

NAVAL SURFACE WARFARE CENTER CRANE DIVISION



YEAR IN REVIEW 2020



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HARNESSING THE POWER OF TECHNOLOGY FOR THE WARFIGHTER

HONESTY & INTEGRITY
SOLUTIONS & EMPOWERMENT
SERVICE & UNITY

VALUES

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.

VISION

To provide acquisition engineering, in-service engineering and technical support for sensors, electronics, Electronic Warfare and Special Warfare weapons. NSWC Crane also works to apply component and system-level product and industrial engineering to surface sensors, Strategic Systems, Special Warfare devices and Electronic Warfare systems, as well as to execute other responsibilities as assigned by the Commander, Naval Sea Systems Command.

MISSION

WORKFORCE

65%

SCIENTISTS, ENGINEERS, AND TECHNICIANS

EDUCATION



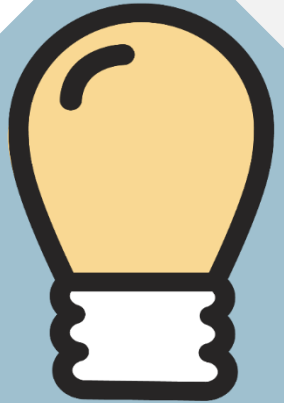
708 MASTERS
128 DOCTORATES
1,810 BACHELORS

INNOVATION

19 PATENTS

310 TOTAL
ISSUED PATENTS

762 CUMULATIVE IP
PORTFOLIO
(INCLUDES INACTIVE
CASES)



GROWTH

289 NEW HIRES
3,808 EMPLOYEES

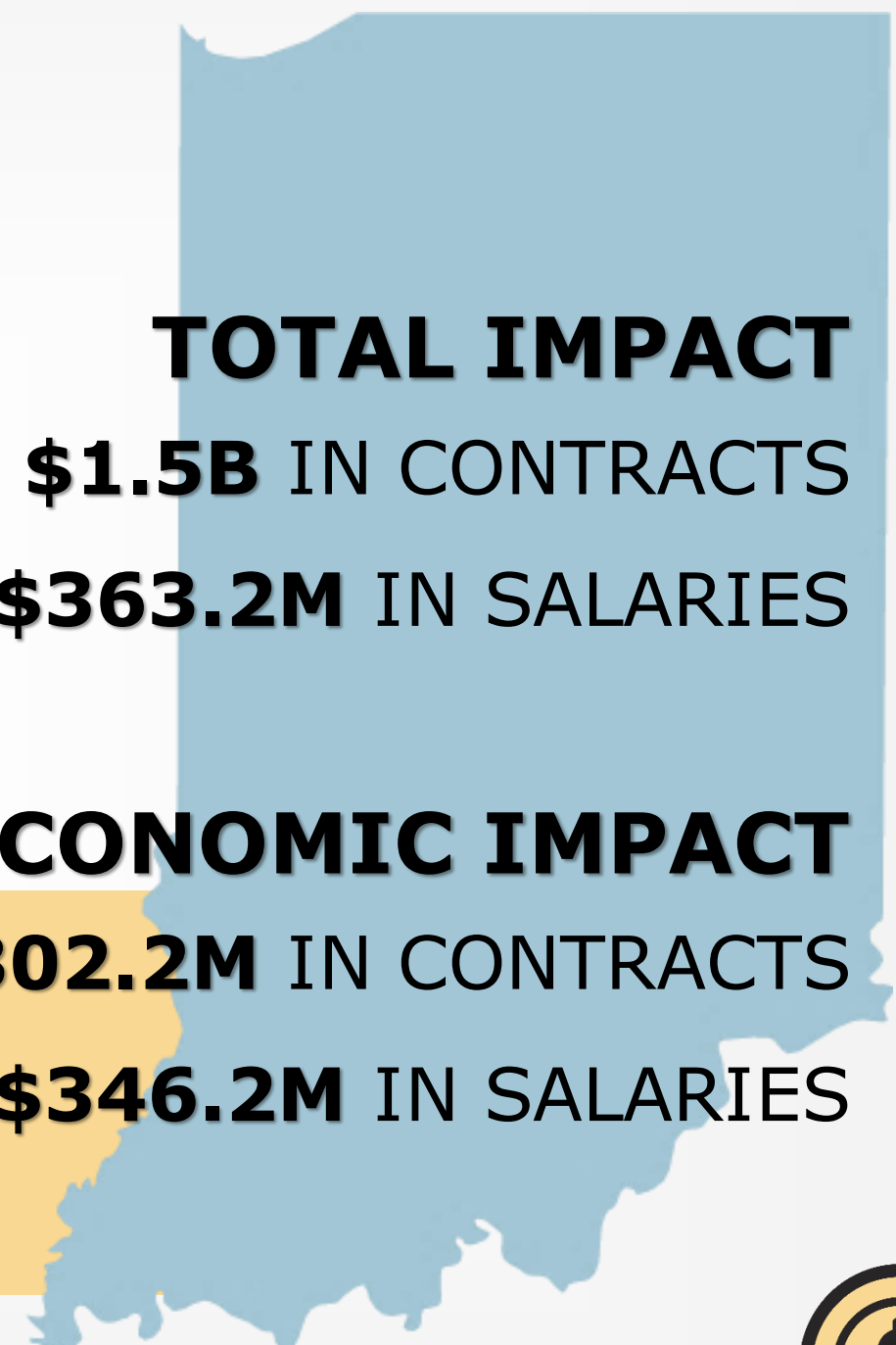
CRANE BY THE NUMBERS



4,000 STUDENTS SERVED
56 EMPLOYEE VOLUNTEERS
541.1 PARTNERSHIP HOURS

TOTAL IMPACT
\$1.5B IN CONTRACTS
\$363.2M IN SALARIES

INDIANA ECONOMIC IMPACT
\$302.2M IN CONTRACTS
\$346.2M IN SALARIES



CRANE BY THE NUMBERS

TECHNOLOGY TRANSFER

31 PATENT LICENSE AGREEMENTS

29 WORK WITH PRIVATE PARTNERS

72 EDUCATIONAL PARTNERSHIP AGREEMENTS

19 PARTNERSHIP INTERMEDIARY AGREEMENTS

96 COOPERATIVE RESEARCH AND DEVELOPMENT AGREEMENTS

CHANGE OF COMMAND



NSWC Crane held a virtual formal Change of Command Ceremony on Wednesday, July 1. Capt. Duncan McKay relieved Capt. Mark Oesterreich after three years as NSWC Crane's 29th Commanding Officer. Capt. Oesterreich retired from the U.S. Navy after 29 years of service.

"It has been an honor to lead the workforce at Crane," Capt. Oesterreich said. "Over the past three years, it has been great to see Crane's growth in national technical leadership in its three mission areas of Strategic Missions, Electronic Warfare, and Expeditionary Warfare."

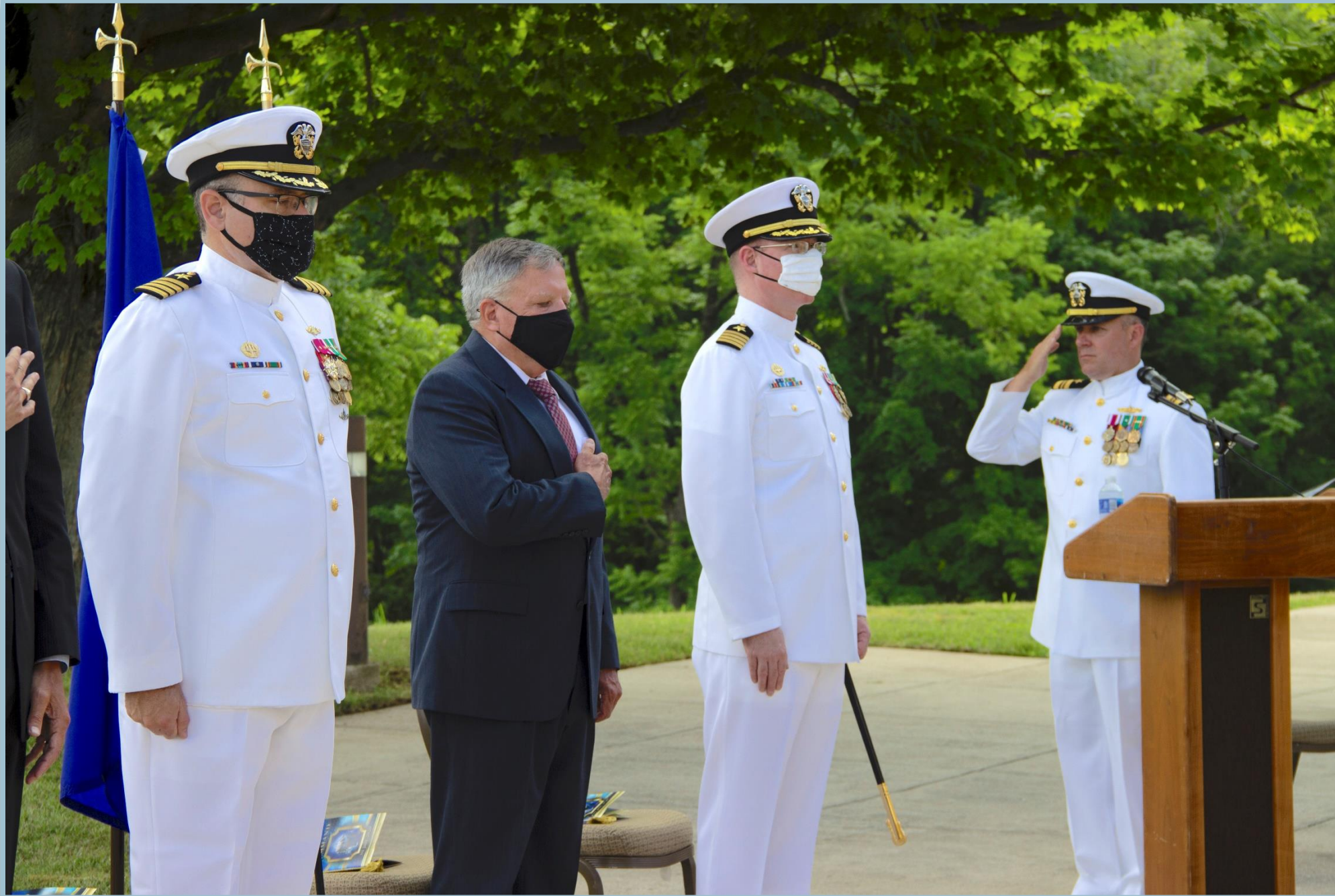
The Change of Command is a formal ritual conducted before the assembled company of the command, as well as honored guests and dignitaries. The Change of Command is unique in the world today; it is a transfer of total responsibility, authority, and accountability from one individual to another.

"I'm honored to be the Commanding Officer of NSWC Crane," Capt. McKay said. "Crane is equipped for continued growth and to provide rapid and robust technical support of the fleet. Capt. Oesterreich has served Crane well over the past three years and I wish him well in his retirement."

Above: Capt. McKay
Right: Capt. Oesterreich

NSWC Crane Held Change Of Command Ceremony

CHANGE OF COMMAND



**Capt. McKay Named New
Commanding Officer Of NSWC Crane**



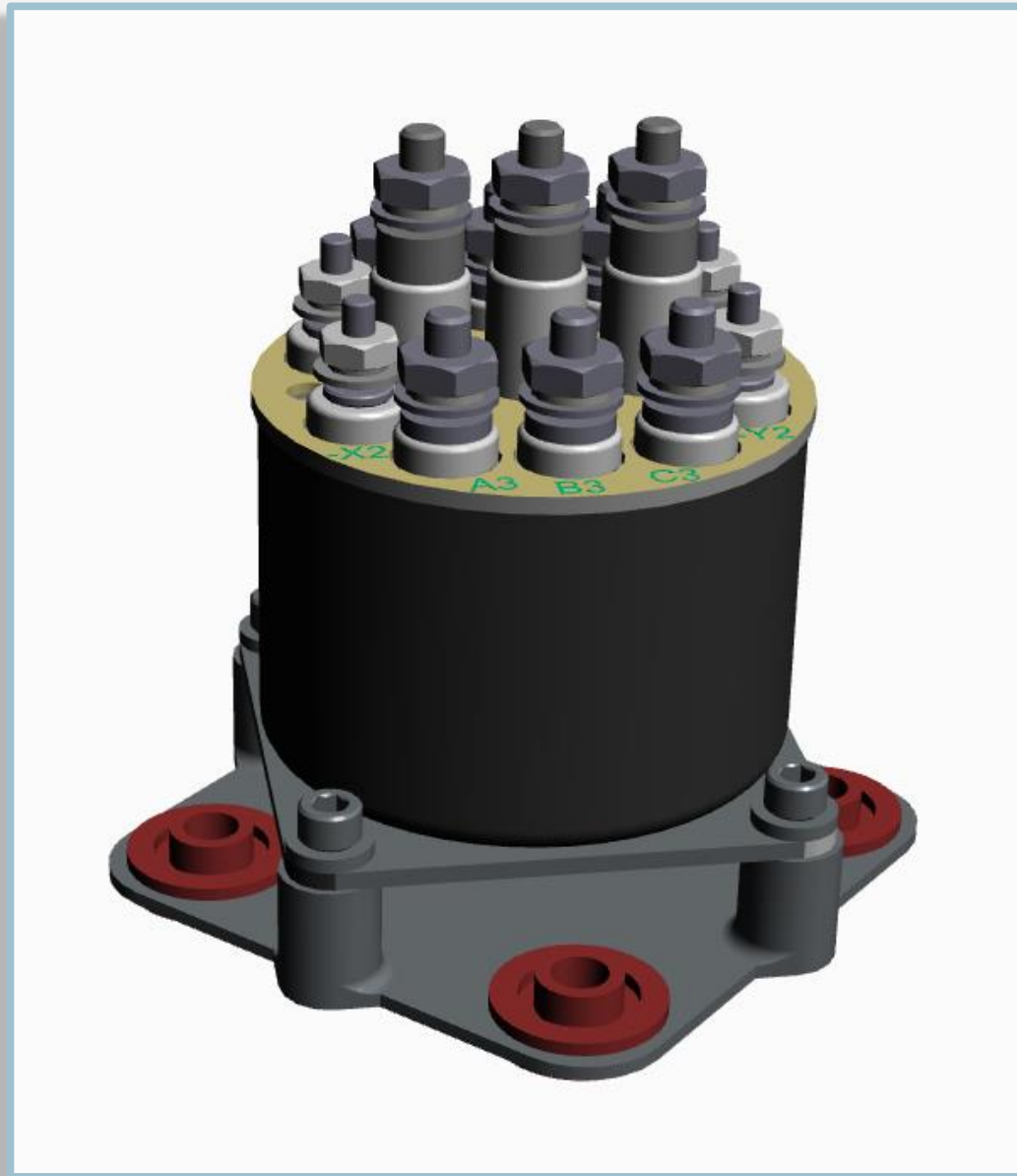
NSWC Crane Leader Recognized For Supporting Citizen-Sailor During Deployments

Chief of Contracting Kelly Siffin was recognized for supporting his employee during her career in the Navy Reserves. Siffin received the Employer Support of the Guard and Reserves Patriot Award, which acknowledges efforts to provide flexible schedules, time off prior to and after deployment, caring for families, and granting leaves of absences if needed.



NSWC Crane Engineer Receives Navy Award For Significant Recruitment Contributions

NSWC Crane recruiter John Bings received the Department of the Navy Human Resources (HR) and Equal Employment Opportunity (EEO) Community Support Award for Excellence for his work recruiting skilled scientists, engineers, and mathematicians. The award recognizes outstanding contributions made by individuals not assigned to an HR or EEO job series.



NSWC Crane Airborne Electronic Attack Team Recognized For Developing Robust, \$13M Cost-Saving Solution For Navy

The AEA P-8A Fleet Support Team of Airborne Electronic Attack (AEA) and Electro-Optics (EO) scientists, engineers, and logisticians were recognized for providing the Department of the Navy a \$13M cost avoidance solution. The team received a Naval Aviation Enterprise Award from Commander of the Naval Air Forces Vice Admiral Miller for designing, developing, prototyping, flight-testing, and fielding this solution in less than a year.

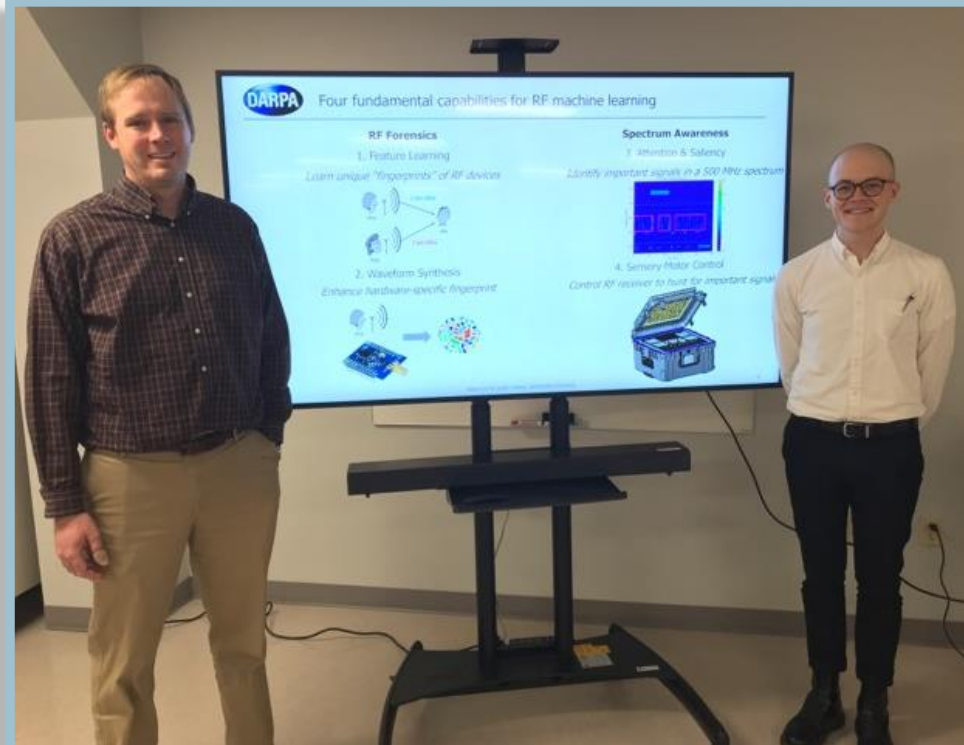
The TDU on the P-8A Poseidon was experiencing early failures due to high vibration levels in the airstream during flight. David Kuhlman, AEA Division Manager at NSWC Crane, said Crane provided a solution to this high priority problem for the Navy.

“The components in the TDU were originally supposed to last 33-thousand hours,” says Kuhlman, “but ended up lasting less than three-thousand hours before a failure due to the excessive vibration. This problem with the TDU also had the potential to cause additional damage to the aircraft upon landing as well as a safety issue for the crew. The Crane team had to propose a solution to increase the reliability.”

ELECTRONIC WARFARE

As the largest multi-service facility within the Department of Defense for Electronic Warfare (EW), EW sensors and electronics, NSWC Crane's EW Center is critical to the success of many military operations and is designated as the Naval Sea Systems Command Center of Excellence for Electronic Warfare.

*CONTROL THE SPECTRUM
CONTROL THE FIGHT*



NSWC Crane Contributes First Open Source Project To Provide Warfighters With More Advanced Systems

Crane scientists and engineers contributed Crane's first open source project to provide warfighters with more advanced systems. The contribution to the open source software project was developed to support the Defense Advanced Research Projects Agency (DARPA) Radio Frequency Machine Learning Systems (RFMLS) program.



NSWC Crane Spearheads Nearly A Decade Of Electronic Warfare Live Virtual Constructive Testing For Navy

The Electronic Warfare experts at NSWC Crane were at the forefront of nearly a decade of Live Virtual Constructive (LVC) testing for the U.S. Navy. Dr. Jay Marble, Chief Engineer for LVC at NSWC Crane, leads the LVC initiative, which is a form of modeling and simulation (M&S) testing for military systems.



NSWC Crane Implements High Performance Computing Solution To Further AI, ML, And DL For The Navy

NSWC Crane implemented a High Performance Computing (HPC) solution to enable Artificial Intelligence (AI), Machine Learning (ML), and Deep Learning (DL) for the Navy.

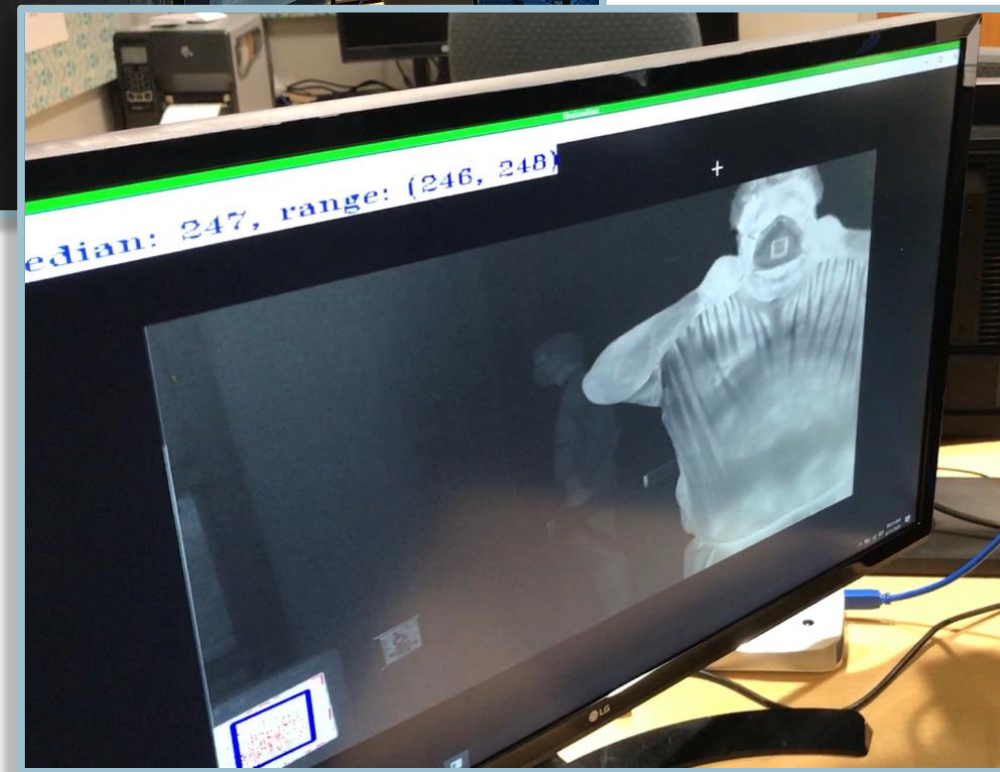
The enabling hardware is called the Artificial Intelligence Ready Infrastructure (AIRI) and was recently integrated into NSWC Crane's Research, Development, Test, and Engineering Network (RDTE). The AIRI for RDTE solution features hardware and services that was made available on the recently established Navy High Performance Computing Catalog, which allows anyone within the Navy to replicate an AIRI to use on both open and secure the networks.

HPC is the practice of aggregating computing power in a way that delivers much higher performance than one could get out of a typical desktop computer or workstation in order to solve big problems in science and engineering. Computation is constrained by power and speed. As defined in the National Defense Strategy, there is a growing need to implement key technologies like AI, ML, and DL to meet the needs of the DoD and ensure warfighters are able to fight and win future wars.

EXPEDITIONARY WARFARE

Expeditionary Warfare's mission is to provide intelligent systems solutions for all domains that enhance detection, decision-making, maneuver, and kinetic and non-kinetic engagement capabilities for the Expeditionary warfighter by utilizing open architecture designs to integrate multi-platform advanced sensors and specialized weapons systems.

*RAPID RESPONSE
PROVEN SOLUTIONS*



NSWC Crane scientists and engineers developed a sensor agnostic, Navy/Marine Corps Intranet (NMCI) compliant, thermal imaging system that detects fever, a symptom associated with COVID-19. The system requires only three pieces of hardware and a computer to work, and was developed to increase military readiness and be rapidly deployable to the fleet by leveraging existing fleet assets.

“When we were first asked by the Navy COVID-19 Rapid Response Team to start looking at solutions, our first question was, ‘How can we most quickly save the greatest number of lives?’” said Aaron Cole, the Chief Engineer/Scientist of Electro Optics/Infrared Technology Development. “The answer was a software package and basic system architecture that is Information Assurance compliant and can be used on any regular Navy NMCI computer and which is compatible with 99 percent of infrared sensors being used in the world – and by our military – right now.”

NSWC Crane Engineers Develop Rapidly Deployable Tech For Detecting Fever



NSWC Crane Small Arms Team Recognized For First-Of-Its-Kind, Critical Testing For Marine Corps

LtCol Timothy Hough, Program Manager, Infantry Weapons for the United States Marine Corps recognized the NSWC Crane Small Arms team for their critical and responsive testing efforts in support of the Marine Corps. The team conducted dual phase testing to determine potential issues with the relatively new configuration of the M2 Heavy Barrel Machine Gun, called the M2A1.



NSWC Crane Leads First Virtual Rapid-Prototyping Event To Provide Solutions To Warfighters

NSWC Crane led its first virtual Warfighter Driven Challenge (WDC) event to provide rapid prototype solutions for sailors and marines. This WDC was part of a larger Naval Research and Development Enterprise (NR&DE) Novel Modernization effort focusing on finding innovative approaches to solve future operational problems.

STRATEGIC MISSIONS

NSWC Crane Strategic Missions Center delivers technical solutions to detect threats, provides a layered, integrated missile defense, and offers global strike capability. Strategic Missions professionals work to develop, deploy, and sustain the technologies to ensure that weapons systems are fully reliable and always available to the warfighter.

DETER
DEFEND
DEFEAT



The Office of the Secretary of Defense (OSD) established its Joint Hypersonics Transition Office (JHTO) Systems Engineering Field Activity at Naval Support Activity, Crane. The decision to partner with Crane was made to leverage the growing suite of government, industry, and academic capabilities associated with that organization. Acting Deputy Under Secretary of Defense for Research and Engineering, Dr. Mark Lewis, and JHTO Director, Dr. Gillian Bussey, announced the JHTO Systems Engineering Field Activity opening in a virtual event on October 15th.

This announcement was part of Dr. Lewis' engagement with Indiana's Tier I research institutions, Purdue University and University of Notre Dame, who play a crucial role in hypersonics research and development. Lewis also met virtually with Indiana Governor Eric J. Holcomb and Secretary of Commerce Jim Schellinger to discuss the full scope of the DoD investment in Indiana.

OSD Establishes Joint Hypersonics Transition Office Systems Engineering Field Activity At NSWC Crane



NSWC Crane Student Interns Conduct Unique Payload Applications Research For Autonomous Unmanned Sailboat Drone

NSWC Crane student interns from Indiana University – Purdue University, Indianapolis (IUPUI) conducted research to enhance communications of autonomous unmanned sailboats during the 2019-2020 academic year. This research was part of their Capstone Senior Design Project.

This team of students researched how sailboats are not entirely visible on open water through technology such as radar, which can pose as a safety concern.

The technology used in unmanned and autonomous drones is rapidly evolving. People initially think of autonomous vehicles on land and flying drones in the sky, but unmanned and autonomous technology is also increasingly used at sea both commercially and for research.

The student team included five IUPUI students. Their research is called “Active and Passive Sail for Improved Communication Networking at Sea.” Katie Pfeiffer, the student project lead, said sailboats and other small vessels are facing a communications challenge.



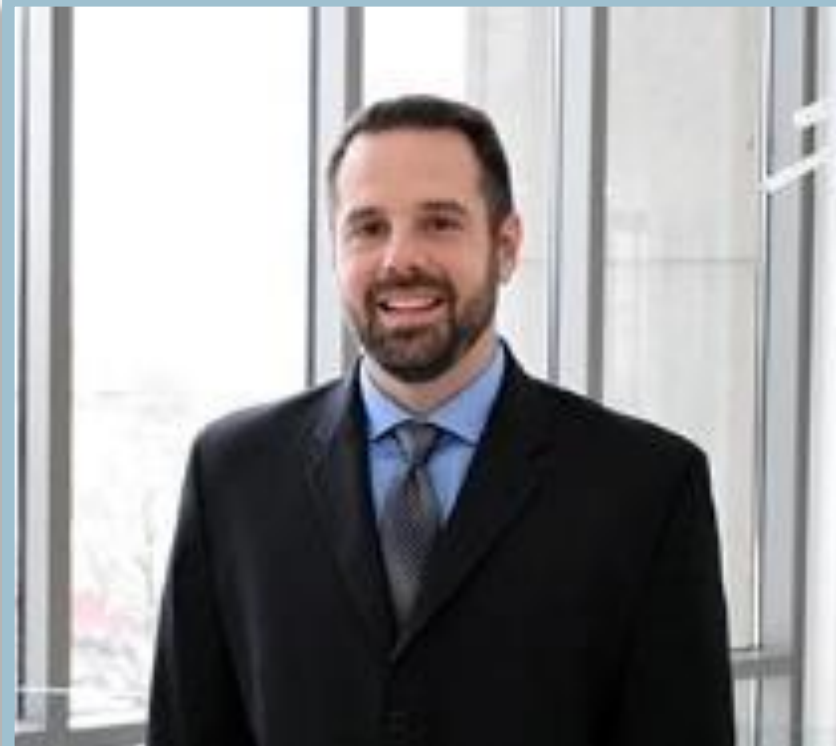
NSWC Crane and the National Security Innovation Network (NSIN) collaborated to provide summer internships for students in the X-Force Program. This is the second summer the NSIN X-Force program has taken place, and the first year NSWC Crane has sponsored topics for this program.

The X-Force Program provides fellowships for undergraduate and graduate students to work alongside DoD scientists and engineers across the country. The fellowship allows students to work on real-world national security problems in collaboration with the United States military. This internship program was originally going to host students in Crane labs, but due to the circumstances of COVID-19, the students participated remotely.

Dr. Jonathan Dilger, the Director of Research at NSWC Crane, says the students' efforts went beyond his expectations.

"With the program suddenly going remote for COVID, I expected we would see challenges," says Dr. Dilger. "But the students adapted remarkably. They made use of the online tools and were unbelievably productive. We were excited with what they produced."

NSWC Crane Hosts Students In First-Ever X-Force Summer Internship Program



Luddy School Awards IU's First-ever Engineering Ph.D. To NSWC Crane Employee

The Department of Intelligent Systems Engineering at the Luddy School of Informatics, Computing, and Engineering awarded its first ever Ph.D. to Adam Duncan, an electrical engineer at NSWC Crane. Duncan's dissertation focused on securing field-programmable gate arrays against post-synthesis attacks.



NSWC Crane Technologies Assessed From Across DoD For Commercialization In NSIN's Defense Innovation Accelerator

NSWC Crane had several technologies from its vast patent portfolio selected for the National Security Innovation Network's (NSIN) Defense Innovation Accelerator (DIA) program.

The NSIN DIA, powered by FedTech, leverages breakthrough technology to solve the real-world problems of the Department of Defense (DoD) and commercial customers.



Microgrants are a small amount of funds granted to an external partner for impact-oriented research and development (R&D) towards NSWC Crane's mission areas. Crane does this by providing funds externally for its research initiatives, capitalizing on academic innovators and connecting them to other Department of Defense (DoD) science and technology (S&T) sponsors.

Dr. Jonathan Dilger is the Director of Research at NSWC Crane.

Dr. Dilger says that by capitalizing on the brainpower and unique experiences of the workforce's expertise, research becomes more robust for the end user.

"We are getting more results that are exciting and scientifically interesting for our customers," says Dr. Dilger. "There're also more opportunities for continuation of research down the road."

NSWC Crane Uses "Microgrants" To Strengthen Collaborative Research With Academia



NSWC Crane Engineer Leverages More Than 10 Years Of Modeling And Simulation Expertise To Save Lives

“My parents decided to move here from this huge city when I was 13 years old,” says Johnny Hung. “As far as getting me, my brother, and my sister into college, there weren’t enough open spots available where we were from due to the population size. My parents wanted to give us a better chance at receiving a college education.”

Hung, now an Electrical Engineer at NSWC Crane, has been at Crane for more than ten years. His family immigrated to the United States in 1995 from Hong Kong, China to provide more opportunities for Johnny and his siblings.

Hung attended Rose-Hulman Institute of Technology and received his Electrical Engineering degree. He became a U.S. Citizen a few years after graduation.

After gaining experience in the manufacturing industry, Hung wanted to look for a career where he could leverage more of his specific technical skills.

“Through modeling and simulation, we are able to save thousands of dollars every day,” says Hung. “We are able to test a multitude of scenarios and gather a wide array of data.”



NSWC Crane employees were competitively selected to participate in a Naval Sea Systems Command (NAVSEA) leadership development program. Rebecca Udoekong, Marissa Wagler, and Susan Eckes were chosen to take part in the yearlong Next Generation (NextGen) Leadership Program in Cadre 3 Fall 2019.

“It is interesting and educational to gain knowledge outside my primary assignment,” says Udoekong. “The opportunity to shadow senior leaders to learn about the challenges they encounter and ways to resolve them is a great experience.”

NAVSEA consists of a global workforce of more than 74-thousand people. NSWC Crane is one of ten Warfare Centers across the country. Cadre 3 includes fifty emerging leaders from across diverse backgrounds, subject matter expertise, and years of experience.

NSWC Crane Employees Selected To Participate In NAVSEA Leadership Development Program



NSWC Crane, Dahlgren Partner With Academia To Develop Next Generation Of Naval Computer Scientists And Engineers

NSWC Crane in Indiana and Naval Surface Warfare Center, Dahlgren Division in Virginia partnered with two universities to develop the next generation of Naval computer scientists and engineers. Participating students were able to adapt to the circumstances of COVID-19 to complete their final projects, where they used computer-science techniques to solve Navy problems.

Professors and researchers at the University of Cincinnati (UC) and Old Dominion University (ODU) led the computational naval sciences program. The certificate program started last year and is funded by the Office of Naval Research (ONR). The first course took place at UC in the spring of 2020, and students and faculty adapted the coursework due to the rapidly changing conditions surrounding COVID-19. 58 undergraduate students from UC participated in the first course.



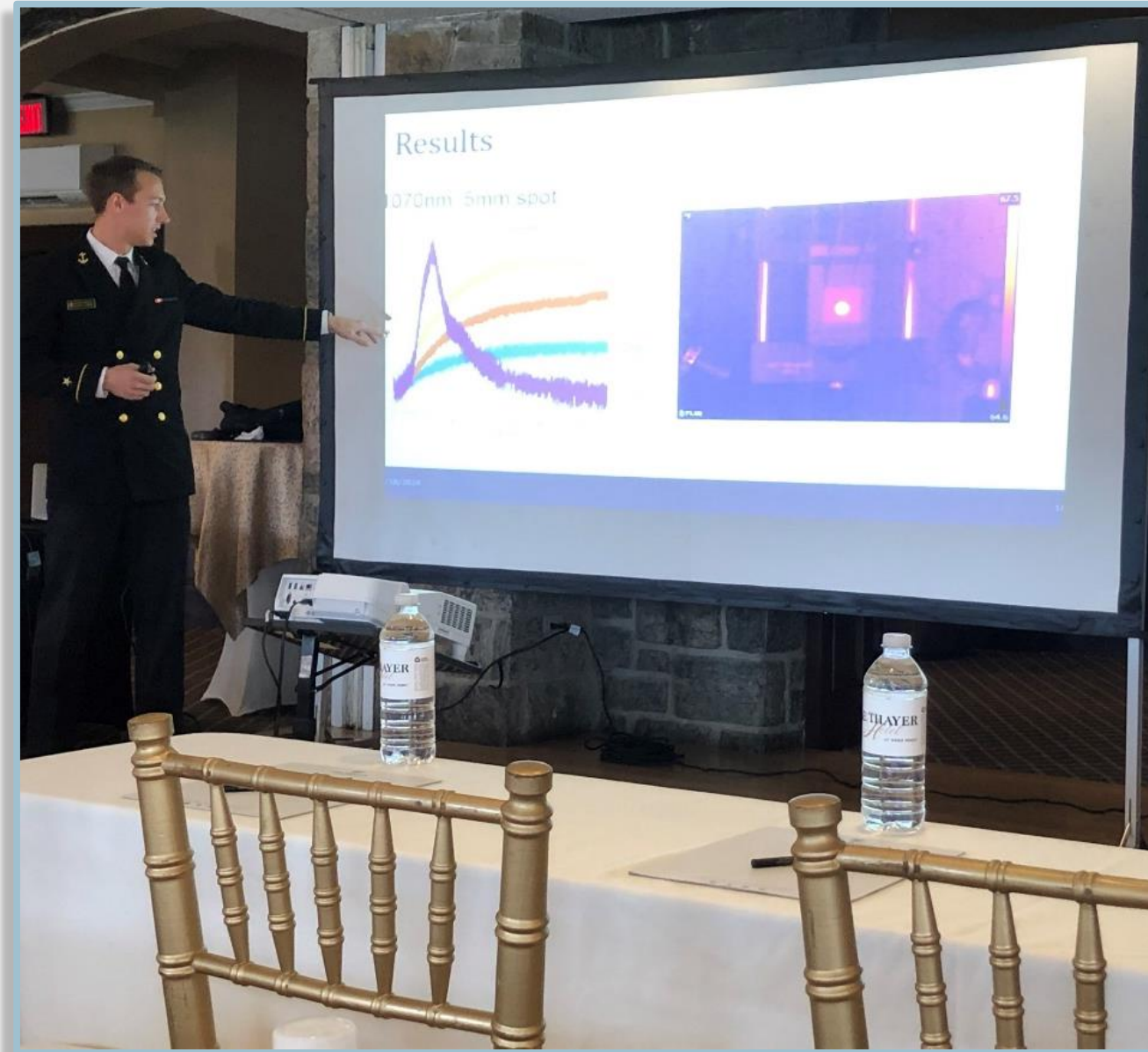
NSWC Crane Employee Finds Renewed Purpose After Civilian Deployment

Samuel Serrano-Vargas, a Navy civilian and NSWC Crane engineer, deployed with NSWC Crane's Mobile Technology Repair Complex (MTRC) program.

Six years ago, Serrano-Vargas applied to NSWC Crane's Student Pathways program while studying mechanical engineering at the University of Puerto Rico. For two summers, he travelled back and forth to perform his duties at Crane before becoming a full-time employee in 2016. Not long after he started, a coworker suggested he look into the MTRC program in the future.

Partway into his six-month deployment, Serrano-Vargas was making a detachable ammunition bag for a warfighter's MK-48 machine gun. The attachment cuts the reloading time into less than half.

"The next day, the guy I made the modification for came back in," said Serrano-Vargas. "His eyes were red, I could see bruises, and he was still in the same clothes as the day before. He walked right up to me and said, 'What you did saved my life last night.' I had goosebumps all over."



A United States Naval Academy (USNA) graduate leveraged a NSWC Crane internship to conduct specialized laser detection research for the Navy.

Ensign Joseph Merkel recently graduated from USNA in May 2020. His research, called "High Energy Laser Detection Through Thermoelectric Generators", took place at Crane during his summer internship in 2019 and continued at USNA throughout the 2019-2020 academic year.



Recent USNA Graduate Uses NSWC Crane Internship To Conduct Unique High-Energy Laser Detection Research



NSWC Crane Electro-Optics Experts Leverage 10 Years Of R&D To Provide Innovative Solutions To The Warfighter

NSWC Crane Electro-Optics experts have leveraged 10 years of research and development (R&D) to provide innovative solutions to the warfighter. The electro-optic scientists and engineers have been using Navy Innovative Science and Engineering (NISE) funding to get the best technology in the hands of service members at the speed of relevance.



NSWC Crane Employee Executes Mission-Critical Role As T&E Engineer

As a Test and Evaluation (T&E) engineer, Marisa Bean plays an important role in a defense system's development and acquisition by reducing or managing the risks involved in a complete lifecycle, from defining a system to fielding and supporting it. She said her role is to help the program office determine if a system or program meets its requirements by providing the correct information collected from test events.



As the Deputy for Small Business, Matt Burkett is an advocate for small businesses at NSWC Crane. He also works with Small Businesses so they can better understand how the government works.

"It's in our best interest, and the warfighter's best interest, to work with diverse businesses innovating across technology areas. Effectively working with them increases our technical capability and provides the warfighter with the best tools."



**NSWC Crane Deputy For Small Business
Connects Innovators With Navy Technology
Needs**



NSWC Crane Lead Works To Expand Employees With Disabilities Special Emphasis Program Group

Amanda Hughes, a graduate of Indiana University, said she's able to implement being a helper in her work in various ways. As a contract specialist, she works to fund requirements for NSWC Crane's technical mission areas of Expeditionary Warfare, Electronic Warfare, and Strategic Missions.

"I try to make life a little easier for people on the technical side," said Hughes. "There's a lot of red tape, and I want to lighten that load by being responsive and helping where I can."

She hopes to mirror those efforts as co-lead of NSWC Crane's Special Emphasis Program (SEP) for Employees with Disabilities. After two years working in contracts, Hughes said she wants to expand her circle and give back with her time.

"Growing up, I struggled with some learning disabilities in school," said Hughes. "I saw a lot of what worked – and didn't work – for myself and others. One of the things that always stuck out was having a good advocate on your team. If I can be that advocate for even one person who needs help at Crane, I'll know I've done something worthwhile."



NSWC Crane hosts nearly one thousand job seekers in first-ever virtual career fair

Nearly one thousand participants from across the country attended NSWC Crane's first-ever virtual career fair on October 22. NSWC Crane was seeking qualified applicants in business and technical positions and the public was welcome to participate.

The annual career fair started in 2018 and took place virtually in 2020 to ensure public safety.



NSWC Crane employee recognized as 2020 safety "Rising Star"

NSWC Crane safety professional Ryan Wood was one of 32 personnel worldwide to receive the 2020 Rising Star Award.

Wood integrated into the small arms facility for six months to update standard operating procedure, and facilitate safety training, incident prevention, and building repairs. The efforts led to an 150 percent increase in near-miss reports, allowing the division to better identify hazard sources.



NSWC Crane, in partnership with the Office of Naval Research (ONR), offered a total of \$750,000 for concept and technology development for methods of mitigating inherent hazards with transporting small quantities of lithium batteries. The challenge was a first for NSWC Crane.

“The Department of Defense needs a safe and easy way to carry medium-sized lithium batteries aboard ships, along with other potential defense and commercial applications,” said NSWC Crane engineer Sam Stuart, a lead on the project. “This challenge will bring bright ideas and new innovations to solve this lithium battery problem for our warfighters – and maybe for us civilian travelers, as well!”

NSWC Crane, ONR Offered Cash Prize For Mitigating Hazards Of Transporting Lithium Batteries In First-Ever Prize Challenge





NSWC Crane's Midwest Tech Bridge And Indiana Innovation Institute Announced Agreement To Accelerate Technology To The Warfighter

NSWC Crane NavalX Midwest Tech Bridge has awarded its first Collaborative Project Order to the Indiana Innovation Institute (IN3) to foster collaboration among universities, industry, small businesses and non-profits to accelerate technology to the warfighter in areas including trusted microelectronics, hypersonics, and electro-optics.

In 2019, NSWC Crane was chosen as one of six Tech Bridge sites in the nation to improve collaboration and agility throughout the U.S. Department of the Navy.

In addition to the Navy, the agreement is aimed at benefiting a number of initiatives and organizations across the state and particularly in the Indiana Uplands region. A signing ceremony was held at the WestGate@Crane Technology Park and was attended by Commanding Officer of NSWC Crane Captain Mark Oesterreich, Dr. Brett Seidle, technical director, NSWC Crane, Monica Hutchins, regional director of Midwest Tech Bridge, Stephen Kelly, president and CEO of IN3, and other representatives of both organizations.



Investments In NSWC Crane's Innovation Ecosystem Led To Midwest Tech Bridge

NSWC Crane intentionally created an Innovation Ecosystem through collaborative partnerships that accelerate the development and transition of technology to warfighters. That ecosystem is comprised of well over 200 different organizations.

These partnerships with academia, industry, public-private entities and entrepreneurs have not only resulted in delivery of innovative technology to warfighters, but have also significantly impacted the regional economy.



NAVALX MIDWEST TECH BRIDGE TECH DEMONSTRATION
TUESDAY, MARCH 31, 2020

NavalX Midwest Tech Bridge, IN3 Host Inaugural Technology Demonstration Featuring Indiana Companies

The NavalX Midwest Tech Bridge and Indiana Innovation (IN3) hosted their first technology demonstration featuring companies across the Hoosier state. The Tech Demo took place virtually and exhibited innovative technology to NSWC Crane and U.S. Navy representatives on March 31.



NSWC Crane Hosts National Institute For Undersea Vehicle Technology To Conduct Innovation Ecosystem Collaboration

NSWC Crane hosted the National Institute for Undersea Vehicle Technology (NIUVT) to conduct innovation ecosystem collaboration in early 2020. Several ecosystem partners attended, including representatives from the Office of Navy Research (ONR), other Navy laboratories, NavalX Tech Bridges, research institutes, and multiple academic entities in a three-day collaborative event in February.



NavalX Midwest Tech Bridge And Indiana Innovation Institute Bolster Regional Growth With Series Of Virtual Events

The NavalX Midwest Tech Bridge, which is based out of NSWC Crane, and Indiana Innovation Institute (IN3) conducted the first of many small business events on May 20.

Nearly 140 individuals from across the Midwest registered to participate in the event. The long-term objective of these engagements is to bring the small business events and candid discussions to communities across the Midwest. In the COVID-19 environment, the team elected to use Microsoft teams to host the event.

OPEN FOR BUSINESS



NSWC Crane Employees Provide Critical Maritime Electronic Warfare Expertise Throughout Months Of Public Health Restrictions

NSWC Crane employees continue to provide critical Maritime Electromagnetic Warfare (EW) support to ships across the country during healthcare-related restrictions from the COVID-19 global pandemic.

Since 2017, naval warships have undergone the most significant upgrade in EW capabilities in the last three decades. The AN/SLQ-32 EW system, originally introduced in the 1970s, is one of the main pieces of technology used to support this EW mission.





NSWC Crane’s Internal University Stays Open For Business While Employees Work From Home

NSWC Crane’s internal university, Crane Division University (CDU), remains fully operational while most of the workforce it serves is teleworking. NSWC Crane initiated a corporate university concept in 2015 that would focus on Crane specific training needs for the workforce and stood up CDU as part of the Workforce Development team. CDU provides relevant, tailored training to its employees, ensuring the workforce stays up to date on training requirements and continues professional development.



NSWC Crane employees provide rapid response to ensure special operators worldwide received personal protective gear during pandemic

NSWC Crane employees in the Mobile Technology and Repair Complex (MTRC) program used their unique skillset to provide Special Operations Forces (SOF) personal protective gear (PPG) during the COVID-19 pandemic.

When the COVID-19 pandemic spread throughout the world, demand was high for PPG. MTRC personnel made thousands of masks for civilians at Crane and Crane Army Ammunition Activity (CAAA) as well as to military members and the SOF community in Afghanistan, Africa, and Europe.



NSWC Crane Employees Volunteer To 3D Print Hundreds Of Ear Guards For Healthcare Workers

NSWC Crane employees are 3D printing hundreds of ear guards to donate to healthcare workers in need. These employees are volunteering to use their own 3D printing machines and supplies to alleviate the pain medical professionals are currently experiencing while wearing masks for extended periods of time.



NSWC Crane Employees Rally To Support The Red Cross During Severe, Statewide Blood Shortage

NSWC Crane employees respond to support the American Red Cross during a severe, statewide blood shortage March 18 and 19.

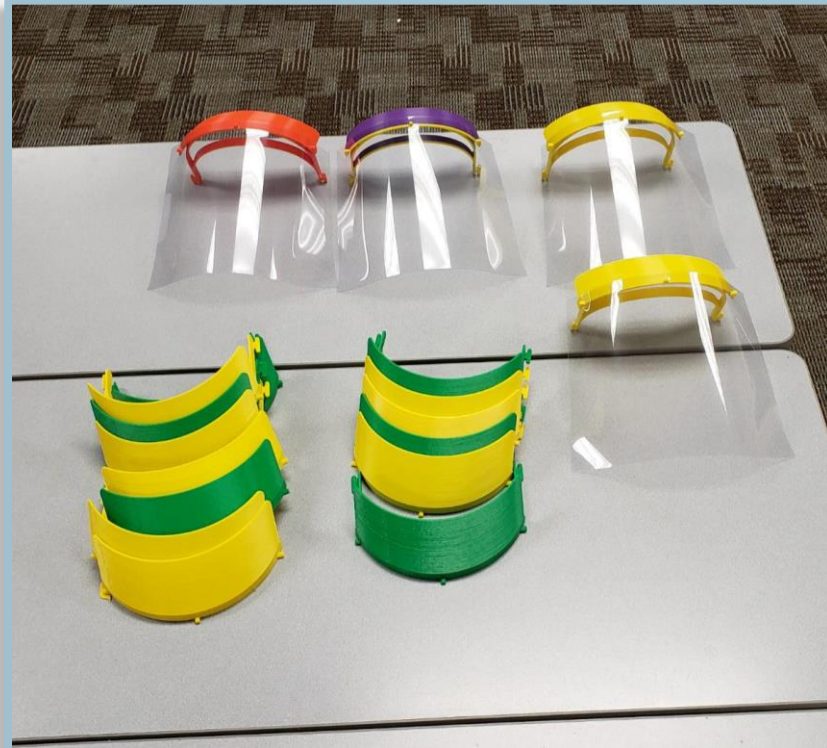
Due to public health concerns surrounding the COVID-19 global pandemic, many blood drives at schools and local businesses have closed. Lance White, an Account Representative with the American Red Cross, says the donations from NSWC Crane employees are critical to helping save patient lives across the country.



NSWC Crane Provides Thermal Imaging Solution To Area Hospital During Coronavirus Pandemic

NSWC Crane provided its sensor agnostic thermal imaging system to Greene County General Hospital (GCGH) to screen incoming staff and patients for fever, a symptom of COVID-19. NSWC Crane licensed the technology to GCGH and loaned and set up the necessary equipment for a trial run at GCGH as part of a new Cooperative Research and Development Agreement (CRADA).





NSWC Crane STEM Program Provides Virtual Programming To Students Learning Remotely, Uses CRADA To Help Community

NSWC Crane Science, Technology, Engineering, and Math (STEM) Program has responded to community needs during the COVID-19 pandemic and the stay-at-home order. The STEM Program has taken their programming virtually to continue to provide educational opportunities for students and has also leveraged a Cooperative Research and Development Agreement (CRADA) to 3-D print face shields for health-care facilities.



NSWC Crane Youth STEM Program Awarded For Innovative Education Initiatives

NSWC Crane K-12 Science, Technology, Engineering, and Math (STEM) program was honored with a regional innovation award on October 13, 2020.

Regional Opportunity Initiatives (ROI) announced its 2020 winners of the third annual Indiana Uplands Regional Innovation Awards, which recognize people, organizations, and projects that have made “meaningful improvements to education, workforce, economic development, and quality of place within the eleven counties of the Uplands region.”



NSWC Crane engineers teamed up with the Science, Technology, Engineering and Math (STEM) program to create a video made for young students to learn from home. The video follows Materials Engineers Olivia Clancy and John Holaday as they heat and cool various materials.

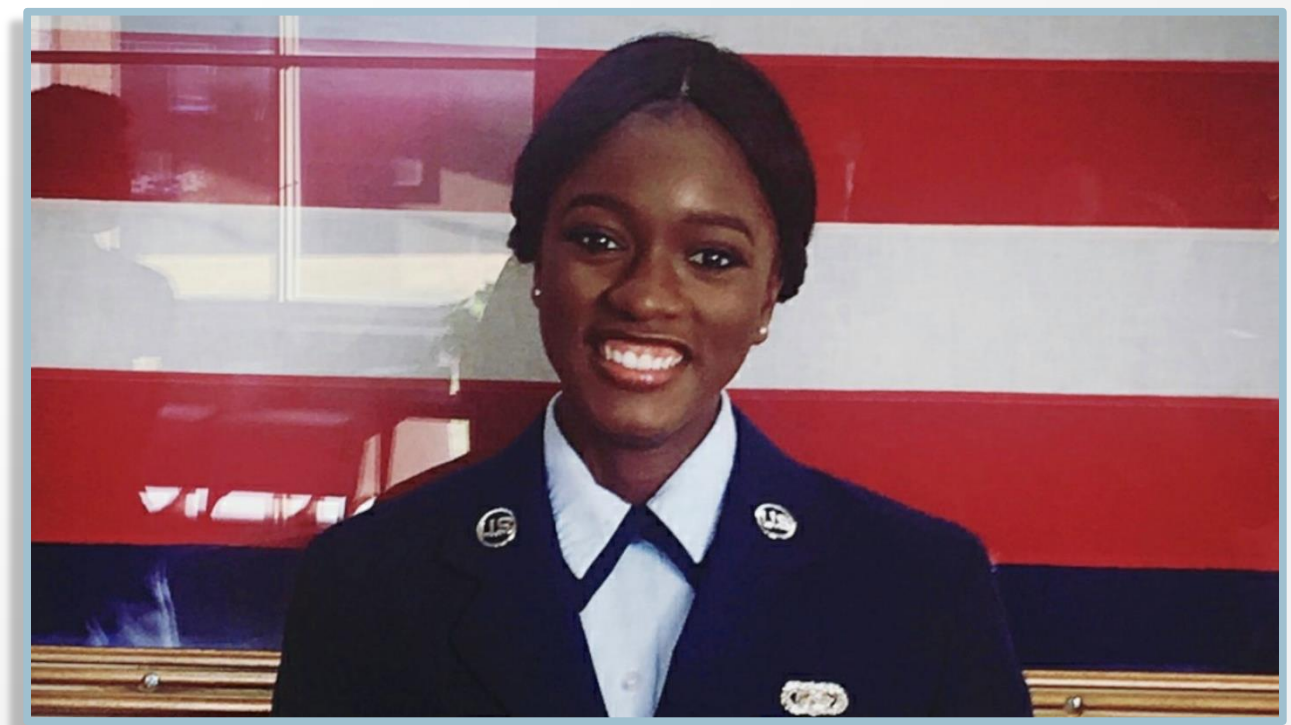


NSWC Crane Engineers Provide Virtual STEM Programming For Students



Cherelle Hines, a Simplified Acquisition Specialist at NSWC Crane also serves as the Special Emphasis Program Lead - African American Group.

“I believe my story here at Crane is a success story, and I want to share my experience and help make others a success story, especially from those from diverse backgrounds and in the African American community,” said Hines. “I want to share what I know and the experience that I've had and that I've learned so that their transition can be just as seamless as mine.”



NSWC Crane Special Emphasis Program Lead Shares Passion For Service



NSWC Crane Branch Manager Shares Path To Success

In celebration of Black History Month, NSWC Crane Branch Manager Jezz Anuonyeh reflected upon his path to success at NSWC Crane and shared what mentoring has meant to him.

"I solely believe that we can't have diversity without inclusion," said Anuonyeh. "No matter what it is that we're doing - if it's just regular everyday work, or even just asking somebody about their day and how they're doing. It's a part of everyday life and I think the more we practice in understanding how we work through our biases, if we're more inclusive, diversity just comes right into it."





Monica Queen serves as the Deputy Director for NSWC Crane's Equal Employment Opportunity and Diversity and Inclusion Office. Queen's story was shared in celebration of Women's History Month.

"One of the biggest skills that I would like to accomplish is to change a culture," said Queen. "We're at the footing of some great things. It's so important to me because I want to ensure that all the employees are able to come to work every day and do their job to their fullest capacity. With inclusion, we'll have a better work environment which will produce a better product for the warfighter."



NSWC Crane Leader Perseveres To Establish Fulfilling Career



NSWC Crane Spectrum Deputy Department Director Erika White discussed the importance of having diverse minds solving problems and shared ideas for the future of Electronic Warfare.

“I'm really passionate about having more women get into STEM programs. I really think that women bring a unique perspective to engineering, and I do believe that diversity in the discipline will give us much better results,” said White. “Especially for the problems we have here Crane. They're very challenging, often times they're problems no one else can solve. I think having those different perspectives, different mindsets, different people approaching the problem in different ways is part of the way that we're able to do that.”



NSWC Crane Leader Shares Future Vision For Electronic Warfare



NSWC Crane, IU's La Casa Partner To Provide Programming For Hispanic And Latinx Heritage Month

NSWC Crane and Indiana University's (IU) La Casa/Latino Cultural Center collaborated for an Oct. 7 panel event. Four Hispanic and/or Latinx Crane professionals spoke and answered questions on a panel hosted by La Casa. La Casa provides programming, support, and opportunities for Latino students at IU.



NSWC Crane Pride Alliance Lead Motivated To Educate Workforce Through Personal Experiences

NSWC Crane Electronic Security System Program Manager Cody Baker started at Crane 10 years ago. He worked in security, where his passion for protecting Crane information and systems was born.

"I became sort of obsessed with how we go about security," said Baker, who also acts as a co-lead for the NSWC Crane Pride Alliance. "I'm not a scientist or engineer, but I had found my own way to support Crane."



NSWC Crane Engineer Uses STEM Skillset To Have Fulfilling Career

“I’ve always liked science and math. After researching fields in college, I was driven to engineering and I matched perfectly. I wanted to have a career where I could help people.”

Andrea Rodriguez, a Systems Engineer at NSWC Crane, didn’t know about Crane while attending college at the University of Illinois at Urbana Champaign. The Chicago native is a first generation college student and was interested in having a fulfilling career.

Rodriguez has supported Maritime Electronic Warfare from both engineering and project management roles.

“We are the in-service engineering agent for Electronic Warfare Systems. We install the systems for the fleet on Navy ships and sustain them for 30 years. We ensure they are operational and sustained throughout their lifecycle. As an engineer, we are always improving our systems. We execute design changes and only focus on the technical performance of the system. Sometimes we have something great in mind, but it may not be feasible. Rarely do we ever stop to think about the programmatic impacts to the schedule and cost. Having the experience of understanding the business side makes you a better engineer because you see what will work for the customer.”

CRANE LEADERSHIP



Captain Duncan McKay is a native of Tampa, Florida. He graduated with a Bachelor of Science in Physics from Florida State University in 1996, and was commissioned an Ensign in September 1996 after completion of Officer Candidate School. He was assigned to the fast attack submarine USS ALEXANDRIA (SSN 757) stationed in Groton, Connecticut in February 1998. His tour included deployments to the North Atlantic Ocean, Mediterranean Sea, and Persian Gulf.

In 2001, Captain McKay reported to COMMANDER SUBMARINE SQUADRON ELEVEN (CSS-11) in San Diego, California as the Battlegroup Operations Officer. While assigned to COMSUBRON ELEVEN, Captain McKay was accepted for lateral transfer to the Engineering Duty Officer Program and departed for graduate school in 2003.

In 2006, Captain McKay completed his graduate education at the Massachusetts Institute of Technology, earning a Naval Engineer's Degree and a Master of Science in Mechanical Engineering. He reported to Portsmouth Naval Shipyard in 2006, and worked on various projects and in multiple positions repairing, overhauling, modernizing, and inactivating nuclear-powered submarines. In 2009, Captain McKay reported to the Deputy Commander, Logistics, Maintenance, and Industrial Operations at Naval Sea Systems Command at the Washington Navy Yard. While there, he served as the military deputy for submarine maintenance.

Captain McKay served as Repair Officer on the forward deployed submarine tender USS EMORY S LAND (AS 39) from 2012 to 2013, performing deployed maintenance on US and foreign vessels in the 5th, 6th, and 7th Fleet Areas of Responsibility. In 2013 he reported as Repair Officer to Naval Intermediate Maintenance Facility, Pacific Northwest in Bangor, Washington, overseeing maintenance for seven homeported SSBNs. In 2016, he was assigned as the military deputy for the USS RONALD REAGAN (CVN 76) Selected Restricted Availability in Yokosuka, Japan.

In 2016, Captain McKay reported to Portsmouth Naval Shipyard as the Production Resources Officer (Code 900), and has been serving as the Operations Officer (Code 300) since 2017.

Captain McKay's personal decorations include the Meritorious Service Medal (two gold stars), Navy Commendation Medal (one gold star), Navy Achievement Medal (one gold star), and various unit awards.

Captain McKay is married to the former Alison Forbes of Marblehead, Massachusetts. They reside in York, Maine.

CAPTAIN THOMAS (DUNCAN) MCKAY COMMANDING OFFICER - NSWC CRANE

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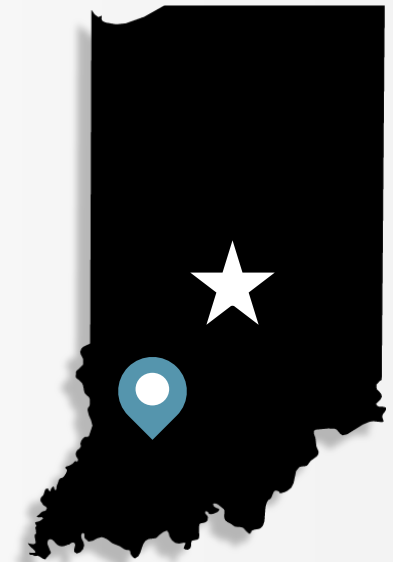
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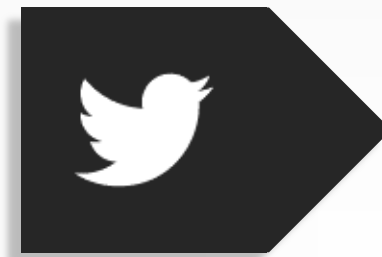
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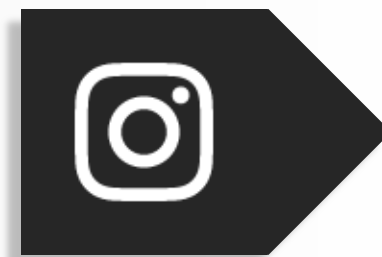
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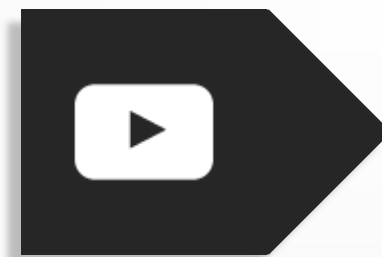
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HARNESSING THE POWER OF TECHNOLOGY FOR THE WARFIGHTER