Farsight-produced modeling and analytics can be integrated into the Android Tactical Assault Kit (ATAK) via plug-ins and shared across the tactical network.

Network Unreliability, No Problem

Farsight users can process high quality 2D & 3D models in comms degrated environments allowing operators to act with certainty & critical intelligence.

Enhance Proficiency for Mission Accomplishment

Users can mesh AI-powered analytics directly into models to increase situational awareness & reduce cognitive burden.

Optimized Toolkit

Farsight's AI-powered toolkit provides line-of-sight analysis, helicopter landing zone surveying, vertical measuring tools, & more, helping reduce cognitive burden in high-risk environments.

DIFFERENTIATORS

Farsight helps tactical leaders make decisions faster and more effectively against peer adversaries

Trusted By DOD

Developed alongside DoD partners

Rapid Intelligence In Minutes, Not Hours

Process large amounts of data quickly

Analytics & Decision Support

Increase efficiency with accuracy

Platform Agile

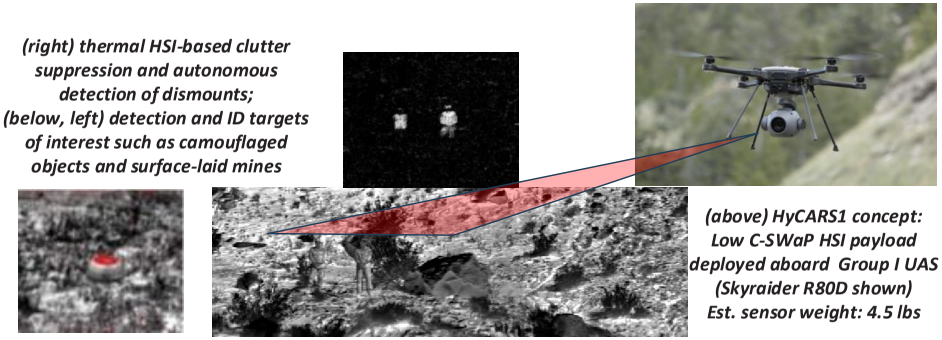
Interoperable with DoD approved platforms

HyCARS: Thermal Hyperspectral Imaging at the Tactical Edge

Edward Knobbe, Ph.D., President; Spectrum Photonics, (808) 748-1709, ed.knobbe@spectrum-photonics.com 1012 Piikoi Street, Honolulu HI

Hyperspectral Aerial Reconnaissance System (HyCARS)

(right) thermal HSI-based clutter suppression and autonomous detection of dismounts; (below, left) detection and ID targets of interest such as camouflaged objects and surface-laid mines

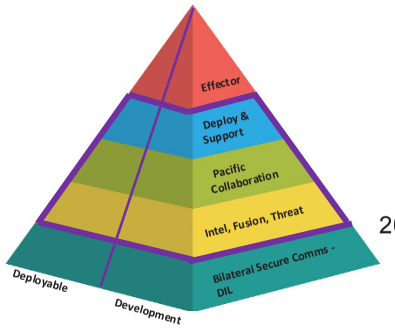


(above) HyCARS1 concept: Low C-SWaP HSI payload deployed aboard Group I UAS (Skyraider R80D shown) Est. sensor weight: 4.5 lbs

Technology Description / Product:

- Spectrum's ultra-compact hyperspectral imaging sensor has undergone testing in operationally-relevant aerial, ground-based, and maritime environments.
- HyCARS brings high-performance thermal hyperspectral imaging (HSI) in a low cost, size, weight & power (C-SWaP) form factor.
- HyCARS3, designed for Group 3 UAS, has achieved Technology Readiness Level (TRL) 6 and was operationally demonstrated at Marine Corps Training Area Bellows during POST FX 2022.
- "HyCARS Mini" prototype for Group 2 VTOL UAS has achieved TRL 5. It weighs approximately 9 lbs., including on-board processing, and is scheduled to fly in an operationally-relevant activity Q1FY'25.
- US and International patents for underlying HyCARS technology issued to Univ. of Hawai'i; Spectrum Photonics has received a world-wide, all-fields IP license.

Where do we fit in?



2024 Principal Innovation Priorities:

- Air/Land/Maritime Domain Awareness
  - Passive Intelligence
  - Persistent Surveillance
  - Reconnaissance
  - Deployment from Robotic Platforms

2024 General Innovation Priorities:

- Integrated Sensing and Cyber
  - Measurement Intelligence
  - Signal Intelligence

Spectrum Photonics Company Information:

- Founded in 2008, Spectrum Photonics is a small business headquartered in Honolulu Hawai'i
- 20 full time employees.
- Invented and initially tested under funding from DARPA, we have developed spectral imaging sensor prototypes and tested in aerial, ground-based, and maritime configurations for all of the services in US DoD. We are currently funded to develop a prototype suited for space-borne applications.
- Specializes in designing small, light weight, low power thermal HSI sensor systems capable of near real-time detection and identification of targets of interest including disturbed earth, dismounts, certain types of camouflage, surface-scattered mines, and chemicals (including chemical weapons).

Spectrum Photonics' Hyperspectral Aerial Reconnaissance System (HyCARS) is a low cost, size, weight and power (C-SWaP) thermal-band hyperspectral imaging (HSI) sensor. The technology effectively converts a conventional thermal camera into a 20-50 channel color imaging sensor that is able to utilize spectral information to detect and identify selected compounds, man-made materials, paints, disturbed earth, and chemicals (including chemical weapons). Surface-lain mines, certain types of camouflage, dismounts, and chemical plumes can be detected and identified using onboard-processing and target detection methods.

HSI is especially effective for use against noisy backgrounds, where targets of interest are selectively identified against a noisy background. Because spectral signatures add a digital "fingerprint" for target detection, it is readily adapted for AI and ML processing methods, thereby reducing crew workloads. Spectrum's HyCARS systems are the lowest C-SWaP sensors in their performance class, and are integrative on robotic platforms. They have been demonstrated to detect and identify targets of interest in near real-time at distances up to 13 km, dependent on system configuration and operational parameters. HyCARS sensors are configured to uniquely enable the collection and distribution of chemical, Intelligence, Surveillance and Reconnaissance(ISR) and Measurement and Signals Intelligence (MASINT) data products at the tactical edge to users on the ground in near real-time.

The original HyCARS prototype was developed under OSD funding provided through DoD's Rapid Innovation Fund (RIF) Program. The so-called HyCARS3 system was configured for operations aboard Group 3 Unmanned Aerial Systems (UAS). HyCARS3 was operationally demonstrated at Marine Corps Training Area Bellows, Oahu Hawai'i, during POST FX22. It was subsequently demonstrated to be extremely effective during maritime operational experimentation deployed aboard the Navy's Sea Hunter Medium Unmanned Surface Vessel (MUSV). HyCARS3 has been demonstrated to push ISA-format messages to tactical devices; it is considered to have achieved technology readiness level (TRL) 6. HyCARS3 is ready to enter low-rate initial production, with sustainable production rates of up to 80 units per year. Reduced C-SWaP versions represent the next stages of technology development: HyCARS-Mini, a 7-lb sensor designed for integration onto Group 2 VTOL UAS, has achieved TRL 5. The HyCARS1 concept, a 4.5 lb. configuration designed for deployment aboard Group 1 VTOL UAS, has matured to TRL 4. HyCARS sensors utilize a modular design, which allows easy replacement in the field in the event the system becomes damaged.

Spectrum Photonics was founded in 2008. It has grown from 5 employees in 2009 to 20 full time employees in 2024. The initial focus of the company was designing and fielding remote sensor systems capable of real time detection and identification of chemical in aerosols or surfaces using long wave infrared technology. The lightweight ultra-compact hyperspectral imaging system (UCHIS) technology that enables HyCARS was originally developed and characterized under DARPA funding. Originally invented at the University of Hawai'i at Manoa, UCHIS enjoys worldwide protection under US and international patents; Spectrum Photonics has received an all-fields license for the commercialization of UCHIS and related intellectual properties.

WAIEA WATER

Anton Smith, WAIEA WATER, [855-509-2432], info@waieawater.com

Water Making Technology

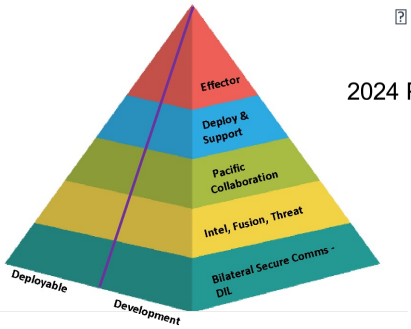
Eliminates Refilling Exercise

Saves time, our water generators fill themselves.

Technology Description / Product:

- **WAIEA Water** proudly supplies the highest quality **Air to Water Generators** (**AWG**) and **Gray Water Recycling** Systems on the market today.
- **AWGs produce water from the air** by filtering in the humid air from the atmosphere through advanced air filtration system. The humidity condenses into droplets which then undergo a series of filtration systems—from charcoal, UV to reverse osmosis. No need for plumbing or water hookup.
- **Hydraloop Gray Water Recycling systems allow you to use water twice** and save between 25% and 45% of water usage. Reduce wastage and reduce your monthly water bill.

Where do we fit in?



2024 General Innovation Priorities:

- Renewable Energy Generation and Storage

2024 Principal Innovation Priorities:

- Air/Land/Maritime Domain Awareness
- Joint Command and Control
- Contested Logistics
- Humanitarian Assistance/Disaster Response

Company Information:

Waiea Water was started in 2021 based in Honolulu, HI

Mission: Deliver the purest, healthiest and most sustainable water to homes, workplaces and communities around the globe.

Vision: A sustainable future that ensures clean drinking water to areas of scarcity, and a renewable resource to those looking to lead more eco-conscious and off-grid lifestyles.

March 2024

Waiea Water Solutions Inc. is a minority owned, Service-Disabled Veteran Owned and HUBZone certified Honolulu, HI based company with a mission to provide water solutions to those in need. Our technology allows anyone to have water independence anywhere. Our machine make water from the humidity in the air, and we can recycle the use of that water to not only make it, but also conserve it. Waiea Water's technology can free the military from having to procure water for any mission in training or real-world environments. We have field tested our systems with the US Air Force at Joint Base Pearl Harbor-Hickam with the 15th Operations Group in a wing two-week exercise. Our systems can be used for rapid deployment as logistical asset to ensure our military has the water it needs to sustain our fighting force for hydration, cooking, washing and medical facilities.

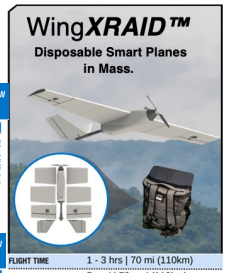
- Our technology has been field tested and is ready for use. With several in action uses, we are ready to support today and into the future. Our units are ready and can be produced and ready for procurement within 90 days or less based on system size and quantity.
- We offer several water systems that can replace current military solutions such as our water buffalo equivalent trailer that produces over 200 gallons of water per day with its own power generator that runs off MOGAS. This decreases the logistical planning time and man hours procuring Class I.
- Our systems are made for easy operation turn power own and wait for the water to be produced. Water production is continuously produced and will stop when full. Maintenance is performed every 6 months that can be taught to any military member as we provide detailed step by step TMs with pictures and videos.
- Our water systems are closed systems when it comes to the technological capabilities. They cannot be breached with cyber capabilities.
- We are in the process of developing a water system that can be powered by a JLTV or any other platform to produce water.

Waiea Water was formed in 2021 in Honolulu, HI with five owners who have over 40 years of atmospheric water generation experience. We currently offer water systems that produce 2, 3, 5, 10, 20, 50, 100, 125, 200, 250, 1,000 and 1,200 gallons per day. Our graywater recycling is scalable for any situation, but best used for shower water recycling in military environments. We have stores in Hawaii, Florida, California, Tahiti, and Guam. The President and CEO of the company is a retired military medical service corps officer.

UNCLASSIFIED

WINGXPAND Rucksack Portable Multi-Mission Smart Plane

FLIGHT TIME	1 - 3 hrs | 70 mi (110km)
SIGNAL RANGE	5+ mi | 70+ mi (110km)
CRUISE SPEED	30 knots (15 m/s)
OPERATING ALTITUDE	400 ft (122 m) AGL
ENVIROMENTAL	6,000 ft (1830 m) MSL All Weather, 95 F (35 C)
WINGSPAN	8 ft (2.4 m)
MAX TAKE-OFF WEIGHT	12 lbs (5.4 kg)
PAYLOAD CAPACITY	1-5 lbs(.45-2.3kg),Customizable
LAUNCH/ RECOVERY	Hand-Launch, Precision Stall
FLIGHT METHOD	Autonomous
GCS	Common GCS



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SIGNAL RANGE	5+ mi | 70+ mi (110km)
CRUISE SPEED	30 knots (15 m/s)
OPERATING ALTITUDE	400 ft (122 m) AGL
ENVIROMENTAL	6,000 ft (1830 m) MSL All Weather, 95 F (35 C)
WINGSPAN	8 ft (2.4 m)
MAX TAKE-OFF WEIGHT	10 lbs (4.5 kg)
PAYLOAD CAPACITY	1-5 lbs (.45-2.3kg)
LAUNCH/ RECOVERY	Hand-Launch, Precision Stall
FLIGHT METHOD	Autonomous
GCS	Common GCS

Key Features
- Expands from a 90L Rucksack in < 5 minutes
- U.S. Made, Durable yet Attritable
- Autonomous Flight with Smart AI Detection & Alerting
- Open Systems Architecture for Adaptive Upgrades
- Fully customizable, modular payload bay
- Field replaceable components
- Swarm and Battle Network Capable

Michelle Madaras, WingXpand, [708-527-8363], team@wingxpand.com

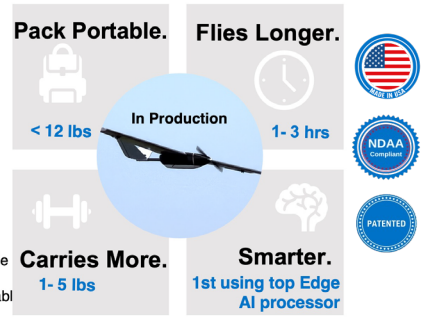
Technology Description / Product:

WINGXPAND *is* Redefining ISR & Multi-Multi-Mission Capabilities

Maximum Mission Flexibility
- Open Systems Architecture, Modular Payload
- Land, Sea And Air Deployment – Family Of Systems
- Droppable Mechanism + Target Designator Or Tipping
- Acoustically Undetectable At ~ 200+ Ft

Easy & Autonomous
- Flies Itself, Minimal Training Required
- Automatic AI Threat Detection
- Human-in-the-loop Optional
- Simple Electric Propulsion, Swappable Batteries

Truly Rucksack Portable & Reliable
- Secure Mesh Radio Swappable And Frequency Adjustable
- GPS-Denied Ops
- Made Of Low-profile Aerospace Materials + Field Repairabl
- Expandable Wings To Minimize Logistics



U.S. Patents: 9,010,693 & 9,371,130
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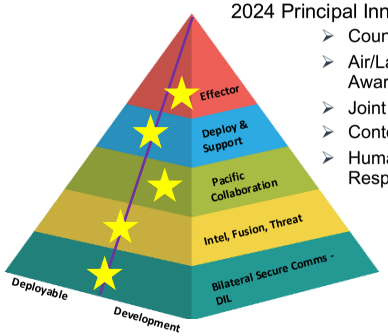
WINGXPAND

Where do we fit in?



2024 Principal Innovation Priorities:
- Counter-C5ISR
- Air/Land/Maritime Domain Awareness
- Joint Command and Control
- Contested Logistics
- Humanitarian Assistance/Disaster Response

2024 General Innovation Priorities:
- Future Generation Wireless Technology (FutureG)
- Trusted Artificial Intelligence (AI) and Autonomy
- Integrated Network Systems-of-Systems
- Microelectronics
- Advanced Computing and Software
- Human-Machine Interfaces
- Directed Energy
- Integrated Sensing and Cyber

Company Information: WINGXPAND

WingXpand is expanding what's possible with aerial intelligence with our 'smart planes' that expand from a rucksack to give soldiers a protective eye in the sky, help emergency crews respond to disasters faster, and farmers grow yield. We operate with the highest capability, reliability, and responsibility to mission-- serving the U.S. Army, Air Force, and Navy as well as commercial clients.

WINGXPAND.COM

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EMPOWERING DEFENSE AND HUMANITARIAN MISSIONS WITH AERIAL INTELLIGENCE:

WINGXPAND™ AI SMART PLANES EXPAND FROM A RUCKSACK

WINGXPAND: Expanding What's Possible with Aerial Intelligence

- 🎒 Rucksack Portable: Designed for easy transport and rapid deployment.
- 🛩️ Long-Range Operations: Over 100km+ of autonomous flight capability.
- 🧠 AI-Enabled: Edge intelligence for real-time decision-making.
- 🔍 Versatile Applications: Ideal for surveillance, reconnaissance, and infrastructure resilience.

Unmatched Benefits for the DoD and Contingency Response

- 💡 Advanced AI/ML Capabilities: Offering critical surveillance and reconnaissance solutions.
- 🌐 IoT Integration: Enhancing community and infrastructure resiliency against all hazards.
- ⚡ Rapid Deployment: Minimal cost and training requirements for immediate field use.

Operational Readiness

- 🏭 Production Ready: Currently supplying to the U.S. Air Force, with expansion plans.
- ✅ Proven Reliability: Successful execution of multiple SBIR contracts.
- 📈 Scalable Production: Capable of producing hundreds of units monthly with a secure supply chain.

Seamless Integration and Maintenance

- 🔗 Network Compatibility: Proven integration with tactical networks and secure mesh radios.
- 🧩 Modular Design: Accommodates a wide range of payloads for versatile mission support.
- 🎓 Easy Training and Maintenance: Designed for quick learning and easy component replacements.

Cybersecurity and Future Innovations

- 🔒 NDAA Compliant: Fully encrypted transmissions for secure operations.
- 🚀 Continuous Improvement: Seeking partnerships to advance INDOPACOM mission capabilities.

About WingXpand

📍 Located in St. Louis, MO, our team redefining how autonomous systems are made and what they're capable of. Our smart planes offer unmatched features in portability, range, autonomy, and intelligence, supporting those who keep our world safe and resilient.

conclusions

POST FX 2024 was the most well-attended event in the series thus far, buoyed by increased interest in and consequence of the Indo-Pacific area of responsibility (AOR). Participation was up across all priorities. In 2024, POST FX hosted 45 demonstrating organizations (in contrast with 23 in 2023 and 25 in 2022) from USMC operational units, the US and Canadian defense industrial bases, US government labs, university-affiliated research centers (UARCs), and academia. POST FX attendees, who gathered to observe the demonstrations and connect with the technology developers, hailed from the US and partner governments and militaries, industry, academia, think-tanks, and the non-profit sector. Collectively the event drew 600 participants from 13 countries: **Australia, Canada, Japan, New Zealand, Philippines, Republic of China (Taiwan), Republic of Korea, Republic of the Marshall Islands, Thailand, Saint Vincent and the Grenadines, Singapore, United Kingdom**, and the **US**. The increase in event turnout and participation witnessed at POST FX 2024 is encouraging for the entire community of defense S&T innovators in the Indo-Pacific AOR and signals a need for regular and additional field experimentation campaigns to continue to accelerate the delivery of advanced capabilities to the twenty-first-century warfighter.

acknowledgements

Over the past three years, POST FX has evolved from a side event to a mainstay of the POST conference. This involved deliberate planning and organization by the ARL at UH, NSIN, USINDOPACOM J85, NIWC PAC, NDIA, and all the entities at MCBH and MCAS that provided support. The shift to hosting POST FX on a military base was a huge step forward for the operational relevance and warfighter participation that the event motivates and requires. The location at MCAS in and around Hangar 103 adjacent to Kāneʻohe Bay was ideal for hosting technology demonstrations in, on, and across land, air, and sea. POST FX would not have been worthwhile were it not for the 45 demonstrating organizations from Hawaiʻi, the US mainland, and Canada that came at their own expense to showcase their technologies. The organizers are deeply grateful for the energy, collaboration, and diversity of capabilities that the demonstrators brought to the event.

From all the organizers, a huge “mahalo” to all the sponsors, supporters, demonstrators, participants, and attendees of POST FX 2024.

photo credit: NDIA

acronyms

AAA	Airspace Access Authorization
ABRAHAM	Advanced Bionic Robot Arm for Huge Aircraft Manufacturing
ADC	Air Data Controller
AFRL	Air Force Research Laboratory
AI	Artificial Intelligence
AISA	Artificially Intelligent Signals Analyst
AliSM	Advance Life Sign Monitoring
AOPS	Autonomous Offshore Power System
AOR	Area of responsibility
ARL at UH	Applied Research Laboratory at the University of Hawai‘i
ATAK	Android Team Awareness Kit
ATO	Authority to operate
BESL	Barnett Engineering and Signaling Laboratories
BLoS	Beyond line of sight
BoSEC	Balance of Systems-Edge compute
BSAT	Biological select agents and toxins
C2	Command and Control
C4ISR	Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance
C5ISR	Command, Control, Communications, Computers, Cyber, Intelligence, Surveillance and Reconnaissance
Counter-C5ISR	Counter-Command, Control, Communications, Computers, Cyber, Intelligence, Surveillance and Reconnaissance
COLPRO	Collective Protection
COTS	Commercial-off-the-shelf
CWP	Coalition warfare program
DARPA	Defense Advanced Research Projects Agency
DEVCOM	US Army Combat Capabilities Development Command
DF	Direction finding
DFU	Dry filter units
DIA	Defense Intelligence Agency
DoD	Department of Defense
DoN	Department of Navy
ERDC	Engineer Research & Development Center
eTHOR	Electric Tactical Humanitarian Operations Response
EW	Electronic warfare
FAA	Federal Aviation Administration
FET	Field-effect transistor
FFD	Float-and-fly drones
FLEX-1	Flight Experimentation Unit 1
FPV	First Person View
FutureG	Future Generation Wireless Technology
FX	Field Experimentation
GCS	Ground Control System
H2F	Holistic Health and Fitness
HADR	Humanitarian Assistance and Disaster Response
HF	High Frequency
HSI	Hyperspectral imaging
HMA	Hot mix asphalt
HOTPOD	Hot Patch On Demand
HSTT FEIS/OEIS	Hawai‘i-Southern California Training and Testing Final Environmental Impact Statement/Overseas Environmental Impact Statement
HTDC	Hawaii Technology Development Corporation
IC	Intelligence community
IFC	Interim Flight Clearance
INDOPACOM	Indo-Pacific Command
IoT	Internet of things
IRS	Intelligent reflecting surface
ISR	Intelligence, surveillance and reconnaissance
J85	Science and Technology Division
LAAD	Flight Low Altitude Air Defense
LEO	Low earth orbit
LiDAR	Light Detection and Ranging
LoS	Line of sight
LZ	Landing zone
MAAQ	ManTech Assembled Autonomous Quadroppod
MASINT	Measurement and Signals Intelligence
MCAS	Marine Corps Air Station
MCBH	Marine Corps Base Hawai‘i
MDA	Missile Defense Agency
MiSo	Mini Sonde

ML	Machine Learning
MMPA	Marine Mammal Protection Act
MN-MIMO	Mobile Network Multiple Input Multiple Output
MPS	Mobile power station
MR	Mixed reality
MRADS	Maritime Remote Access Device/Sensornet
MU-MIMO	Multi-user Multi-input Multiple-output
MUSV	Medium Unmanned Surface Vessel
MVP	Minimum viable prototype
MWSS-174	Marine Wing Support Squadron 174
NADACS	Naval Autonomous Data Collection System
NAVSEA	Naval Sea Systems Command
NAVSUP	Naval Supply Systems Command
NBT	Novel biothreats
NCIS	Naval Criminal Investigative Service
NDIA	National Defense Industrial Association
NEPA	National Environmental Policy Act
NIWC PAC	Naval Information Warfare Center Pacific
NRO	National Reconnaissance Office
NREL	National Renewable Energy Lab
NSA	National Security Agency
NSIN	National Security Innovation Network
ONR	Office of Naval Research
ONR Next STEP	Office of Naval Research Next Strategic Technology Evaluation Program
OPAREA	Operating Area
OSD	Office of the Secretary of Defense
PED	Process-Exploit-Disseminate
PFPA	Pentagon Force Protection Agency
PMO	Provost Marshal's Office
POST	Pacific Operational Science & Technology Conference
POST FX	POST Field Experimentation
PTT	Push to talk
RAN	Radio access network
RF	Radio Frequency
RHEL	Red Hat Enterprise Linux
RIF	Rapid Innovation Fund
S&T	Science and Technology
S&T Division	Science and Technology Division
SA	Situational Awareness
SAFE	Supplementary Air Filtered Exchanges
SAM-Ex	Smart Aerial Mesh Expeditionary Kits
SBIR	Small Business Innovative Research
SBU	Seafloor base unit
SDR	Software defined radio
SFF	Small form factor
SLB	Secure Linux Baseline
SNP	Single nucleotide polymorphisms
SOI	Signals of interest
STIG	Security Technical Implementation Guides
STV	Spike Triggered Virtualization
SWaP	Size, weight and power
TRL	Technology Readiness Level
TUNA	Tactical Undersea Network Architecture
UARC	University-affiliated Research Center
UAS	Uncrewed Aircraft System
UAV	Uncrewed Aerial Vehicle
UCHIS	Ultra-compact hyperspectral imaging system
UGV	Uncrewed Ground Vehicle
US	United States
USACE	US Army Corps or Engineers
USAPAC	US Army Pacific
USINDOPACOM	United States Indo-Pacific Command
USMC	United States Marine Corps
USPACFLT	US Pacific Fleet
USTP	Ultra-short-throw-projector
USV	Uncrewed Surface Vehicle
UUV	Uncrewed Underwater Vehicles
VPN	Virtual Private Network
VTUAS	Vertical Takeoff and Land Unmanned Aircraft System
WAM-V	Wave Adaptive Modular Vessel
WASP	Wireless Automated Sensing Package

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