



NSWC CRANE DIVISION

AT-A-GLANCE

2025 Edition

NAVSEA

WARFARE CENTERS
CRANE



Table of Contents

Message from Command	04
Mission, Vision, Values & Foundational Principles	05
Our Visitors	06
Our Impact	08
Ecosystem Engagement	10
Strategic Missions	12
Electromagnetic Warfare	14
Expeditionary Warfare	16
Business Excellence	18
Workforce Development	20
Connect with Us!	23

Message from Command

Naval Surface Warfare Center, Crane Division (NSWC Crane) is a federal naval laboratory and field activity of Naval Sea Systems Command (NAVSEA), dedicated to advancing national defense priorities through cutting-edge research, technology development, and evaluation.

In this year's AT A GLANCE report, we highlight the exceptional work of our team at NSWC Crane and their accomplishments in ensuring Warfighters around the world have the necessary tools for mission success.

We invite you to explore the different ways our team at NSWC Crane is working to enhance national security. Learn more about NSWC Crane's National Technical Leadership in Strategic Missions, Electromagnetic Warfare, and Expeditionary Warfare.

NSWC Crane has a long history of supporting the nuclear triad, including more than 60 years supporting the Navy's Strategic Systems Programs (SSP). NSWC Crane has continuously played a critical role with strategic systems hardware, nuclear modernization programs, and trusted microelectronics. Hypersonic systems are among the highest priorities in the Department of Defense's (DOD) modernization strategy, and NSWC Crane is poised to continue to lead in this technology area.

NSWC Crane houses the DOD's largest concentration of Electromagnetic Warfare (EW) expertise. With this deep knowledge base, our team is prepared to evolve at pace with – and ahead of – the rapidly changing defense landscape, including the electromagnetic spectrum (EMS). NSWC Crane's EW mission area is focused on four critical areas: mission engineering, applications for EW, advanced Electromagnetic Spectrum Operations (EMSO) Capabilities, and EMSO Threat Intelligence and Exploitation.

The Expeditionary force is critical to success as an integrated Joint Force and to the deterrence of threats across the globe. The Expeditionary mission is to provide intelligent system solutions for all domains that enhance detection, decision-making, maneuver, and kinetic engagement capabilities. NSWC Crane provides the largest concentrated technical leadership and expertise to Expeditionary Mission and Forces across the Undersea and Surface Warfare Centers. This expertise is focused on power and energy systems, weapon systems, electro-optics technologies, specialized munitions, maneuver surveillance engagement, and expeditionary command, control, communications, intelligence (C3I) and cyber. Future key initiatives include counter-unmanned systems, integrated battle-space management, naval integration joint command and control (C2), and implementation of layered security features in C2 systems.

Our combined team of more than 6,000 civilians, contractors, and military personnel work each day to advance our Nation's defense capabilities. We are proud of the partnerships we have built with ecosystem partners across academia, industry, and government to remain committed providing our Nation's armed forces with the best technology.

Thank you for your continued support of NSWC Crane. We are looking forward to continuing to provide critical leadership for national security and conflict readiness.



CAPT Rex A. Boonyobhas
COMMANDING OFFICER



Dr. Angela Lewis, SES
TECHNICAL DIRECTOR



Mission, Vision, Values & Principles

Deliver **innovative solutions** and readiness to the **NATION** and its **WARFIGHTERS**.

Advance all-domain system of systems within the Mission Areas of:



STRATEGIC MISSIONS



ELECTROMAGNETIC WARFARE



EXPEDITIONARY WARFARE

Conduct science and technology, research, development, test and evaluation, acquisition, and in-service engineering.

Vision

Combating our nation's greatest threats, **NSWC Crane** is the **indispensable mission expert**, leveraging our deep technical heritage to **deliver solutions through innovation and strategic partnerships**.

NSWC Crane Foundational Principles

- ▶ **WORKFORCE & LEADERSHIP DEVELOPMENT**
- ▶ **TECHNICAL & BUSINESS EXCELLENCE**
- ▶ **STRATEGY**
- ▶ **CULTURE**
- ▶ **INNOVATION ECOSYSTEM ENGAGEMENT**

ETHOS

Create a culture of innovation that values leadership and employee engagement.

EXECUTION

Integrate capabilities and processes to enable efficient and effective execution of our mission.

EXCELLENCE

Innovate game-changing and agile solutions.

Our Visitors





Crane Facts

NSWC Crane provides the **AMERICAN WARFIGHTER** with solutions to their toughest technical challenges to better equip a **DECISIVE ADVANTAGE** in Electromagnetic Warfare, Strategic Missions, and Expeditionary Warfare.

FOUNDATIONAL PRINCIPLES



- Workforce & Leadership Development
- Strategy
- Technical & Business Excellence
- Culture
- Innovation Ecosystem Engagement

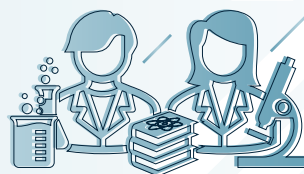
WORKFORCE



EDUCATION

23%
Masters & Doctoral
Degrees

61%
Bachelors & Associates
Degrees



AVERAGE SALARY

\$113K



SMALL BUSINESS INVESTMENTS

\$460.7M





\$3.5B+

TOP FIVE CUSTOMERS

OUR IMPACT

\$1.4B

\$479.1M

\$243.4M

\$318.1M

\$154.8M



TECH TRANSFER AGREEMENTS



= 338

ACTIVE PATENTS



RESEARCH & EDUCATION PARTNERSHIPS

States 37

Universities 55

Industry 131

K-12 30

NAVSEA WARFARE CENTERS



STEM ENGAGEMENT

~20,000 STUDENTS SERVED

through

SCALE

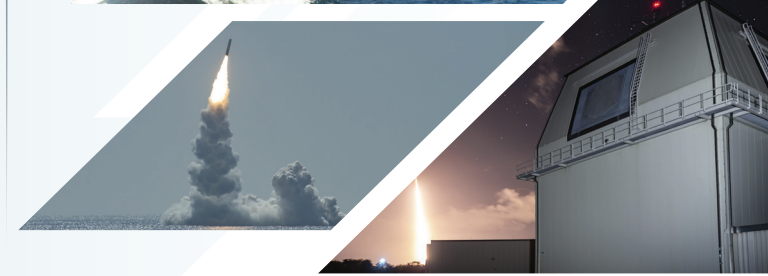
(Scalable Asymmetric Lifecycle Engagement)

JHTO SEFA

(Joint Hypersonics Transition Office Systems Engineering Field Activity)

NSWC CRANE STEM PROGRAM

& More!



Ecosystem Engagement

NSWC Crane hosts Navy-wide R&D showcase and collaboration event

ODON, Ind. – Naval Surface Warfare Center, Crane Division (NSWC Crane) hosted more than 470 people at the annual Naval Innovative Science and Engineering (NISE) Technical Exchange Meeting (TEM) on September 10-12 at WestGate Academy.

“NSWC Crane was honored to have experts from the Naval Research and Development (R&D) Establishment,” said Dr. Angela Lewis, SES, the Technical Director at NSWC Crane. “The Navy is committed to being at the forefront of technological advancement. Every year, NISE TEM allows for collaboration in crucial technical areas to enhance warfighter capability.”

NISE TEM is an event that provides an opportunity for collaboration across the Naval Research and Development Establishment (NR&DE) while showcasing the cutting-edge efforts from Naval Warfare Centers and the Naval Research Laboratory (NRL).

“As always it was great to be back at NSWC Crane and I want to thank the team for hosting such an outstanding event,” said Dr. Brett Seidle, the Principal Civilian Deputy Assistant Secretary of the Navy (ASN) for Research, Development and Acquisition (RD&A). “The NISE TEM is an important gathering of some of our best minds and allows the type of innovation and collaboration critical to resolving some of the most challenging technical problems we face as a Navy and nation.”

The theme for NISE TEM was “Building Enduring Advantages.” The National Defense Strategy states, “building enduring advantages is all about accelerating force development, capitalizing on the latest technology, and making investments in the extraordinary people of the Department, our most valuable resource.” This strategic direction is emphasized in the NISE program, focusing on basic and applied research, technology transition, workforce development, and infrastructure revitalization and recapitalization.



“Our scientists and engineers are the innovators and early adaptors of our Navy team and their research and work is what allows our Navy and Marine Corps warfighters to maintain their competitive edge,” said Naval Sea Systems Command Executive Director, Chris Miller. “From AI to contested logistics, this team is working collaboratively to develop the capabilities and technical solutions that will enable maritime dominance for decades to come. “The NISE program allows for basic and applied research, technology transition, workforce development, and infrastructure and equipment funding.”

“The NISE program enables innovative and world-class research and development in critical naval warfighting mission areas and expediting transition of key technologies to the Fleet,” said Robert Walker, the Chief Technology Officer at NSWC Crane. “NISE is a key resource to ensure the Navy maintains and builds a superior technical workforce prepared to tackle unique naval challenges facing our Sailors and Marines. NISE investments in facilities and laboratories serve as a foundational enabler for delivering world-class capabilities to the warfighter. The NISE program fosters creativity and stimulates exploration of cutting-edge science and technology (S&T), serves as a proving ground for new concepts in R&D, and supports high-value, potentially high-risk R&D in order to increase

the speed of technology transition to the warfighter.”

Multiple networking events were held in tandem with NISE TEM to show how NSWC Crane collaborates with ecosystem partners, such as academia and industry. NSWC Crane hosted Mission Mingle, which displayed various efforts taking place across its mission areas of Strategic Missions, Expeditionary Warfare, and Electromagnetic Warfare.

“The NISE program enables innovative and world-class research and development in critical naval warfighting mission areas and expediting transition of key technologies to the Fleet.”

The Mill hosted an event prior to NISE TEM to display the ecosystem partners that engage with NSWC Crane. NISE TEM showcased ongoing efforts being made across Navy organizations, allowing for future growth and collaboration to enhance technology development for the warfighter.

“The annual NISE TEM provides an opportunity to collaborate, share ideas, and network within the greater NR&DE as well as with other key stakeholders,” said CAPT Rex Boonyobhas, the Commanding Officer at NSWC Crane. “This year was a success, and it was great to nurture existing and strengthen new relationships. These relationships are crucial to get the end-users technology needed to perform their mission.”



TOP HEADLINES

NSWC Crane awarded nationally and regionally for technology transfer excellence

NSWC Crane employee continues to grow 80-year family legacy through mentorship

NSWC Crane hosts USS Constitution Commander for NAVSEA wide Women’s Equality Day Event

Scalable Asymmetric Lifecycle Engagement held their first Educator Appreciation Day at WestGate Academy

NSWC Crane Technology Transfer bridges the gap between innovation and businesses through licensing Navy technology

NSWC Crane employees volunteer to include children with special needs through running



Strategic Missions

NSWC Crane holds ribbon cutting ceremony for new radiation-hardened microelectronics testing capability

CRANE, Ind. – Naval Surface Warfare Center, Crane Division (NSWC Crane) held a ribbon cutting ceremony for a new radiation-hardened (rad-hard) microelectronics testing capability on July 31. The Short Pulse Gamma (SPG) system provides a prompt dose environment for microelectronics research, development, test, and evaluation (RDT&E).

Dr. Angela Lewis SES, the Technical Director at NSWC Crane, spoke at the Short Gamma Pulse ribbon cutting event at NSWC Crane. “We are thrilled to have the ribbon cutting for the new Short Pulse Gamma system at NSWC Crane,” said Dr. Angela Lewis, SES, the Technical Director at NSWC Crane. “This is a critical capability that will ensure continued resilience for the Department of Defense and the United States. Radiation-hardened microelectronics are a key enabling technology for Missile Defense, Nuclear Modernization, and Space missions. This new facility will provide important capacity to support testing for multiple, concurrent, and future nuclear modernization programs.”



cutting. “I’ve been delighted with the technical expertise and dedication of our NSWC Crane teammates,” said CDR Robert Blanchard, the Fire Control and Guidance Branch Head at SSP. “NSWC Crane’s focus on extensive research, design, and test and evaluation equips the Navy with reliable real-world solutions to support the Navy’s nuclear modernization efforts. Crane’s dedicated team of experts is an essential contribution to SSP’s programs.”

Establishing the new SPG, also referred to as the “Bumblebee”, capabilities at NSWC Crane will greatly enhance national ability to provide critically important strategic RDT&E data to systems designers and manufacturers and will substantially increase the national capability in this area. Additionally, this facility will provide important capacity to support testing for multiple, concurrent, and future nuclear modernization programs.

Dr. Dev Shenoy, the Principal Director for Microelectronics and Microelectronics Commons Executive Director at OUSD (R&E)/ASD(CT), spoke at the event. “We are committed to develop the technologies and components necessary to meet our national requirements and to fund the qualification and production of these devices,” said Dr. Dev Shenoy, the Principal Director for Microelectronics and Microelectronics Commons Executive Director at OUSD (R&E)/ASD(CT). “The development and standing up of the SPG facility are an important step toward validation and verification of this critical technologies in radiation environments. NSWC Crane has a strong understanding of radiation effects and expertise



Crane has been doing radiation testing support for the Navy Strategic Systems Programs (SSP) for over 50 years. The Strategic Microelectronics Division provides subject matter expertise through test and evaluation capability for high-reliability, radiation-hardened microelectronics supporting our nation’s Nuclear Deterrence, Missile Defense, and Space Systems.

CDR Robert Blanchard, the Fire Control and Guidance Branch Head at SSP, spoke at the SPG ribbon

required in order to ensure proper execution of these deliverables.”

The SPG system has several special features, including concrete to encase and provide a safe testing area, a test table that can hold up to 1-ton, electrical grounding options, Electro-Static Dissipative (ESD) interior floor to test cell, ESD certified workstation, and test cell and RF shield room that are environmentally controlled.

The SPG is a compact, “second generation” Inductive Voltage Adding

“This new facility will provide important capacity to support testing for multiple, concurrent, and future nuclear modernization programs.”

(IVA) technology, where the Pulse Forming Lines (PFLs) are charged directly instead of by intermediate stage of pulse compressions. This improved design makes it more compact.

George Rumford, (SES), the Director of the Test Resource Management Center, spoke at the SPG ribbon cutting. “A capability like this is important



and essential because it really does make us safer,” said George Rumford, (SES), the Director of the Test Resource Management Center. “I’m ecstatic to have a partnership with Crane. We will continue to make improvements, modernizations, and add capabilities.”

This new capability is the first phase in a multi-phase, \$100M radiation modernization effort at NSWC Crane. The effort also includes an irradiator, flash x-ray, and a combined environment consisting of a 14-meV Fusion Neutron Source with a new Linear Accelerator. The radiation modernization effort will provide the full suite of strategic radiation environment requirements for microelectronics.

Chris Jeffers, the Vice President for Defense Business Development at the Indiana Economic Development Corporation, spoke at the SPG ribbon cutting. “Crane is important to the state of Indiana,” said Chris Jeffers, the Vice President for Defense Business Development at the Indiana Economic Development Corporation. “All of the scientists, engineers, staff, and contractors, the incredible work Crane does here protecting our nation, the industry and impact at WestGate...there’s momentum really happening. But it really comes down to the people that are here. There’s a legacy here.”

TOP HEADLINES

[NSWC Crane announces winners in student hypersonics video challenge](#)

[Joint Hypersonics Transition Office announces winners in \\$500,000 prize challenge](#)

[NSWC Crane hosts annual Microelectronics Integrity Meeting to drive strategic direction](#)

[STRATCOM General attends NSWC Crane groundbreaking for new Strategic Systems engineering infrastructure](#)

[NSWC Crane scientist leads in the lab and in the Division](#)

[NSWC Crane engineer leverages Ph.D. experience to advance U.S. microelectronics](#)

[NSWC Crane to build new hypersonics-focused research and development capability](#)



Electromagnetic Warfare

NSWC Crane hosts 14 countries in NATO electromagnetic warfare technology exercise

CRANE, Ind. – Thor’s Hammer 2024 participants pictured at a testing site. Naval Surface Warfare Center, Crane Division (NSWC Crane) hosted a biennial North Atlantic Treaty Organization (NATO) military exercise in May and June at Indiana testing sites Camp Atterbury and Muscatatuck Urban Training Center.

The 2024 Thor’s Hammer NATO exercise is an electronic warfare (EW) event testing compatibility and effectiveness of Counter-Radio Controlled Improvised Explosive Devices (C-RCIED) and Counter-Small Unmanned Aerial Systems (C-sUAS). This is the first time the United States has hosted Thor’s Hammer, which began in 2015 and has been held in Norway, Sweden, and Australia.

Michael Alperi, Deputy Program Manager of Expeditionary Missions Program Office (PMS 408), Program Executive Office, Unmanned and Small Combatants, and Chairman of NATO Subgroup One, announced in 2022 that the United States would host Thor’s Hammer in 2024. When it came to selecting a location within the United States, he knew where it should be held.

“One of the best aspects about picking NSWC Crane is that they have worked on their test infrastructure over the years,” said Alperi. “Camp Atterbury, and specifically Muscatatuck Urban Training Center, provide the first opportunity for countries to test in an urban environment. This is the most realistic test we’ve ever done since starting the event in 2015. This application of testing allows us to really understand how our systems work in real operational battle.”

The two main testing sites for Thor’s Hammer 2024 were Camp Atterbury and Muscatatuck Urban Training Center. Camp Atterbury supported test events to improve effectiveness and compatibility against small UAS and IED threats. Muscatatuck Urban Training Center provided simultaneous UAS and IED testing in an urban environment that enhanced collaboration among partner nations and a better understanding of how to optimize employment of diverse electronic countermeasures (ECM) systems.

Thomas Talbert, an NSWC Crane employee, was the Trial Manager for 2024 Thor’s Hammer. He said the event enabled collaboration.

“Thor’s Hammer presents the opportunity to understand how systems will behave when operating together,” said Talbert. “The understanding gained concerning the compatibility and interoperability of the multiple nations’ systems has saved lives and will continue to save lives into the future.



The ability to collaborate with other engineers, scientists, and operators allows for the improvement of each countries’ ECM systems performance.”

Thor’s Hammer systems were tested alongside each other to identify collaborative opportunities to improve performance of systems in coalition environments. This is particularly important in an environment of multinational operations faced with the evolving and persistent threat to life from UASs and IEDs. In a battlefield increasingly more defined by electronic warfare, ECM de-confliction has become an essential pre-deployment activity.

Since the inception of Thor’s Hammer in 2015, the event has grown from five participating nations to 14 in 2024. The U.S. was able to host more than 200 U.S. and foreign personnel with the support of Naval Sea Systems Command (NAVSEA), U.S. Army, NSWC Crane, Indiana National Guard, and the State of Indiana.

“Indiana has been a fantastic partner for this event. The support we’ve received from the State of Indiana, the Indiana Economic Development Corporation, the Applied Research Institute Inc., and the National Guard has been incredible to help execute,” said Alperi. “All aspects of Indiana have been behind this event. A key event during TH24 was a scheduled VIP Day conducted at Muscatatuck Urban Training Center where 87 military and government senior officials from the participating nations attended this event. VIP Day highlighted the importance and mutual benefit of

collaboration and how to apply data from standard testing at Camp Atterbury into an urban environment. Demonstrations were provided on the importance of ECM, Counter-Unmanned Aerial System (C-UAS) and the interoperability of systems. I'm sure the Thor's Hammer Group will want to come back to Indiana again to conduct this type of testing in the near future."

"It is great to be able to host such a significant event in Indiana," said Dr. Angela Lewis, SES, the Technical Director at NSWC Crane. "We can't do it alone—it takes the NATO partners together to counter current threats. Thor's Hammer 2024 provided real-world testing environments, enhanced warfighter capability and enabled improvement in warfighter safety."

With each Thor's Hammer, the group pushes the limits of testing to keep pace with evolving threats.

"Thor's Hammer allows the participating nations to test in an environment that is not available in their home country, test against different devices, and collaborate in an atmosphere that occurs when personnel understand and trust each other's skills and abilities," said Talbert.

"One of the best aspects about picking NSWC Crane is that they have worked on their test infrastructure over the years. Camp Atterbury, and specifically Muscatatuck Urban Training Center, provide the first opportunity for countries to test in an urban environment."

Intensive ongoing collaboration among the Thor's Hammer participants has yielded critical changes to operational aspects that will further protect deployed forces. Lyndon Theodore "LT" Snider, TH24 Focal Point Lead, emphasizes that while the event bolsters security cooperation with our partners, these efforts are intended to keep the warfighters safe.

"In a time when the criticality of international military cooperation cannot be overstated, Thor's Hammer 2024 brought participating nations together to sharpen coalition capabilities in ground electronic warfare," said Snider. "The event exemplified the cooperative spirit of partner nations who share the common goal of ensuring success on the battlefield and the survivability of troops and equipment."



TOP HEADLINES

[NSWC Crane Co-Hosts Association of Old Crows Conference themed 'Electronic Warfare Capability Gaps & Enabling Tech 2024'](#)

[NSWC Crane hosted Force Level Electromagnetic Warfare follow up summit following inaugural event earlier this year](#)

[NSWC Crane assists in creating technology to detect and identify U.S. Navy sailors in emergency situations](#)

[NSWC Crane hosts international participants in all-domain, electromagnetic warfare testing event](#)



Expeditionary Warfare

NSWC Crane hosts over a dozen Navy research organizations to meet urgent operational needs



CRANE, Ind. – NSWC Crane) held a collaborative event to respond to urgent operational needs on January 23-25. The event, called TRON Queen’s Gambit 24, included in-person and virtual participants from more than a dozen organizations within the Naval Research and Development Establishment (NRDE). Naval Surface Warfare Center, Crane Division (NSWC Crane) held a collaborative event to respond to urgent operational needs on January 23-25. The event, called TRON Queen’s Gambit 24, included in-person and virtual participants from more than a dozen organizations within the Naval Research and Development Establishment (NRDE).

Carmelo Fontan (SSTM), the Chief Technology Officer for Naval Surface Warfare Center Headquarters, attended the event.

Fontan provided context for and encouraged the TRON Queen’s Gambit participants, challenging the group to think beyond a singular event.

“We have got to get better and faster,” said Fontan. “We need to have the sets and reps by holding events just like this TRON Queen’s Gambit. My only question is, where will the next Queen’s Gambit be held?”

Technical Response to Operational Needs (TRON) is a cross-warfare center team focused on providing rapid fielding of a solution to an emerging threat, delivered at the speed of need and at scale. TRON aims to harness NRDE’s technical and acquisition expertise to provide swift problem solving and technical capability.

NSWC Crane organized this unique event to outline paths, provide quick warfighter capability, and meet their operational needs.

“TRON was given a real-world, urgent operational problem to tackle,” said Perri Bateman Weber, a Scientist at NSWC Crane. “At the end of the event, our scientists and engineers pitched relevant, threat-informed concepts which could be quickly developed, tested, and rapidly fielded. TRON Queen’s Gambit 24 was a milestone for us in Warfighter

problem solving; we leveraged the TRON network and pulled together more than forty technical experts from across sixteen different organizations. This collaboration was critical in providing the Warfighter with high-impact technical solutions to combat modern threats.”

The event was intended to create a collaborative environment for participants. Amy Ruggles, Program Support for Expeditionary Warfare at NSWC Crane, helped organized the event and said it was great to see people working together toward a common goal.

“It was really amazing to see the collaboration with people who never met,” said Ruggles. “People came together to brainstorm solutions on a condensed timeline and by Thursday, people had full pitches of their concepts.”

TRON Queen’s Gambit was modeled after two events, including the Warfighter Driven Challenge (WDC) user centered design sprint and NSWC Crane’s Rook Cage innovation challenge process. The WDC is a one-week, rapid prototyping event that brings together scientists, engineers, and warfighters together to work on a specific problem statement from operational military units. At the end of the week, there is some kind of output, such as a white paper, intellectual property, or a prototype created. Queen’s Gambit brings together experts from different backgrounds to work on an operational problem. Afterwards, like the popular entrepreneurship television show “Shark Tank”, various teams pitch ideas for solutions for internal research and development (R&D) funding to work on their proposed solution.

TRON Queen’s Gambit 24 combined both models and had the participants work for three days to pitch their concepts to a panel where viable concepts received Naval Innovative Science and Engineering (NISE) funding. The NISE funding would then be used to further develop those concepts.

Adam Parsley, Chief Scientist of the Special Warfare & Expeditionary Systems Department at NSWC Crane, helped organize TRON Queen’s Gambit 24. Parsley said the event was a success on several levels.

“Any time we can get our technical workforce centered on an operational problem set, we find ways to contribute to the fight,” said Parsley. “This is some of the most rewarding work we can do. We were able to include multiple Navy labs, as well as representatives from the intelligence community and operational force. We succeed at a basic level just by overcoming our traditional stovepipes, and we look forward to continued success as some of our proposed ideas become reality.”

NSWC Crane Electro-Optics Technology experts leverage NSIN X-Force tool to enhance basic research analysis

CRANE, Ind. – A Naval Surface Warfare Center, Crane Division (NSWC Crane) employee led a team of students to build an artificial intelligence tool that helps researchers, scientists, and engineers make informed decisions. The tool provides a way to efficiently search and analyze research publications across federal, academic, and industry laboratories.

The students participated remotely as part of the National Security Innovation Network (NSIN) X-Force 2023 Fellowship, which completed in early August. The X-Force Fellows developed the tool for the Electro-Optics Technology Division at NSWC Crane to scan for research publications, providing the technical teams with more information to conduct basic research projects.

X-Force Fellows involved in the project said enjoyed the process.

“Participating in the X-Force Fellowship with NSWC Crane was invaluable, offering me a deep dive into the fields of software development and research,” said Aaron Kim, an undergraduate student at Texas Agricultural and Mechanical (A&M) University who worked on the project. “Knowing that our work directly contributes to the research direction at NSWC Crane was incredibly fulfilling. This fellowship was a great opportunity where personal skill development goes hand in hand with making a meaningful impact.”

The Fellowship provided students the opportunity to have broad impact.

“Working in the federal space allowed me to maximize my impact, and the NSIN Fellowship did not disappoint,” said C. Denq. “The scope, budget, and freedom were liberating, as it allowed both Aaron and me the opportunity to carefully experiment with different solutions that had a tangible impact on federal governance and research.”

Dr. Gregory Forcherio, a Scientist at NSWC Crane and Project Sponsor for the tool, says the project has been a great way to quickly gather research-related data and findings online.

Network visualization from the tool showing the relationship of key terms across a range of research publications. “The students’ efforts delivered a software tool that webscrapes data from scientific publications and applies natural language processing algorithms to infer the who, what, when, how, and most importantly we hope, the future, about research projects in supporting optical sensors and computer vision technologies,” said Dr. Forcherio.

Research publications contain a wealth of knowledge that can be a source for broad impact, such as on scientific communities of interest and future project funding. It is important for Navy Principal Investigators (PIs), who manage research projects, to be up-to-date on academic publications—but that can be difficult given the volume and pace of information available. The X-Force webscraping project provides Navy researchers an additional tool to make inferences from a large volume of data.

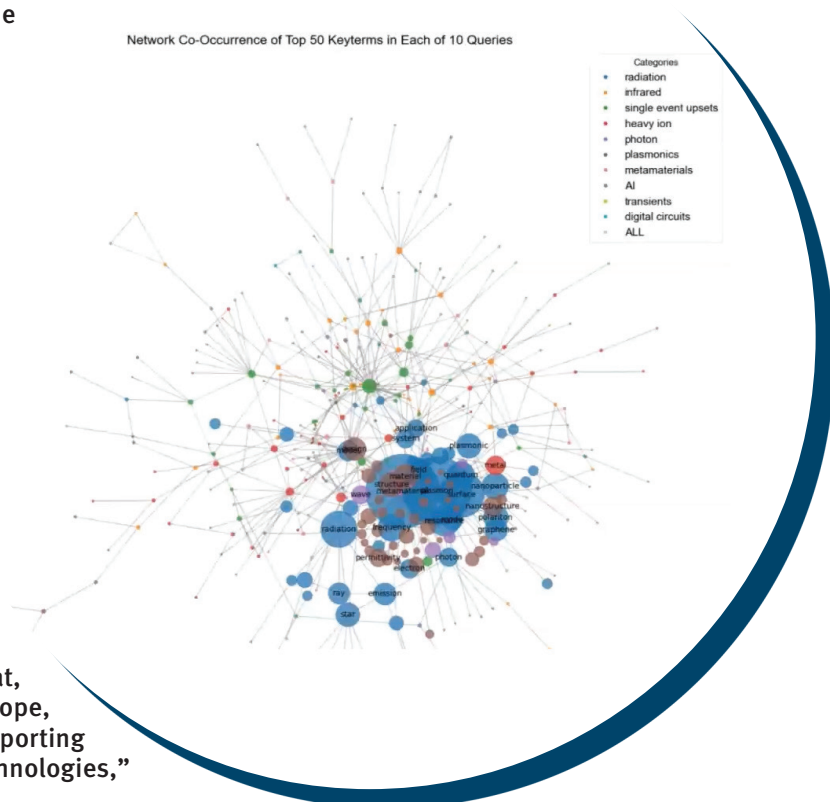
Along with scraping for a list of research publications, the tool also provides statistics about the research.

“This software developed by the students provides new business tools with embedded data analytics to roadmap technology development of infrared sensors and strategize initiation of new research programs,” said Dr. Forcherio.

Dr. Forcherio said the X-Force program gives NSWC Crane a way to reach students in new ways.

“The NSIN X-Force program has historically been a great avenue for Navy scientists and engineers to form multidisciplinary teams of strong students from across the country,” said Dr. Gregory Forcherio. “It provides them an opportunity to advance Navy research initiatives while gaining work experience in a federal laboratory.”

Network Co-Occurrence of Top 50 Keyterms in Each of 10 Queries



Business Excellence

NSWC Crane announces first-ever Educational Services Agreement with Indiana University

CRANE, Ind. – NSWC Crane and Indiana University sign their first-ever Education Services Agreement on March 20. Naval Surface Warfare Center, Crane Division (NSWC Crane), in collaboration with Indiana University (IU), announced its first-ever Education Services Agreement (ESA) on March 20 at WestGate Academy in Odon, Indiana. According to acquisition.gov, an ESA is “an ordering agreement under which the Government may order educational services.”

Dr. Angela Lewis, SES, Technical Director at NSWC Crane, and Dr. Siân Mooney, dean of the Indiana University’s O’Neil School of Public and Environmental Affairs, the top-ranked public affairs school in the country, both spoke about the significance of this ongoing partnership.



NSWC Crane and Indiana University have a long history of educational partnerships dating back to 1988 with the Public Management Certificate (PMC) and in 1991 when the Masters of Public Affairs (MPA) program was first introduced. To date, the PMC program has 525 graduates and the MPA program has almost 300 graduates.

“For more than 35 years, the partnership between NSWC Crane and IU has offered high quality and relevant programs for Crane employees,” said Dr. Mooney. “This collaboration is a testament to the mutual commitment and vision of both partners to advance the public good through education, research, and service. NSWC Crane also plays an important role in boosting the economy of Bloomington, Monroe County, and the surrounding area by offering thousands of jobs that feature higher-than-average wages. This partnership will equip Crane personnel with the skills and knowledge to manage complex projects effectively and efficiently, and we couldn’t be prouder of their achievements and contributions to Crane’s mission.”

Dr. Angela Lewis speaks at the Education Services Agreement signing event between NSWC Crane and Indiana University. NSWC Crane and IU’s partnership has continued to grow over the years. Currently, active partnerships include permanent shared spaces, shared faculty, and ongoing educational partnership agreements, among others. In addition, IU recently announced a 110 million dollar commitment to education, research and innovation that accelerate economic competitiveness in the area of



NSWC Crane and Indiana University sign their first-ever Education Services Agreement on March 20. “Partnerships like the Education Services Agreement with Indiana University allow our workforce to further develop leadership skills, participate in curriculum tailored to the Department of Defense and Navy environment, and grow their professional network,” said Dr. Lewis. “By providing services such as this, we are able to ensure a mission-ready workforce that continues to support the warfighter. Indiana University has a long history with NSWC Crane and I look forward to another decade of developing our future leaders.”

microelectronics, an NSWC Crane key strategic area.

“This collaboration is a testament to the mutual commitment and vision of both partners to advance the public good through education, research, and service... This partnership will equip Crane personnel with the skills and knowledge to manage complex projects effectively and efficiently, and we couldn’t be prouder of their achievements and contributions to Crane’s mission.”

Heather Strange, the Workshop Development Branch Manager at NSWC Crane, looks forward to what the future holds for this partnership.

“This Education Services Agreement represents our continued dedication to developing our workforce through our partnership with Executive Education at IU,” said Strange. “Their PMC and MPA programs have stood the test of time and continue to provide the curriculum and experiences needed for our next generation of leaders. We continue to experience high demand from our workforce for these programs and others administered by this amazing cadre of faculty, so we are excited to have this formalized 10-year agreement that will carry our partnership through another decade of learning.”

TOP HEADLINES

NSWC Crane team recognized NAVSEA-wide for human resources excellence by creating new workforce development programs

NSWC Crane employee looks to inspire fellow employees through workforce development



Workforce Development

Second annual Meet the Mission brought together TEAM Crane for day of appreciation across the installation



CRANE, Ind. – Team Crane hosted the second Meet the Mission: Team Crane Day event on September 5. The event focused on bringing together employees from across all the commands and support activities that make up Team Crane; including the Naval Exchange, Naval Sea Logistics Center, Naval Support Activity Crane (NSA Crane), Crane Army Ammunition (CAAA), and Naval Surface Warfare Center, Crane Division (NSWC Crane).

Participants in the Team Crane Meet the Mission “We were thrilled to host the expanded Meet the Mission: Team Crane Day this year,” said Dr. Angela Lewis (SES), NSWC Crane Technical Director. “This event provides an excellent opportunity for employees to learn more about our capabilities in the mission areas of Electromagnetic Warfare, Strategic Missions, and Expeditionary Warfare. Bringing our team together to cross-network and ideate creates space for innovation when developing new solutions for the warfighter.”

Lewis said everyone who comprises Team Crane should feel a great sense of pride for their contributions to the mission, which is ever-increasing in its relevance to national defense.

“This event, which had representatives from all Team Crane tenants and our contract partners, was a way to put all of that hard work on display.”

The second annual Meet the Mission included participants from NSA Crane, CAAA, and NSWC Crane. Due to the success of the event last year, this year’s Meet the Mission has doubled in size. Throughout the event, employees had the chance to visit booths to participate in technical demonstrations, see mission hardware firsthand, purchase apparel from the Navy Exchange and Moral, Welfare, and Recreation (MWR) and Navy Exchange (NEX), and use the photo booth to capture photos of friends and colleagues enjoying themselves at this team-building event.



NSA and CAAA participated for the first time this year.

“We appreciated the opportunity to participate in this year’s Meet the Mission event. We always welcome opportunities to highlight the work we do to enable our collective Team Crane mission of supporting the warfighter,” said Col. Fran Taylor, CAAA commander.

“This event, which had representatives from all Team Crane tenants and our contract partners, was a way to put all of that hard work on display.”

Meet the Mission was an open-house style event that allowed employees from across all commands to come together and celebrate Team Crane. Taylor added that the Crane Army mission is to safely receive, store, ship, renovate, demilitarize, and manufacture conventional ammunition, missiles, and related components to support Joint Forces readiness.



CDR Luis “Homie” Martinez, of NSA Crane reflected on the experience.

“Meet the Mission brought the installation together and was a huge boost for morale because the team did an amazing job planning and executing the event. We all left more knowledgeable and with greater appreciation for what our awesome Team Crane personnel do for the warfighter every day.”

The event was open-house style that allowed employees from across all commands to come together and celebrate Team Crane. Teams from every department displayed work. Some examples include Force Level Electromagnetic Warfare, Special Emphasis Programs, Strategic Microelectronics, Electro-Optic Technology, Infrastructure, Customer Advocates, and more.

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