NPS is…

• A graduate university specializing in master's and doctoral degrees
• Dedicated to quality, high-level education tailored to defense professionals
• Focused on defense- and national security-relevant research in support of advanced education
• A one-of-a-kind, defense-focused environment with an academic approach rivaling any university in the nation
• Responsive, relevant, forward-thinking

“NPS is a national and international treasure. With its rigorous curriculum, talented faculty and diverse student body, the school rightly boasts an illustrious past – but I am convinced its future burns even brighter.”

~ Adm. Mike Mullen, NPS ’85
Chairman, Joint Chiefs of Staff
World-Class Leaders in Graduate Education and Research

The NPS faculty, some 500 strong, are world-recognized leaders in their respective fields, creating a cumulus level of expertise rivaling that of any university in the nation. Faculty at NPS are:

- Mostly civilian, many with prior military experience
- Also active duty military
- Widely acknowledged by peers as experts in their fields
- White House appointees and Assistant Secretaries of Defense
- Regular advisors to top DoD and government officials on national defense issues
- Members of the National Academy of Engineering
- Mentors to current and future military leaders across the globe

A cross-section of leading experts in their fields mentor the leaders of today and tomorrow.
A Diverse, Dedicated and Mature Student Population

- 1,586 students pursuing graduate degrees on the Monterey campus.
- 719 students pursuing graduate degrees through various distributed education modalities.
- A graduation rate of 91.3% and average time to degree of 20 months.
- Mature, experienced, career-driven students.

These are experienced officers from all services and international partners, and DoD civilians, all focused on their education at a school that embraces change and anticipates tomorrow.

Dr. Fran Horvath, Director of Institutional Planning and Communications, 831-656-1068, pao@nps.edu
Mr. Alan Richmond, Director of Marketing and Community Relations, 831-656-3649
Creating a World Without Borders

• Three tiered approach to international engagement
• Mobile Education Teams worldwide (3,000-5,000 students annually)
• Resident certificate and non-degree programs in Monterey (600-1,000 students annually)
• Resident degree students – mainstreamed with U.S. counterparts (currently 222 officers from 44 countries enrolled)
• 5,000 international master’s degree graduates from 100 countries since 1954; many have gone on to achieve flag and general officer rank and assumed positions of prominence in military, government, and industry worldwide
• NPS is the only designated NATO Partnership for Peace Education and Training Center in the U.S.

NPS provides an unwavering commitment to global education, understanding and partnership.

Col. Gary Roser (USMC, Ret.), Assistant Dean of SIGS for International Affairs, 831-656-3062, groser@nps.edu
Attracting Our Nation’s Best Scholars to Improve National Security

The Naval Postgraduate School has aggressively expanded to include members of all branches of the Armed Forces, as well students from countless allied countries across the world. The university is now placing that same emphasis on the nation’s top college students, employees and contractors of the Department of Defense, as well as non-government affiliated civilians.

Several nationwide scholarship programs encourage the country’s brightest students to choose a career path in national security. Scholarship for Service programs, such as the Federal Cyber Service Scholarship (CyberCorps), the National Security Institute Scholars Program, and the Science, Mathematics and Research for Transformation (SMART) program, offer compelling and competitive benefits for students in defense-relevant educational fields. There are also expanding opportunities for graduate research assistants to assist faculty in cutting-edge research while studying for advanced degrees.

The civilian component of the Department of Defense needs new, youthful leadership dedicated to the future of national security. The Naval Postgraduate School is answering that call.
Serve Proudly,  
Walk with Distinction

NPS Alumni Online Community Benefits
Your interactive Web site, providing you with a range of services available only to NPS alumni:

- **Classmate Search**
  Searchable alumni directory to help you keep in touch with your old friends and classmates

- **Message Boards and Class Notes**
  Create and/or join interest groups and discussions

- **Careers Network**
  Contact other alumni for advice on your career, interview tips or information about a particular profession or branch of service

- **Alumni Profile**
  Update your details, share your profile photo and class notes, and indicate your mailing preferences, ensuring that you receive our latest publications and your friends can contact you

- **Events and Reunions**
  Invitations to lectures, seminars, exhibitions, social events and reunions at NPS

- **Alumni Worldwide**
  Access to a global community of NPS Alumni contacts and networks worldwide

- **Alumni Newsletters and Bulletins**
  Keeping you in touch with NPS news and events

With over 60,000 alumni, join the growing NPS Alumni Online Community – www.nps.edu/alumni

Naval Postgraduate School
Providing the Tools for Advanced Education and Research

From unmanned systems to high-energy physics, countless unique research laboratories across campus and beyond provide one-of-a-kind facilities for graduate-level research with defense relevance. Many of these exclusive facilities are equipped with the kind of security required to carry out classified level research and development, a capability NPS has that few university's can claim.

The Dudley Knox Library, awarded the Federal Library of the Year award, provides extensive materials for advanced education. Countless academic and defense-related journals, connections to the world’s largest university research databases, and the nation’s largest homeland security digital library provide all the tools needed for educational success.

A rigorous, defense-relevant education requires unique facilities and advanced technologies. NPS is committed to providing these assets to support its faculty and students.

Eleanor Uhlinger, University Librarian, Dudley Knox Library, 831-656-2947, www.nps.edu/Library/
A recent network upgrade provides NPS researchers an ultra-high speed network capable of moving 10 GBPS. This allows NPS researchers to move a petabyte of data in under 20 minutes. By comparison, to move a petabyte over the Internet would take 500 years.

As a member of the Corporation for Education Network Initiatives in California, NPS is connected with other major universities in California and to the rest of the world over a 10GB/S three-tiered network. The production, high performance, and experimental networks allow NPS researchers to collaborate with colleagues around the world over the fastest networks available.

The Hamming Super Computer consists of 1,142 cores giving NPS researchers 10.7 teraflops of processing power. This is one of the TOP 1,000 most powerful computers in the world. NPS also has a visualization facility capable of rendering models in 4K, which has a resolution 4X greater than high definition.

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By implementing the Sakai CLE learning management system, NPS leverages the flexibility of an open source solution allowing faculty to utilize Web 2.0 tools providing a best of breed learning environment, while affording NPS substantial cost savings over commercial alternatives.

As a member of the Kuali Financial open source Community and a founding member of the Kuali Student Community, NPS has ensured its administrative systems are flexible enough to evolve with NPS and result in huge cost savings over expensive commercial alternatives.

NPS has teamed with foreign area officers to develop a continuing education and social networking portal built in open source technologies. NPS helped establish the Naval Higher Ed IT Consortium, the Monterey Bay DoDNET, and the Research Consortium of the Monterey Crescent. NPS hosts courses for the Navy Fleet Family Readiness Center and the Monterey Institute of International Studies.

NPS leverages the flexibility of an open source solution allowing faculty to utilize Web 2.0 tools providing a best of breed learning environment.
Green IT

A director of green IT was appointed to oversee environmentally friendly activities. New technologies like data center Cold Corridors and document imaging technologies to reduce paper usage have been implemented. Additionally, emerging technologies like Virtual Desktop Infrastructure and Smart Power Strips are being investigated.

The heart of the NPS green IT initiative is the virtualization of its data center. NPS was able to convert 97 servers to nine physical nodes via virtualization. This is projected to save 246,462 KW/h per year, or the equivalent of planting 760 trees or permanently removing 67 cars from the road.

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Encouraging the Pursuit of Educational Excellence at NPS

The NPS Foundation is a non profit 501 (c) (3) organization whose primary mission is to support NPS. Similar to other educational institutions, private support is vital to achieve standards above the sustaining level of public support. Private donations help to enhance the educational experience at NPS to the level of the country’s best institutions of higher learning. The NPS Foundation is currently working on establishing a multi-million dollar endowment to further support NPS.

Through donations received from private donors we’re able to support:
  • Academic awards
  • Faculty recruitment and retention
  • Upgrades to facilities and equipment
  • Sponsor guest lecturers
  • NPS visibility and community involvement
  • Historic preservation, museum displays and recreational opportunities

Visit us online at www.npsfoundation.org

Through the NPS Foundation, friends of the university provide invaluable support for the effective execution of its academic mission.

NPS Foundation Executive Director, Rear Adm. Merrill Ruck, USN (ret.), 831-656-2339, info@npsfoundation.org
The Naval Postgraduate School offers nearly 60 master’s and doctoral degrees through its four distinct and independent Schools.

Graduate School of Business and Public Policy (GSBPP)
GSBPP offers MBA and similar degrees like no other university can, with a unique defense focus. Faculty research brings relevant and real issues to the university's students, creating real solutions to real life problems.

Degrees Offered
Executive Master of Business Administration
Master of Business Administration
Master of Science in Contract Management
Master of Science in Program Management

Graduate School of Engineering and Applied Sciences (GSEAS)
GSEAS continues in the extraordinary legacy that NPS was founded upon, excellence in the engineering and applied science disciplines, laying the foundation for tomorrow’s leaders and decision-makers to effectively create tomorrow’s Department of Defense.

Degrees Offered
Master of Science in Applied Mathematics
Master of Science in Electrical and Computer Engineering
Master of Science in Engineering Acoustics
Master of Science in Mechanical and Astronautical Engineering
Master of Science in Meteorology
Master of Science in Oceanography
Master of Science in Physics
Master of Science in Space Systems Operations
Master of Science in Systems Engineering
Doctor of Philosophy in Applied Mathematics
Doctor of Philosophy in Electrical Engineering
Doctor of Philosophy in Physical Oceanography
Doctor of Philosophy in Physics

Graduate School of Operational and Information Sciences (GSOIS)
GSOIS responds to the demanding and rapidly changing requirements in information operations, cybersecurity and special operations through its 16 unique degree programs.

Degrees Offered
Master of Science in Computing Technology
Master of Science in Computer Science
Master of Science in Software Engineering
Master of Science in Modeling, Virtual Environments and Simulation
Master of Science in Joint Information Operations
Master of Science in Special Operations
Master of Science in Information Systems and Operations
Master of Science in Information Warfare
Master of Science in Electronic Warfare
Master of Science in Joint Command, Control, Communications, Computers and Intelligence
Master of Science in Operations Analysis
Master of Science in Joint Operations Logistics
Master of Science in Human Systems Integration
Doctor of Philosophy in Computer Science
Doctor of Philosophy in Information Sciences

School of International Graduate Studies (SIGS)
SIGS extends the fiber of the Naval Postgraduate School’s influence by applying a global perspective to specialized national security studies and highly-detailed regional programs.

Degrees Offered
Master of Arts in Regional Security Studies
(4 Regional Specializations)
Master of Arts in Security Studies
(5 Unique Specializations)
Doctor of Philosophy in Security Studies

Agile, relevant, diverse – NPS is unsurpassed in graduate education and research.
The Naval Postgraduate School and Defense Security Cooperation Agency formed the Center for Civil–Military Relations (CCMR) to build partner capacity and improve interagency and international coordination and cooperation by addressing the civil–military challenges of combating terrorism, defense transformation, institution building, stability, security, transition, and reconstruction operations among others.

CCMR’s Vision:

• Provide high quality, graduate-level educational experience, custom-designed and built to meet the specific objectives and conditions of a recipient country
• Teach multiple, U.S. and international best-practice approaches to achieving the educational objectives of each program
• Use world-class civil military faculty teams with international expertise that bring both academic and practical backgrounds to each program.

CCMR’s ability to integrate civil–military research and education provides us with an unparalleled capability to develop new customized programs to meet emerging sponsor requirements, and remain at the cutting edge of defense and security best practices and lessons learned.

Mr Richard Hoffman, Director, 831-656-3171, www.ccmr.org
The Nation’s Premier Homeland Security Educator

Master’s Degree Program
- Fully accredited 18-month homeland security master’s program brings local, state and federal leaders together in a unique learning environment

Executive Leaders Program (ELP)
- Participating executives acquire a deeper understanding of current and emerging homeland security issues and threats

Executive Education Seminars (EES)
- Half-day senior level executive seminars delivered at the executives’ jurisdictions, these provide a non-attributive educational forum to discuss and debate homeland security issues

University and Agency Partnership Initiative (UAPI)
- CHDS shares its curriculum, learning technologies, Homeland Security Digital Library and other resources with partnership members at no cost

Homeland Security Digital Library (HSDL)
- Nation’s premier online collection of homeland security policy and strategy information

Homeland Security Online Courses
- Non-credit, no cost online versions of CHDS Master’s level courses

Center for Homeland Defense and Security educates current and future homeland security leaders to plan for, prevent, respond to and recover from catastrophic and terrorist events.

Mr. Glen Woodbury, Director, Center for Homeland Defense and Security, 831-656-3038, www.chds.us
The Center for Stabilization and Reconstruction Studies conducts short courses for mixed groups of the practitioners of humanitarian, peace and stability operations, and relief and development activities. Military participants learn alongside an equal number of other first-responders from NGOs, inter-governmental organizations and government civilian agencies.

These diverse actors have different purposes, motivations, organizational structures and methods of operation. Such differences make it extremely difficult for them to work effectively in the same space to strengthen the institutions of local government, provide for the basic needs of at-risk populations, and develop the elements of civil society necessary to keep governments responsive to their people.

CSRS develops partnerships through education.
Joint Foreign Area Officer Program

DoD Foreign Area Officers (FAO) are a vital link in Department of Defense efforts to promote United States goals for stability, community and growth in a challenging global environment. FAO regional, cultural, and language expertise supports our nation across the full spectrum of defense missions. FAOs must be able to anticipate and manage emerging crises, support operational commanders, and help guide United States policy implementation. To sustain professional development and enhance the skills of seasoned FAOs, the Defense Language Office is partnered with the Naval Postgraduate School to create the Joint Foreign Area Officer Skills Sustainment Pilot Program.

This advanced education program includes in-resident instruction at NPS and the Defense Language Institute in conjunction with a wide range of distance learning courses. The online home of the Joint FAO Community is FAOWEB, a dynamic online portal delivering continued education and providing a virtual community environment to network FAOs worldwide.

Transforming Foreign Area Officers for New Operational Roles.

Tristan James Mabry, Ph.D., Executive Director, Joint Foreign Area Officer Skills Sustainment Pilot Program
Research Assistant Professor, Department of National Security Affairs, School of International Graduate Studies
831-656-7526, tjmabry@nps.edu
The Leader Development & Education for Sustained Peace (LDESP) Program has been educating military and civilian leaders on U.S. objectives, and regional geopolitical and cultural frameworks since 2001. The program conducts distance learning courses, seminars and workshops on the history, culture, the political, military, economic, social, infrastructure, and information (PMESII) environments of Iraq, Afghanistan and Kosovo for deploying units. LDESP conducts regional programs and disseminates country-specific strategic communications, based on Combatant Commanders’ requirements to identify and understand emerging threats, as outlined in the directives of the Department of Defense.

The Regional Security Education Program (RSEP) educates leaders of deploying naval forces about the political, historical and economic factors that shape regional security environments. Regional experts from NPS and other universities embark on U.S. Navy ships to deliver lectures while in transit to their deployed areas of operation. Created in 2001 in the aftermath of the attack on the USS Cole, RSEP is an excellent example of the Naval Postgraduate School’s commitment to supporting Navy operations, especially the development of maritime partnerships.

LDESP & RSEP provide an educational foundation and a geopolitical and cultural frame of reference for participants to understand, and operate, in a complex, ambiguous and rapidly changing environment.
The Global Public Policy Academic Group (GPPAG) pioneers work at the intersection of globalization and security, incorporating new social science research on human behavior, finance, and institutions in conversation with natural science and engineering work on energy, health, and climate change. Initial research conferences with top academics and policy makers focus on scenario methods, models of globalization, and near term responses in Afghanistan. GPPAG convenes a forum of international partner institutions conducting research-informed education, and leads development of a complex operations case study series.

Our maritime strategy seeks to build long term relationships, to prevent wars. High-level cross-sector conversations break down disciplinary walls and create international networks to address complex security challenges.

“The walls between the countries with the most and those with the least cannot stand. The walls between races and tribes; natives and immigrants; Christian and Muslim and Jew cannot stand … These now are the walls we must tear down.”

President Barack Obama
Resident Business & Public Policy Education

As the leading graduate level business school offering degree programs uniquely tailored to the defense community, the Graduate School of Business & Public Policy provides high quality management education to a new generation of military and civilian leadership.

With concentrations in acquisition, program management, contracting, financial management, logistics, manpower systems analysis, and information technology management, the depth and breadth of faculty defense expertise is unlike any in the country.

Short specialized courses, like the Practical Comptrollership Course, Cost Management Certificate Course and courses offered in the Human Resources Center of Excellence provide opportunities for continuing education and in some cases graduate credits or certifications.

Our vision is to be the nation’s premier defense-focused business management and public policy school, through education, research and service to the nation.
With master’s degrees in Contract Management, Program Management and Business Administration, the Graduate School of Business & Public Policy is able to provide a defense-focused graduate education experience unlike any other. Designed for DoD Acquisition and Financial Management professionals with a focus on problem solving skills, graduates not only earn their master’s during the two-year (16 courses) program, they also receive DAIWIA Certifications.

A one-year Advanced Acquisition Certificate Program is also available, where graduates receive Program Management Level III DAIWIA Certification through a combination of video teleconference and on-site distance courses.

The Graduate School of Business & Public Policy brings graduate level business and public policy education to professionals within DoD and other federal agencies through distance learning.
Small Satellites

The Space Systems Academic Group small-satellite program offers hands-on research with multi-disciplinary faculty.

NPSAT1 (NPS spacecraft architecture and technology demonstration satellite) is a small spacecraft in development at NPS in collaboration with the Naval Research Laboratory and the DoD Space Test Program.

NPSCuL (CubeSat launcher) will provide launch opportunities for government, commercial, research, and educational institutions.

The NPS-SCAT (solar-cell array tester) paves the way for student work on focused research objectives of national interest.

NPS's Tinyscope, another very small satellite, will provide taskable, responsive earth imagery at ~3m resolution to the tactical user anywhere on earth.

Very small satellites can revolutionize space research, bringing low-earth orbit applications within reach of almost anyone, anytime.
The Spacecraft Research and Design Center develops technologies for surface control of space telescopes for imaging satellites and researches maritime high-energy laser (HEL) beam correction of distortion due to air turbulence.

Adaptive Optics
Beam Control for Imaging Satellites and High-Energy Lasers

NPS spacecraft research improves DoD imaging satellites and maritime HEL systems.
Arctic warming appears to have accelerated, especially when the rate of sea-ice thickness and volume decline is considered. A summer ice-free Arctic Ocean might commence in the next decade, opening new shipping routes and access to natural resources and permitting increased international activity in the region. NPS research combines submarine, satellite, and in-situ data with high-resolution model output to study sea-ice retreat and predict Arctic and global climate change.

A regional high-resolution climate model is critical for improved modeling for air–ice–sea processes and advanced prediction of climate-change scenarios.
The Physics of Typhoon Formation

An observational and real-time model forecast study of the formation of Typhoon Nuri during the Tropical Cyclone Structure 2008 (TCS-08) field campaign in the western North Pacific sector is presented. Based on a newly proposed sequence for hurricane/typhoon formation within the critical layer of easterly waves, real-time forecasts were produced in support of TCS-08 operations that were able to predict the location of Typhoon Nuri’s eventual formation. Our analysis of this and other western North Pacific genesis cases will document the dynamical processes involved in the transition from synoptic-scale disturbance to mesoscale typhoon vortex.

Our initial results demonstrate the potential to improve DoD typhoon formation forecasting and warnings in the western North Pacific region.
A free electron laser is an all-electric weapon that uses a high-energy, superconducting accelerator. With energy recovery, the system will convert a few gallons of ship’s fuel to a directed laser beam that will engage and destroy targets. This new weapon system will deliver lethal energy at the speed of light with a range of about ten kilometers over the ocean. NPS military officer students participate in every aspect of this expanding research program: running experiments and simulations, attending conferences, presenting papers, and collaborating with scientists at U.S. universities and laboratories.

We can “see” threats at the speed of light through advanced radar systems; directed energy will deliver lethal power to destroy those threats at the speed of light.
A railgun uses electromagnetic forces to accelerate projectiles to speeds exceeding two kilometers per second. High-speed projectiles will penetrate enemy armor and provide indirect fire support for distances greater than 200 miles. NPS railgun research assists the development of long-range weapons on Navy ships to protect future soldiers and sailors in harm’s way.

Innovative research focuses on rail recoil, rail material degradation, and gun design. Students participating in the railgun program gain hands-on experience and make groundbreaking discoveries that advance railgun technology.

By focusing on practical applications for physics, the NPS railgun project successfully integrates Navy leaders with future military technology.
Fans and compressors are prone to stall-margin deterioration due to steam-induced inlet distortion. Thermal distortion is difficult to model, partly because no data is available; steam ingestion is difficult to model due to two-phase phenomena and very hard to obtain experimentally. Navy problems due to these distortions have not received proper attention and modeling. NAVAIR Propulsion and Power has initiated work to address this issue.

Improved engine operability due to stall-margin improvement ensures safe catapult launch of single-engined aircraft such as the Joint Strike Fighter and Joint Unmanned Combat Air Systems.
Unmanned-systems research includes theoretical and experimentation development in three principal areas. First, intelligent autonomy develops automated sensor processing with real-time path planning and control, to permit greater environmental adaptability. Second, collaborative multi-vehicle operations networks unmanned systems, permitting greater coverage and distributed sensing opportunities for intelligence, surveillance and reconnaissance. Finally persistent operations extends the operational duration of the vehicles through docking stations and innovative energy strategies.

Unmanned systems research advances naval operations by providing support to the fleet, Navy labs, and program offices.
NPS researchers are pursuing the development and validation of modeling and simulation capabilities that focus on the improved survivability of ships subjected to underwater explosions and better understanding of the basic science of fluid-structure interaction.

Physics-based M&S reduces the risks associated with live-fire testing and permits investigation of more realistic and diverse threat scenarios.
The increasing proliferation of night-vision capability requires that U.S. and allied forces have smarter, but still cost-effective, solutions for fratricide mitigation. NPS has demonstrated triggered IR emitters for both shooter-on-shooter and air-to-ground fratricide mitigation. These devices remain covert unless triggered by friendly forces, allowing instant warning before shooting. Polymer-emitter technology permits a low-cost, lightweight solution for the individual soldier; vehicle-mounted devices for night use have been demonstrated from targeting and observation distances exceeding twelve miles at 13,000 ft.

New devices for fratricide mitigation that leverage existing targeting platforms can be lightweight, cost effective, and easily integrated into standard operating procedures.
Real-Time, False-Target, High-Resolution, Radar Image Synthesis

Existing electronic warfare (EW) technology can only synthesize false-target radar signals to counter older search and targeting radars and is ineffective against modern, high-resolution imaging radars now deployed by potential adversaries.

An EW system that generates realistic false targets and synthetic clutter in real time restores important tactical advantages to the warfighter.
NPS is advancing through-water acoustic networking and undersea wide-area surveillance with physics-based research, interdisciplinary development, and frequent sea tests.

The Seaweb architecture follows the Open System Interconnection model and is supporting sensors for anti-submarine warfare, low-profile-vessel detection, ISR, port security, sea-base defense, ocean environmental monitoring, submarine communications at speed and depth, remote control, and C2.

Seaweb development is inspiring distributed USW system concepts and is enabling interoperability across missions, platforms, and nations.
Cyber Security, Identity, and Information Assurance

CISR provides long-range planning and coordination of focused cyber-security research projects. Strengthening and protecting DoD cyber-dependent missions, CISR researches and develops high-assurance networks, systems, components, and tools and provides open dissemination of outputs from these efforts, such as code and documentation. Detailed analysis of threats and vulnerabilities in computers and networks, and technologies to mitigate these risks are also a focus. Synergistically related classes, lab work and research result in a valuable DoD resource.

CISR is America's foremost center for defense-related research and education in information assurance, inherently trustworthy systems, and defensive information warfare.
Cyberspace Protection

By educating computer science master’s and doctoral students from throughout the federal government and DoD, graduates perform well as technical leaders in the world they face. Extensive classified and unclassified research in the domain of cyberspace protection includes insider-threat analysis in online chat and blogs, digital forensics of information media, smartphone-based systems for real-time dissemination of tagged secure data, and reverse engineering of systems.

Cross-disciplinary computer science at NPS supports cyberspace protection through innovations in information technology and network operations.
NPS researchers analyze individual critical infrastructures in four basic steps: (1) model system function; (2) assess degradation from loss of sets of components; (3) identify worst-case disruptions; and finally (4) identify optimal investments to maximize system resilience. By connecting models of individual infrastructures together as needed, it is possible to assess dependencies and “full spectrum” threats.

By viewing infrastructure through adversarial eyes, one discovers fragilities and how to mount effective defense.
Adaptive Architectures for Command and Control (A2C2)

NPS researchers in adaptive architectures for command and control develop theories and models for organizational analysis, validate theories and models via team-in-the-loop experiments, and optimize resource management in joint operations.

Model-based empirical studies of adaptive C2 architectures for naval forces and analysis of new constructs for team decision making permit new constructs for human experimentation at the operational level of war.
The conflict in Iraq experienced three types of war: interstate, civil, and insurgent. Drawing primarily on experts in the Defense Analysis department at NPS, The Three Circles of War, a forthcoming volume of essays (Potomac, January 2010), investigates ways of identifying these conflict types and fighting them simultaneously. The book considers what victory might look like in the counterinsurgencies the U.S. is currently waging, the necessary conditions for the exit of troops, and insights for planning and conducting future wars.

NPS offers cutting-edge education and research on irregular warfare for the 21st Century.
The CORE Lab supports field operatives engaged in irregular warfare by developing operators’ knowledge, skills, and abilities in visual analytics. Geospatial-, temporal-, and relational-analysis methodologies are emphasized and applied to the collection, management, and fusion of data, to yield a complete picture of the operational environment. Based on a nuanced understanding of the environment, operators can develop strategies for in-country intervention.

The CORE Lab’s purpose is to fuse data and craft counterterrorism and counterinsurgency strategies at the tactical and operational levels.
Trident Warrior

Trident Warrior is an annual fleet-led experiment combining as many as 200 experimental objectives with ships and shore commands to test technologies, processes, policies, and procedures. Focus areas include C2, information assurance, expeditionary warfare, maritime domain awareness, distance support, networks, ISR, coalition interoperability, and information operations. NPS Distributed Information Systems Experimentation (DISE) supports the data collection and analysis across all experiments, producing for each objective military utility assessments to aid Navy leadership in support of acquisition decisions. For Trident Warrior, the DISE team is complemented by about sixty graduate students, faculty, industry partners, and SPAWAR representatives.

In TW09, NPS operations researchers optimized logistics support for Maritime Operations Center decision making.
Modeling, Virtual Environments, and Simulation

An international center of excellence in modeling and simulation, the MOVES Institute enhances the operational effectiveness of U.S. joint forces and allies through training and analysis products, education, and research in M&S. MOVES combines tactical relevance, technical expertise, analysis, and the ability to pursue an idea from concept to transition customer; expertise includes combat-modeling and training systems, virtual environments, augmented reality, web technologies, networks, and interoperability. MOVES excels in agents and artificial intelligence, human-computer interaction and human factors, education, and distance learning, and applies an unbiased, technology-neutral, nonparochial approach to problems.

The MOVES Institute leads the evolution of modeling and simulation for national defense and security.
National Security Institute

Through strategic national and international research, assessment and training, the National Security Institute builds leaders through multi-organization, multi-agency, cross-disciplinary collaborations unlike any other institution, directly addressing the:

• Deterrence of hybrid conflict (security force assistance)
• Discovery of emerging national security threats (DoD)
• Ability to leverage defense resources for homeland security (DHS)
• Engagement of partnerships for global security and stability (DOS)

NSI was founded upon the vision that today's defense solutions and research and development will require talent from academia, national laboratories, and the private sector, all integrated with true operational expertise.

The National Security Institute leverages advanced academia, aggressive research and development, and operational expertise to resolve national security’s current and future needs.
The Maritime Defense and Security Research Program (MDSRP) conducts, coordinates, and combines maritime defense and security research, experimentation, and information exchange among NPS and partner universities, governmental agencies, national labs, the maritime industry, and foreign partners. Field experiments evaluate the use of networks, advanced sensors, and collaborative technology for conducting rapid maritime-interdiction operations.

MDSRP is the multidisciplinary fusion point that serves as a force multiplier by coordinating the research efforts of all interested organizations.
The Center for Asymmetric Warfare has provided a forum for exercises, training, education and technology testing in a multi-jurisdictional environment for over a decade. CAW has the expertise to link local, county, state, federal and military entities in homeland-security exercises and to coordinate among all participants to ensure that individual goals and objectives are met. CAW offers rich opportunities for students to participate in testing and evaluating technologies and theories. The CAW satellite campus is at Pt. Mugu, CA.

Through CAW exercises, students are able to test technologies and theories in both a simulated and live environment with first responders.
The coop experimentally explores viability of new Special Operations Forces technology concepts as solutions for identified current and future capability gaps, as well as providing a venue to rapidly assess, develop, counter, and exploit emerging capabilities. The research also explores dual-use capabilities for homeland security, stabilization and reconstruction, and disaster relief/humanitarian assistance.

Field experiments allow warfighter feedback for applicability, functionality, and operational utility.
The Center for Interdisciplinary Remotely-Piloted Aircraft Studies (CIRPAS) at NPS operates manned, instrumented research aircraft in support of the scientific community and air-vehicle support for military training, testing, evaluation, and demonstration. CIRPAS supports the atmospheric and ocean sciences with an instrumented Twin Otter, ground-based, mobile, meteorological radar and lidar, a suite of meteorological, aerosol, cloud, precipitation, radiation, and chemical sensors, and a calibration lab.

The operational payoff for the military is the integration of current weather data into the tactical-radar picture.
The NPS Acquisition Research Program, in collaboration with universities, think tanks, industry, and government, creates a stream of relevant information on acquisition policies and management processes, with viable recommendations for improvement. Student involvement in research ensures that the future acquisition workforce is prepared with the intellectual skills and practical knowledge needed for success. Research projects include acquisition management for systems of systems; density as a cost-driver in naval submarine design and procurement; applying a system-maturity scale to system development; the role of lead-system integrators; and achieving the defense-industry structure desired in the 21st century.

Acquisition research creates knowledge for informed change to DoD’s acquisition processes and policies.
The goals of the Center for Defense Management Research (CDMR) are to create knowledge about the history of defense initiatives, support current and future defense leaders and their management initiatives, inform and guide the design and execution of future reforms, and provide intellectual coordination for academic, professional, and government entities involved in defense-management issues.

CDMR provides research-based solutions to the most persistent issues in defense business management.
NPS culture and conflict studies (CCS) provide detailed analysis of insurgent information products, narratives and methods; create counter-narrative themes and messages; and conducts field research supporting U.S. and NATO information operations in Afghanistan.

Targeting the rural insurgency, CCS leverages student research to develop counter-narratives and themes that marginalize the enemy and their tactics.
Nuclear Weapons, Missile Proliferation, and Space Security

The spread of nuclear and missile technologies poses risks to U.S. allies, forward-deployed forces, CONUS, and U.S. space assets. Faculty and students in the National Security Affairs department analyze North Korea’s and Iran’s nuclear and missile programs, China’s antisatellite weapons, and emerging concerns such as high-altitude electromagnetic-pulse attack.

Solutions may include new, targeted approaches to proliferation prevention, restructuring of the U.S. military space architecture, and improved infrastructure protection for homeland defense.

Determining the right political, economic, technical, or military response maximizes American effectiveness and minimizes the cost of over- or underreaction.
The Center for Contemporary Conflict

Center for Contemporary Conflict (CCC) faculty analyze current and emerging threats to U.S. national security. Collaborating with international and U.S. scholars and defense-policy experts, CCC produces cutting-edge research and reports with key policy applications. CCC scholarship focuses on three main themes: nonproliferation of WMDs, international relations and regional studies, and asymmetric conflict.

CCC promotes international stability through analysis of disturbances and diplomacy with key states.