

# MISSION IMPACT REPORT

Highlights

“Where Science Meets the Art of Warfare”

Summer/Fall ‘25

## BY THE NUMBERS

### EDUCATION: Our Cognitive Foundry

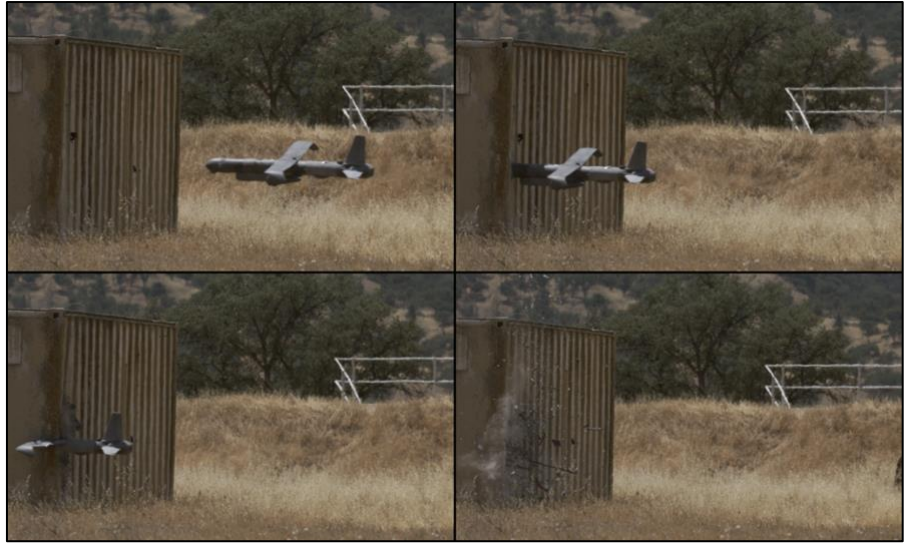
- Student Enrollment (2025): 2,479
  - Masters: 1,867
  - Doctorates: 89
  - Certificate & Non-degree: 523
    - Navy: 1,022
    - USMC: 317
    - Army: 188
    - Air Force: 89
    - USCG: 11
    - Fed Civilians: 646
    - International Allies: 204 (30+ countries)
  - More than 1,100 degrees awarded
  - Faculty Profile (1 Jan 2026):
    - Tenure Track: 160
    - Non-Tenure: 156
    - Edu / Research Support: 99

### RESEARCH: Solving Fleet Problems

- 350+ funded research projects in ‘25
- More than 750 student [Theses](#), [Dissertations](#), and CUI and classified capstone projects completed
- Active partnership agreements: 100+
  - CRADAs: 60+
  - MOA: 16
  - MOU: 13
  - TSA: 6
  - EPA: 7
  - PIA: 2

### INNOVATION: How We Fight

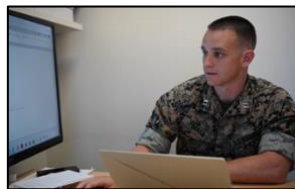
- Held first Reverse Pitch Day to industry for 5 NPS inventors with licensed patents
- 18 new [patents](#) received in ‘25
  - 16 more patent applications submitted
  - 115+ [patents for licensing](#)
- 4 [Joint Interagency Field Experimentations](#)
  - Conducted 70+ experiments in critical technologies with industry / partners
  - Topics: Sustained Ops, Counter-C4ISR, C-UAS, Human-Machine Teaming
  - Next JIFX event:
    - 23-27 Feb, for Rapid Prototyping
- More NPS Mission Impact Reports [here](#)



**SPOTLIGHT:** From [drone development](#) to C-UAS, NPS’ quarterly Joint Field Interagency Experimentation (JIFX) events provide all-domain testing for rapid prototyping of industry technology applications accelerated by student insight, research, and Fleet engagement. An [NPS team’s C-UAS solution](#), refined at the summer JIFX, succeeded at sea in the Bold Machina exercise held in the Netherlands with U.S. and NATO SOF.



**CNO Priorities (Foundry, Fleet, Fight):** LCDR Margaret Graves focused on enhancing the efficiency and effectiveness of shipboard cybersecurity inspections. Her research addressed the arduous manual remediation processes to meet strict **Fleet** guidelines detailed in the Security Technical Implementation Guide (STIG). Graves worked with cybersecurity experts at the Naval Information Warfare Center to validate her novel prototype framework integrating machine learning and predictive risk management to improve shipboard cybersecurity inspections. She received the Fleet Cyber Command Award for Academic Achievement. [Watch video.](#)

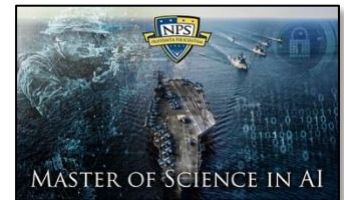


**Commandant Planning Guidance:** Summer quarter Outstanding Marine Student awardee, USMC Capt Connor Ybarra’s classified capstone research project in artificial intelligence (AI) was in direct support of the Marine Corps AI Implementation Strategy; a critical effort that he says NPS is uniquely positioned to support. “As a research institution, NPS faculty and researchers are driven by the opportunity to pursue the hardest questions in the name of science and national security. With access to classified computing resources, NPS can take on complex problems and pursue solutions that advance the knowledge, the capabilities, and the lethality of the services.” [Watch Video.](#)



## EDUCATION – Our Cognitive Foundry

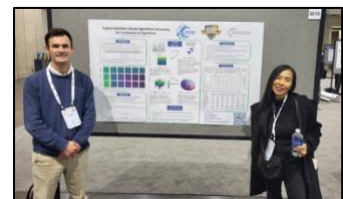
- Graduations:** NPS [Summer](#) and [Fall](#) quarter graduations delivered 528 warrior-scholars back to their operational commands. Vice Chief of Naval Operations, ADM James Kilby, '93 NPS alumnus in IT Management, led the Fall commencement and issued a strong call to action to “attack problems and accelerate change.” **IMPACT:** Students, faculty, and staff all rose to meet many challenges during this period to keep the NPS education, research, and innovation pipelines on track as the cognitive foundry of the Fleet and Joint force.
- AI:** NPS AI Task Force accelerated AI adoption in 2025 through focused efforts in three mission areas: AI education, problem-solving, and technology infrastructure. Building on this momentum, NPS launched a [new, accelerated AI Master’s degree](#) for 2026. **IMPACT:** Graduates will be prepared to lead AI integration within their communities and across the DON / DOW to drive decision advantage, intelligent autonomy, counter-drone targeting, Command and Control (C2), contested logistics, space, and maritime domain sensing.
- Warfare Innovation:** NPS’ annual [Warfare Innovation Continuum](#) kicked-off in September focused on “The Future Fleet,” and brought together participants from across the DON, industry, academia, and allied partners to engage with students and faculty on new CONOPS and how we fight. **IMPACT:** Ten concept generation teams worked this challenge to generate solutions in Layered Defense, Counter-C5ISR, All-Domain C2, Hybrid Force Autonomy Tactics among others. [Read more, including the unclassified report.](#)
- Singapore:** NPS and National University of Singapore deepened their longstanding defense partnership by [launching a new joint master’s degree](#). **IMPACT:** The program emphasizes cross-disciplinary skills in digital systems engineering, emerging technologies, and strategic systems thinking; builds on a history of joint academic cooperation that has produced hundreds of graduates; and reflects mutual goals of strengthening operational and intellectual ties to enhance Indo-Pacific security and innovation.
- USMC AI:** The first [USMC AI Fellowship at NPS](#) will build technical expertise through tailored education, mentorship, hands-on research, and the development of prototype solutions to real operational challenges over a five-month period as part of the service’s 2024 AI Strategy. **IMPACT:** Fellows will split time between home commands and NPS with future iterations planned to potentially include personnel from other services as the program grows talent and AI-literate leaders capable of optimizing AI applications.
- GRGB:** Developed by [NPS’ distance learning team](#), the new Get Real, Get Better (GRGB) training course serves as the Navy’s foundational GRGB module and represents an important next step in accelerating organizational change across the Fleet. **IMPACT:** The project began in early 2025, and after six months of coordinated effort, the course was formally launched in July on Waypoints and Navy eLearning. It is available for as the Navy’s primary orientation to GRGB, supporting all hands in adopting its principles and behaviors.
- STEM:** NPS welcomed nearly [70 Naval STEM interns](#) from high school and colleges to work in labs with faculty and student mentors. The interns researched real-world, relevant defense topics including data mining, drone construction, low-cost rocket design, metallurgy, wind tunnel design and simulation, and military wargames. **IMPACT:** These hands-on internships and projects, including a day aboard the historic *Western Flyer* – John Stienbeck’s restored research vessel, where interns conducted marine science experiments – underscored the conviction of NPS to the Navy’s STEM needs and our local community.





## RESEARCH – Solves Fleet Problems

- Additive Manufacturing:** [During Trident Warrior '25, NPS students, faculty](#), and industry partners delivered advanced manufacturing support directly to Fleet units, demonstrating how on-demand, distributed manufacturing—shipboard and ashore—can be integrated to strengthen Fleet readiness and logistics in contested operational environments. **IMPACT:** More than 180 unique part requests from onsite and from NPS were processed validating rapid turn-around, reverse-engineering, and forward production techniques.
- Quantum:** Cmdr. Jens Berdahl, a former F/A-18 pilot currently pursuing his doctorate through the service’s Permanent Military Professor (PMP) program, was presented with the highly competitive Margaret Burbidge Award for Best Experimental Research by a Graduate Student. **IMPACT:** [Berdahl’s research explores quantum sensing](#) to detect minuscule changes in mass, from afar useful for varied applications, such as tracking a submarine or conducting precision navigation in a GPS-denied environment.
- Golden Dome:** Space Systems Operations graduate [LT Chris Hoskins’ research](#) was recognized with the Surface Navy Association’s Award for Excellence in Surface Warfare for his work in space-based terahertz imaging. The camera is currently in orbit aboard a [CubeSat launched by NPS in 2024](#). **IMPACT:** The research and technique could eventually be part of the system-of-systems necessary for the Golden Dome architecture providing potential targeting information for Aegis platforms at sea.
- Space:** NPS’ unique Mobile CubeSat Command and Control (MC3) ground station network is being utilized to support NASA’s DiskSat technology demonstration mission. The MC3 network is communicating with the four DiskSat vehicles recently launched, allowing the operators at Aerospace Corporation to command and control them. **IMPACT:** [NPS is ideally postured](#) with MC3 to support innovative applications like DiskSat given its low cost, geographically diverse stations, software-defined radios, and federal spectrum allocation.
- Data Science:** [NPS Operations Research](#) professor Ruriko Yoshida was selected to present her fundamental research Neural Information Processing Systems (NeurIPS) conference – only a quarter of the 22,000 papers were accepted. **IMPACT:** Yoshida is leading research in "Neural Algorithmic Reasoning for Combinatorial Algorithms" to enhance performance of AI models. NPS alumnus, U.S. Navy Lt. Kurt Pasque, contributed to this the work and is now the data scientist and AI Lead for Naval Education and Training Command (NETC).
- Oceans:** NPS Oceanography professor [Jamie MacMahan’s and his students’ research](#) was featured on the covers of two American Geophysical Union (AGU) journals, a significant mark of excellence in the scientific community, and their work has direct impact on Naval operations. **IMPACT:** The research informs ocean models, where decision makers rely on accurate and timely oceanographic and atmospheric predictions to ensure the safety and success of these missions.
- Cyber:** NPS and the Strategic Capabilities Office (SCO) [signed a Memorandum of Agreement](#) to extend ongoing collaborations. The NPS-SCO partnership supports rapid development / demonstration of new capabilities to include evaluating emerging technologies for investment toward prototyping and experimentation. **IMPACT:** The scope of activities includes faculty and student research, warfare innovation workshops, technical red teaming, prototyping, and NPS experimentation analyses – all enhances the development NPS students to deeply understand the technologies driving change across DOW.





## INNOVATION – How We Fight

- Wargaming:** NPS completed the Mid-Panning Conference for the [NWPAC Title X Wargame](#) in December alongside counterparts from Japan’s Maritime Staff Office, Self-Defense Fleet, Western Army, Maritime Command and Staff College, PACFLT and C7F. **IMPACT:** To be held in Kanagawa, Japan, in the Feb/Mar ’26 timeframe, the event strengthens bilateral maritime operational effectiveness, and NPS student involvement integrates graduate education and research in support of real-world operational planning and decision making.
- DARPA:** NPS faculty associate for research Alexis Thoeny in Mechanical and Aerospace Engineering department, [participated in a highly competitive, three-month embed](#) with the Defense Advanced Research Projects Agency through its Service Chiefs Fellowship program. **IMPACT:** Thoeny conducts research on rotating detonation engines for use in hypersonics and returned to campus with fresh ideas, collaborations, and a sharper focus on accelerating innovation across NPS and the U.S. Navy.
- C-UAS:** An NPS student team rapidly [developed an innovative passive C-UAS system](#) that completed its first at-sea field tests during NATO’s Bold Machina (BOMA) maritime exercise in the Netherlands. **IMPACT:** Designed to protect SOF craft from small, hard-to-detect unmanned aerial systems, the prototype uses artificial intelligence to fuse multiple independent sensor inputs (acoustic, radio frequency, electro-optical/infrared, and radar) into a unified detection picture without emitting detectable signatures.
- NVIDIA GB300:** [Granted by NVIDIA to enrich AI education](#) and skills for students and faculty using AI for applications and research at NPS, an NVIDIA DGX GB300 supercomputer and Mission Control software, will soon be operational. **IMPACT:** The first in all DOW, the GB300 supercomputer platform is exponentially more powerful for AI workloads and inference than past systems, and will supercharge NPS AI education and research on complex defense problems, modeling, and tools for decision advantage.
- 3D Printing:** Associate Professor of Physics Emil Kartalov received a patent that could have a significant impact on advanced 3D printing technology. Entitled “[T-Channel Microfluidic Devices and 3D Printing Methods](#),” the patent is Kartalov’s sixth during his time at NPS and 37th overall. **IMPACT:** The idea enables conductive liquid wiring of complex networks of microfluidic channels inside 3D printed devices with applications ranging from artificial muscles to biofuel cells, UUV recharging stations, sensors, and more.
- Reverse Pitch:** Five NPS inventors, two alumni and three faculty, showcased their patented, licensable technologies to industry, investors, and entrepreneurs with the goal of finding partners to accelerate their ideas and prototypes into production. **IMPACT:** The five technologies are grounded in operational needs, tested in demanding environments, and built for dual-use applications, with the [Detachable Drone Hijacker and Jammer](#) showing the most promise for industry commitment.
- Applied AI:** The NPS [Digital Trident AI Challenge](#) will accelerate the development of artificial intelligence solutions for pressing national defense problems, supporting seven interdisciplinary faculty-student teams tackling issues ranging from passive detection of unmanned systems and enhanced command and control, to extended UAV endurance and space-based sensing. **IMPACT:** The challenge aims to increase mission impact through applied AI experimentation and shorten the timeline from concept to capability.

