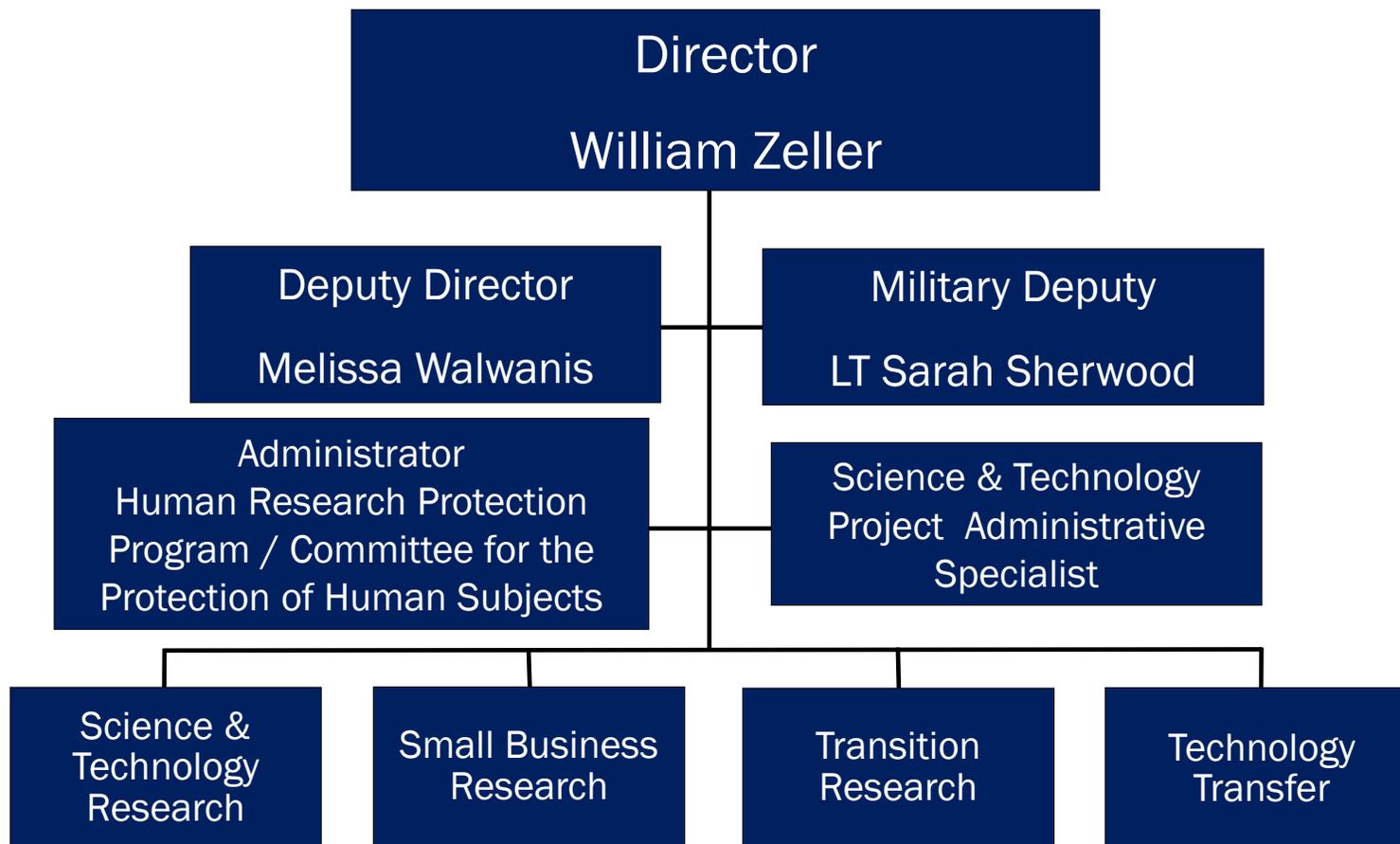




William Zeller – Director, Research & Technology Programs



Research & Technology Programs Organization





NAWCTSD Research Portfolio

- NAWCAD/Office of Naval Research Science & Technology (*BA1-3)
 - Basic Research
 - Applied Research
 - Advanced Development
- DoD Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) program
- Navy Demonstrations and Validation Research (*BA4-7)
- DoD Research
 - Joint/OSD/DARPA
 - Army/USAF/USMC Research
- Technology Transfer (Gov/Non-DoD Research)

*BA: Budget Activity

NAWCTSD is a R&D Performer and Partners with Industry and Academia on Proposals and Subsequent Research Efforts



Small Business Innovation Research (SBIR) Opportunities

- Process (2-3 SBIR solicitations per year)
- Phase I (1st year): Scope problem & detail innovative solution (\$140K/\$100K option)
- Phase II (2nd-3rd years): Develop prototype, test & evaluate (up to \$1.6M)
- Phase III (thereafter): Further R&D development / acquisition transition (Government sole source)

Next Broad Agency Announcement (navysbir.com):

→ (21.2) Pre-release: 24 Aug 2022 Opens: 21 Sep 2022 Closes: 19 Oct 2022

ACQUISITION STRATEGY	PERIOD OF PERFORMANCE	MILESTONES	
STTR Phase 1 Competitive SBSA All contracts Processed at NAWCAD, Lakehurst	Phase I: 6 Months w/ 6 Month Option Phase II: Up to 24 Months Phase III: Open	21 Sep 2022  RFP Release	19 Oct 2022  Contract Award
POINT OF CONTACT	FUNDING		CURRENT CONTRACT/ORIGINAL DEVELOPER/OEM (IF RECOMPETE)
Name: William Zeller Organization: PDR&T Program Office Phone: (407) 380-4146 Email: ORLO_PDRT@navy.mil	Year 1 RDT&E \$140K/ \$100K Year 2-3 RDT&E \$1.5M Year 4+ Non-SBIR \$s; No Limit/ No Competition Required		TBD – Up to 3 Awards Planned Per Topic

The information provided is for planning purposes and is subject to change without notice.



Small Business Technology Transfer (STTR) Opportunities

- Small Business Required to Team with Research or Academic Institution (non-Government)
- Phase 1(1st year): Scope Problem & Detail Innovative Solution (\$140K/ \$100K option)
- Phase II (2nd & 3rd years): Develop Prototype, Test & Evaluate (\$1.6M)
- Phase III (Thereafter): Further R&D Development/Acquisition Transition (Government Sole Source)
- Large Businesses can Partner with Small Businesses (for Phase III)

Next Broad Agency Announcement (navysbir.com):

→ (21.2B) Pre-release: 24 Aug 2022 Opens: 21 Sep 2022 Closes: 19 Oct 2022

ACQUISITION STRATEGY	PERIOD OF PERFORMANCE	MILESTONES	
STTR Phase 1 Competitive SBSA All contracts Processed at NAWCAD, Lakehurst	Phase I: 6 Months w/ 6 Month Option Phase II: Up to 24 Months Phase III: Open	21 Sep 2022  RFP Release	19 Oct 2022  Contract Award
POINT OF CONTACT	FUNDING		CURRENT CONTRACT/ORIGINAL DEVELOPER/OEM (IF RECOMPETE)
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The information provided is for planning purposes and is subject to change without notice.



NAVAIR SBIR/STTR Proposal Solicitation Topics

Joint DoD FY-22 SBIR/STTR BAA Schedule			
Dates subject to change			
Program	Pre-Release	Opens	Closes
DoD SBIR 22.1 DoD STTR 22.A	1-Dec-21	12-Jan-22	10-Feb-22
DoD SBIR 22.2 DoD STTR 22.B	20-Apr-22	18-May-22	15-Jun-22
DoD SBIR 22.3 DoD STTR 22.C	24-Aug-22	21-Sep-22	19-Oct-22

The next “pre-release” of topics is 24 Aug. You can read the topics and call or email questions directly to the TPOC about the topic. Topics will “open” on 21 Sep. You can submit their questions through the SITIS website dodsfirsttr.mil/topics-app/, where everyone can see the questions and answers.

Topics “closes” 19 Oct. Proposals need to be submitted by this date.

If you have SBIR administrative questions, please contact Mr. John Hodak
john.c.hodak.civ@us.navy.mil
(407) 380-4737

NavySBIR.com

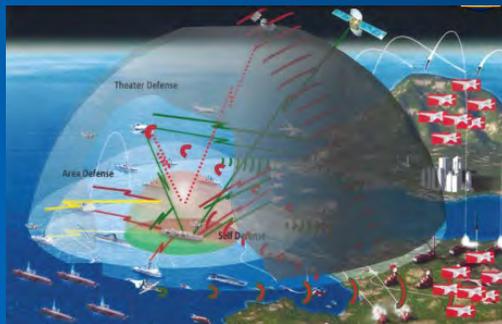


Continuing Areas of Research



Emerging Instructional Methods

- ◆ Adaptive Training Techniques
- ◆ AI Enabled Instructor/Crew
- ◆ Scenario Based Trg Methods
- ◆ Multi-level Performance Measurement & Assessment
- ◆ Human Performance Measurement Approaches



Challenge Areas Supported

- ◆ Denied & Degraded Environments
- ◆ Electronic Maneuver Warfare
- ◆ Integrated Warfighting Capability
- ◆ Cyber Warfare
- ◆ Manned-Unmanned Teaming



Training Technology & Environments

- ◆ Data Science (AI/ML)
- ◆ eXtended Reality Visual & Input Enhancements
- ◆ Live, Virtual, Constructive
- ◆ Distributed Mission Training
- ◆ Effects Modeling
- ◆ Mobile Learning/Deployable
- ◆ Cybersecurity & Cloud-based

Instructional Strategy



NAWCTSD Research Compendium



INVESTIGATION OF AERIAL VEHICLE OPERATOR (AVO) INTERFACES, INCLUDING INEFFICIENCIES, WORKLOAD, AND USABILITY

OBJECTIVE

This effort aims to investigate Aerial Vehicle Operator (AVO) interfaces and emerging AVO decision support tools, in order to evaluate inefficiencies in the current HMI display, and leverage human factors design and analysis to provide best practices on system interface layouts to maximize performance and minimize operator workload.



200128-N-AC117-0180 AIR FORCE BASE, Guam (Jan. 24, 2020) - An MQ-4C Triton unmanned aircraft system lands at Andersen Air Force Base (U.S. Navy photo by Mass Communication Specialist 3rd Class [redacted] Kane, 06530098)

PROJECT DURATION
OCT 2021 - OCT 2023

SPONSOR
NISE

POINTS OF CONTACT
Beth Atkinson (PI)
Dr. Emily Anania, Ph.D.
ORLO_FORT@navy.mil

DESCRIPTION/NEED

Due to findings associated with the MQ-4C Triton platform, multiple human factors and workload issues are suspected causal factors for operator performance challenges. This effort will provide insight into current AVO interface functionality, including data entry, display, control, error reporting, and operator workload to inform best practices to training. This will include an analysis of optimal HMI display configurations and job aid capabilities. Through this design and evaluation effort, this effort seeks to alleviate workload and enhance usability in support of enhanced AVO training outcomes and operational performance delineated in the MQ-4C PBSS (Performance Based System Specification) and MIL-STD-1472F (DEPARTMENT OF DEFENSE DESIGN CRITERIA STANDARD: HUMAN ENGINEERING).

BENEFITS

This research serves to inform concept of operations and human machine interface (HMI) design will offer quantitative analysis of the capabilities and effectiveness of the technology, supporting justification and planning for accelerated acquisition to deliver this emerging technology to the fleet. Further, this effort will inform immediate layout and implementation best practices for the AVO interface for Triton training. Lessons learned will be of benefit to future manned-unmanned teaming platforms that leverage data synthesis and automation capabilities.

STATUS

This is a new start in FY22.

MILESTONES

- Year 1: Human Factors heuristic evaluation of Triton AVO HMI layouts; IRB package and approval for iterative usability and workload testing; Data regarding current AVO workload during training events; Initial usability report
- Year 2: Report on iterative usability testing, including AVO interface with and without OPTIMUS PRIME add-on; Report on workload testing, including AVO HMI with and without OPTIMUS PRIME add-on; Mockups for improvements in current AVO HMI; Mockups for optimized AVO HMI and integration of OPTIMUS PRIME

HUMAN-MACHINE INTERFACES • CORE CAPABILITY 2

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Research Compendium can be found at the NAWCTSD website, at the bottom of the home page.

<https://www.navair.navy.mil/navctsd/sites/g/files/jejdrs596/files/document/%5Bfilename%5D/NAWCTSD%20Research%20Compendium%202022%20CURRENT%20SHS%2011-24-2021%204-07pm%20STANDARD%20QLTY.pdf>



Technology Transfer: Partnering with Industry, Academia, State/ Local Government

Software License Agreement (SLA)

- Agreement between NAWCTSD and an Industry partner which allows them to make, use and sell federally developed software with the assurance that we will not sue for infringement.
- NAWCTSD retains rights to use the software for government purposes.
- Industry partner pays royalties to NAWCTSD.

Patent License Agreement (PLA)

- Agreement between NAWCTSD and an Industry partner which allows them to make, use and sell federally owned inventions with the assurance that we will not sue for infringement.
- NAWCTSD retains rights to use the technology for government purposes.
- Industry partner pays royalties to NAWCTSD.

Search for us on federallabs.org/flcbusiness for more information on available technologies.



Technology Transfer: Partnering with Industry, Academia, State/ Local Government

Cooperative Research and Development Agreement (CRADA)

- Allows R&D collaboration between NAWCTSD and non-federal partners.
- Provides the means to offer intellectual property (IP) rights to a non-federal partner.
- NAWCTSD can provide:
 - Personnel
 - Facilities/Equipment
 - Intellectual Property (IP)
 - **NO** funds
- Non-federal party can provide:
 - Personnel
 - Facilities/Equipment
 - Intellectual Property (IP)
 - Funds

Commercial Service Agreements (CSA)

- Allows the sale of defense articles and/or services that are not available from any United States commercial source.
- Makes services of any government laboratory, center, range or other testing facility available for testing purposes on a reimbursable basis.
- Relies on existing capabilities and expertise
- Requires full reimbursement of Government costs
- Cannot compete with United States private industry

New site launched that highlights Navy Tech Transfer Partnering Opportunities and Navy Laboratory Capabilities: navytechtransfer.navy.mil



How to Participate in NAWCTSD Research

- Tell us about your Independent Research and Development (IRAD) efforts
- Respond to SBIR/STTR Solicitations
 - Small Business – Large Business Partnering, Academia can be included
- Pursue Cooperative Research and Development Agreements (CRADAs) with NAWCTSD when we find an area of common interest
- Partner on Joint Proposals (Scientist to Scientist/Engineer to Engineer)
 - If successful w/joint proposals several contract vehicle options available:
 - SBIR Phase III
 - NAWCTSD R&D Broad Agency Announcement (S&T projects only)
 - ONR/DoD/funding agency contracting
 - onr.navy.mil/en/work-with-us/funding-opportunities
- Consider new opportunities available through the Tech Grove

Research & Technology Program Office POC

Director, William Zeller
(407) 380-4146 / ORLO_PDRT@navy.mil

Deputy Director, Melissa Walwanis, Ph. D.
(407) 380-4749 / ORLO_PDRT@navy.mil



Central Florida Tech Grove

An engine to accelerate the government's access to companies that have not traditionally done business with DoD.

Provides education, support, and access to entrepreneurs and small businesses wanting to connect with the Modeling, Simulation & Training industry.

Check our LinkedIn for upcoming events.

Reach out:
NAWCTSD_Tech_Grove@us.navy.mil

Central Florida Tech Grove
Partnership IV
12809 Science Drive
Orlando, FL 32826



Centralfloridatechgrove.org
[Linkedin.com/company/cftechgrove/](https://www.linkedin.com/company/cftechgrove/)



NAWCTSD & Team Orlando STEM Outreach



	FY19	FY20	FY21	FY22 (April 2022)	
Geographic Reach	5	5	7	7	Impact Growth To-Date
	Brevard	Brevard	Brevard	Brevard	
	Orange	Orange	Orange	Orange	
	Osceola	Osceola	Osceola	Osceola	
	Seminole	Seminole	Seminole	Seminole	
Volusia	Volusia	Volusia	Volusia	Duval	
			Hillsborough	Hillsborough	
Students	7,692	12,775	44,194	62,855	717% ↑
Teachers	200	3,963	5,640	6,172	2,986% ↑
S&Es, Mentors, Volunteers	119	94	130	168	41% ↑
Unique Events	15	18	21	22	47% ↑

Our Science, Technology, Engineering, and Mathematics (STEM) outreach portfolio is supported by uniformed and civilian DoD volunteers, industry and academia subject matter experts who fulfill ONR's STEM mission to:



- *Inspire, engage, and educate* the next generation of scientists and engineers, technology professionals, and medical professionals;
- *Employ, retain, and develop* diverse civilian and military technical workforce; and
- *Collaborate across the Naval STEM communities, and with other agencies* to maximize benefits to the DoN.



Programs Include

- DOD STARBASE Central Florida STEM Academy!
- Modeling & Simulation
- Robotics
- Coding
- Mentoring & Parent-Student Workshops
- Leadership Development
- GEMS STEM Camps
- Competitions/Judging
- Teacher Professional Development
- Job Shadowing
- Career Fairs & STEM Open Houses *and more!*



If you would like to participate as a volunteer or learn how to support our STEM outreach initiatives, please contact Emily Sherkow emily.m.sherkow.civ@us.navy.mil (407) 380-8333
 Visit NAWCTSD STEM at navair.navy.mil/nawctsd/node351