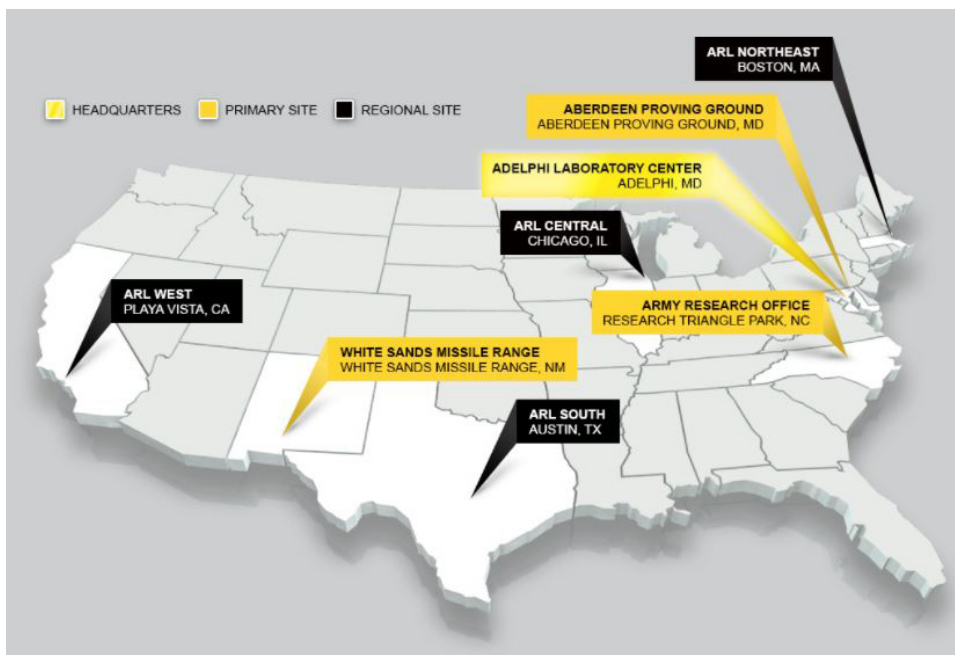




DEVCOM Army Research Laboratory
 2800 Powder Mill Road
 Adelphi, MD 20783-1138



Welcome

Welcome to our first edition of the Regional Site Synchronization Office (RSSO) newsletter. In this edition, we will highlight the tremendous efforts by ARL's Regional Sites in collaboration with our trusted partner, the National Security Innovation Network (NSIN). When we talk about 'trusted partnerships' in ARL, I view our close collaboration with NSIN to be a partnership exemplar. Many may not know that ARL employees work across the nation supporting the mission of NSIN. We invite you to learn more about this partnership and collaborate with ARL's Regional Sites on important NSIN projects critical to our national security.

– Pam Clark, Chief, RSSO

Regional Site Synchronization (RSSO) Newsletter

The U.S. Army Combat Capabilities Development Command (DEVCOM) Army Research Laboratory (ARL) is exploring multiple alternative approaches to operationalize science in a timely manner, including expanding partnerships with academia and industry while emphasizing transition and integration. This priority will leverage commercial and academic R&D to support the Army's modernization priorities and deliver the science necessary for Multi-Domain Operations (MDO). To achieve this, ARL is collaborating with the National Security Innovation Network (NSIN), a part of the Office of the Under Secretary of Defense (OUSD) Research and Engineering (R&E) which builds networks of innovators to address national security problems,

with an emphasis on expanding use of the portions of the commercial technology ecosystem that aren't fully engaged by DOD. ARL's partnership with NSIN includes embedding several ARL personnel within NSIN, while also leveraging NSIN programs funded by OSD to expand participation in ARL programs and focus areas, beyond the "usual suspects." In 2021, ARL benefited from approximately \$2M in NSIN funding, including personnel and program costs; ARL and NSIN are working to double this contribution for 2022. Below we highlight several examples of the value delivered to ARL through this partnership. For active NSIN program descriptions, please refer to the list beginning on page four.

Regional Sites at a Glance

- 81 ARL government employees and 58 contractors, student research assistants, post-docs
- Collaborating with universities and industry across the United States to form trusted strategic partnerships with ARL.

Region Leads

- ARL West - Peter Khooshabehadeh
Peter.khooshabehadeh2.civ@army.mil
- ARL South - Heidi Maupin
Hedwig.e.maupin.civ@army.mil
- ARL Central - Mark Tschopp
Mark.a.tschopp.civ@army.mil
- ARL Northeast - Claudia Quigley
Claudia.j.quigley.civ@army.mil

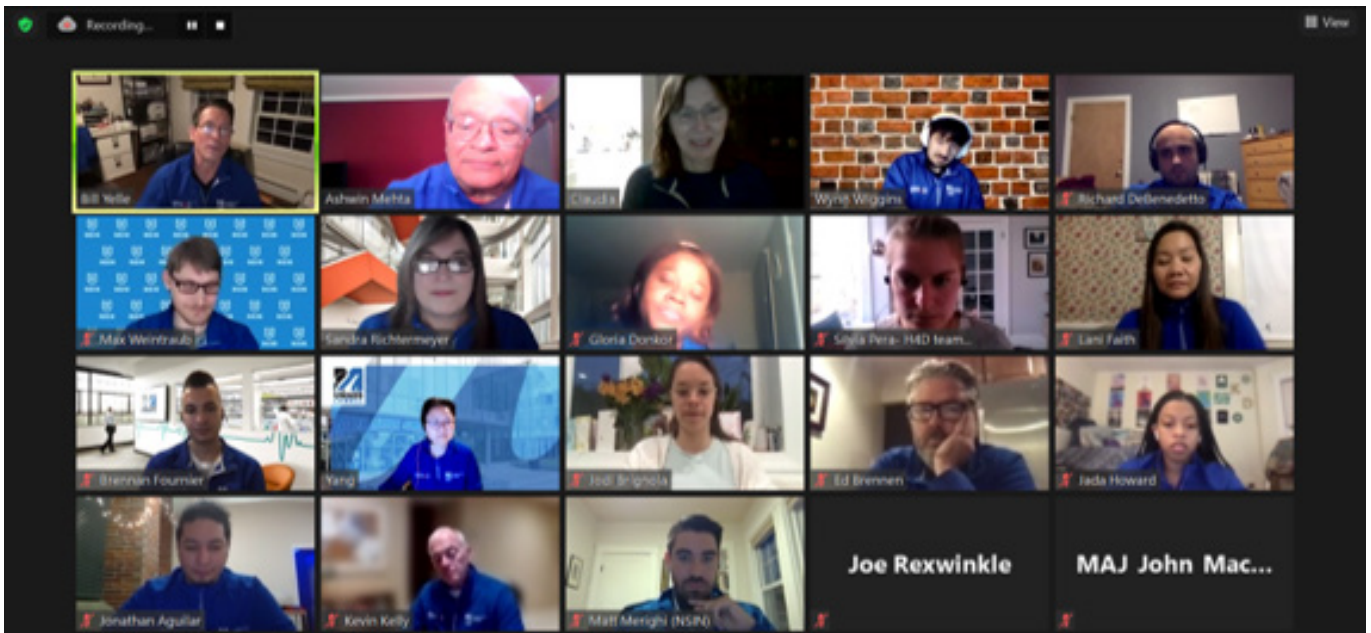
Contact Us:

For further information, contact:
Mr. Karl Kappra
 Director, Futures Division Office
 (512) 726-4176

Inquiries can be sent to:
Karl.a.kappra.civ@army.mil

The Regional Site Synchronization Office (RSSO) has participated in several NSIN initiatives. Through collaboration with NSIN, the RSSO supports our ARL mission of innovation and growth of the national security workforce. Brief descriptions of the ARL and NSIN collaborations over the past year are provided below:

Hacking 4 Defense (H4D):

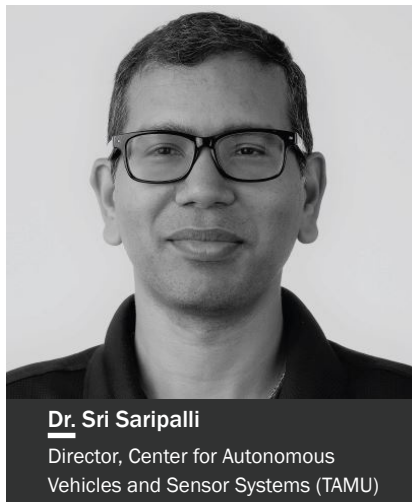


The H4D team at U Mass Lowell, including students, faculty, project sponsors and NSIN sponsors.

ARL Northeast sponsored a project at the first H4D course in New England, at U Mass Lowell, a Minority Serving Institution (MSI). The student entrepreneurs, two MBA students and an engineering senior, developed a concept for a flexible “skin sensing” medical device that measures vital signs. Following the course, the students continued to improve their Minimum Viable Product as a potential start up. Two of the students were admitted to the competitive I-Corp program and one student was accepted to the PhD program in Business at U Mass Lowell. The first H4D class proved to be a success which helped generate student interest, resulting in a 30% increase in enrollment the following semester.

Capstone:

ARL South and NSIN Southwest Region have collaborated in multiple areas the past year. At Texas A&M University (TAMU) the joint collaboration includes embedded ARL researchers working with students and faculty across multiple engineering disciplines towards 12 senior Capstone projects. Two of the projects, submitted by ARL Researchers (FCDD-RLW-M), focus on designing new refractory materials, and developing processing capabilities that could enhance the performance of the Army’s next generation of hypersonic vehicles. NSIN and ARL South have also partnered with Dr. Sri Saripalli, other TAMU professors, and the Bush Combat Development Complex on the



Dr. Sri Saripalli

Director, Center for Autonomous Vehicles and Sensor Systems (TAMU)

Distributed Autonomous Robotics Experiments and Simulations (DARES) project. ARL Northeast and ARL South sponsored two capstone MBA projects at the Florida A&M University Business School, a HBCU institution. These projects entail a business model analysis of ARL and the business processes supporting the Human in Complex Systems competency. ARL South supported the planning of this project through an ROTC X-Force Fellow who assisted in planning the scope of both Capstones. The MBA students performed this analysis solely from publicly available information, providing a unique perspective. Please contact the RSSO for further details.

X-Force Fellows:



(L-R) Prof. SK Gupta hosting Dr. Pete Khooshabeh, Cadet Lanoris Parkerr, and NSIN X-Force Fellow Devin Martin at Center for Advanced Manufacturing

ARL West has hosted several X-Force Fellows that have pursued creative projects in science communication, as well as those who have had an opportunity to brief the senior Army leaders. [Dr. Benjamin T. Files](#) mentored three X-Force Fellows from the University of California, Berkeley's Electrical Engineering and Computer Science Department. They worked on a Multi-Platform Application to Facilitate Combat Vehicle Identification Training, which they [published as an ARL Tech Report](#) and also presented to the Maneuver Center of Excellence. [Dr. James Humann](#) mentored several students who did [modeling and testing for a tethered UAS drone concept](#).

ARL Northeast sponsored two female engineering XForce Fellows to conduct a commercial market analysis in soft robotics technology. The students conducted Discovery interviews and visited local robotic centers. A Technical Report documents their market research and their findings. As a direct result of their XForce experience, both students have decided to apply to graduate school in engineering upon graduation in spring of 2022.

Active NSIN Programs

NSIN's portfolio includes other programs besides Hacking 4 Defense, Capstone, and X-Force. A complete list of active NSIN programs can be found directly below. More information can be found on all of these programs at <https://www.nsin.mil>. NSIN has a weekly e-newsletter to keep you up on the latest. Sign up at <https://www.nsin.mil/newsletter>.

FOUNDRY: pairs technology developed in DoD laboratories with entrepreneurs interested in starting a high-tech company.

PROPEL: partners with commercial startup accelerators to provide solutions to the DoD by rapidly developing dual-use companies.

STARTS: provides a platform for early-stage companies to showcase their technology to potential DoD customers, mentors, and private investors.

BOOTCAMP: an accelerated course in which participants are introduced to the concepts and methods for innovation in the context of real-world problems facing their units.

CAPSTONE: matches highly talented undergraduate and graduate students with operational military commands to deliver rapid, early-stage prototypes (whether technical or policy-centered), that help solve the project sponsor problems.

HACKING FOR DEFENSE semester-long course at top-tier research universities that offers DoD leaders with the opportunity to collaborate with talented student teams to develop innovative solutions to their most pressing national security problems.

HACKS: collision events that foster an environment where different perspectives, experiences, and expertise can collaborate to creatively solve problems. Participants include students, academics, entrepreneurs, startups, DoD, and other government personnel.

Continue to next page for more content on NSIN collaborations...

Active NSIN Programs Continued

MAKER: offers prototyping solutions for accepted novel solutions from NSIN programming, allowing customers to turn ideas from the abstract and theoretical into practical and real prototypes.

SOURCE: online platform for crowd-sourced ideas that enables commands to solicit potential solutions to problems while allowing both senior leaders and peers to see and interact with one another's submissions.

EXPERTS: connects technical subject matter expertise from academic or research institutions to senior DoD leaders with compelling problems.

HIRETHON: connects STEM talent to full-time employment, internships, and scholarship opportunities within the DoD.

TECHNOLOGY AND NATIONAL SECURITY FELLOWSHIP: recruits on an annual basis for Fellowship placement. NSIN will select up to 15 fellows with STEM backgrounds and technical expertise to be embedded with key decision makers at the top levels of the U.S. Government to provide advice and emerging expertise for issues at the critical intersection of national security and technology.

X-FORCE: paid internship program which matches highly talented undergraduate and graduate students with operational military commands to deliver rapid, early stage prototypes that help solve project sponsor problems.

EMERGE: connects DoD mission partners with emerging technology teams and startups at our nation's top research universities.

Contributors to the RSO Newsletter:





Pam Clark, Matt Merighi (NSIN), Christopher Zember, Heidi Maupin, Pete Khooshabehadeh, Claudia Quigley, Mark Tschopp, Josh Keena, Corine Romero, Shannon Strank, Fritz Kuebler (NSIN), Andy Riise (NSIN), Tiffany Raber, Brady Butler, Suzanne Zurn (NSIN)

MISSION: The Regional Site Synchronization Office serves as ambassadors for the Army S&T Enterprise, cultivating regional expertise and trusted partnerships solving complex Army problems.

VISION: Through global engagement with the innovative scientific and entrepreneurial ecosystem, we deliver revolutionary insights and approaches to effectively operationalize science for transformational overmatch.



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