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## Update NPS / October 2014

### Naval Postgraduate School (U.S.)

Monterey, California: Naval Postgraduate School

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October 2014

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U.S. Navy photo by MC2 Shawn J. Stewart



NAVAL POSTGRADUATE SCHOOL

UPDATE

NPS

## Congressman Farr Addresses Graduates

by MC2 Shawn J. Stewart

NPS' latest class of new alumni recently celebrated the culmination of their studies during the university's quarterly graduation ceremony in King Auditorium. The 400-strong Summer Quarter 2014 graduating class included members of the Navy, Marine Corps, Army and Air Force as well as some 163 DOD civilians, first responders and 35 international officers.

"To the graduates here today, words cannot express our immense pride in you! We have immersed you in an extremely competitive academic environment that has enabled you to focus and think about the challenges that affect your service and our national security," said NPS President retired Vice Adm. Ronald A. Route.

*"The solutions to the national security challenges we face as a nation will be resolved by the rigorous academic challenges you face here on campus."*

*- U.S. Congressman Sam Farr*

"It is our commitment that your NPS education will serve as your foundation upon which the rest of your careers are built. The skills you have developed will help you to serve more effectively wherever you are called, and our nation will count on you as strategic 'influencers' wherever your careers take you. We know each of you will make a difference," Route continued.

Route also thanked the families in attendance, noting that it was their love, support and sacrifice that helped the graduates to get to where they are today.

U.S. Congressman Sam Farr served as the ceremony's keynote speaker. He has represented California's 20th District for two decades, and is a long-time NPS supporter and advocate.

"The solutions to the national security challenges we face as a nation will be resolved by the rigorous academic challenges you face here on campus," said Farr. "The debate about our national security shouldn't just be about whether or not to pull the trigger."

Farr also discussed the relationship between national security and the economic, diplomatic, cultural and defense "tools" that NPS inculcates within its students. Farr Concluded with a sobering admonition to the NPS student body, "Simply put, the future of our nation is in your hands."

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OCTOBER 2014

# Workshop Challenges Students to Look Outside the Box

By Kenneth A. Stewart

NPS recently hosted its annual Warfare Innovation Workshop (WIW) in NPS' Ingersoll Hall. The workshop brought together students as well as members of industry, Navy laboratories, system commands and academia to explore innovative concepts in future warfare scenarios.

NPS' Consortium for Robotics and Unmanned Systems Education and Research (CRUSER) co-sponsored the workshop along with the Navy Warfare Development Command (NWDC).

NPS Associate Professor Ray Buettner is CRUSER's director, and has been involved in the WIW process since its inception.



*Members of Team Gridley, one of several teams participating in the annual Warfare Innovation Workshop, discuss strategy during a brainstorming session. (U.S. Navy photo by Javier Chagoya)*

"The Warfare Innovation Workshop provides a variety of ways for NPS and CRUSER to support one of the Navy's top objectives for FY15, namely the proliferation of unmanned systems," said Buettner. "CRUSER uses the WIW as the kickoff event for a two-year thread of activities focused on concept generation, exploration and experimentation.

"Doing this as part of an educational program is a very efficient use of the taxpayers' resources and a really great way for us to help the Naval Postgraduate School execute its rather unique mission," stressed Buettner.

Another key aspect of the workshop, notes Buettner, is its support of the Secretary of the Navy's (SECNAV) call to fully integrate unmanned systems into naval operations.

"The WIW is also an important vehicle for addressing the SECNAV's goal of integrating unmanned systems into the Department of the Navy's culture. By bringing together early and late career profession-

als, in uniform and out, from government, industry and academia to address an important naval challenge – with robotic and unmanned systems thinking integrated into it from the beginning – we infuse such thinking into the naval culture," said Buettner.

NPS Professor of Practice and Warfare Innovation Director Jeff Kline is a long-time supporter of the workshops.

"This is our fourth iteration of the Warfare Innovation Workshop," said Kline. "We take [the good ideas generated here] and spread them across campus; they become thesis work, capstone projects and research threads for both CRUSER and our Littoral Operations Center.

"Our purpose is to coordinate and execute a series of cross-campus educational and research activities synchronized by the Chair of Systems Engineering Analysis and the Chair of Warfare Innovation with a central theme of exploring future methods for warfighting in the contested littorals," continued Kline.

As suggested by Kline, NPS' Littoral Operations Center has been a major beneficiary of WIW work. Workshop participants have helped to define and solve strategic and technological issues common to Sailors operating in the littorals – the shallow coastal areas where most of the earth's population resides.

"We are challenging our students and our guests from industry to address these challenges head on to see if they can come up with some unique concepts," said Buettner.

NPS Faculty Director for Innovation Initiatives Dr. Neal Thornberry, with the university's Center for Executive Education, has been working with Buettner and Kline to help workshop participants tap into their innovative and creative potential.

"I ask people to think of innovation as using the creative thought process to help the Navy outsmart, outmaneuver, and outperform our adversaries ... Innovation should result in a tangible outcome that can be measured in terms of value creation," said Thornberry. "For example, getting a wounded soldier to a hospital 10 minutes sooner than the norm due to a creative change in the transport process can create measurable value.

"Innovation is a tool, not a destination," he added. "We are asking people to be mission ready and to do more with less. Innovation can be a powerful enabler in helping the Navy do things smarter, better, cheaper and faster without sacrificing mission readiness."

Participants accomplished this by drawing upon their collective, multidisciplinary expertise and applying it to two notional, but potentially catastrophic scenarios involving future Chinese expansion in the South China Sea, and increased Russian military and economic interests in the Baltic.

# NPS Team Solves TubeSat Enigma

By Kenneth A. Stewart

A pair of NPS international exchange students from the University of Bundeswehr say they are the first to have ever successfully built an operational InterOrbital Systems Tube Satellite (TubeSat).

German Navy 2nd Lt. David Ohst and Germany Navy Ensign Sebastian Stoppe assembled the satellite at NPS' Center for Network Innovation and Experimentation (CENETIX).

Ohst and Stoppe were assisted in their efforts by CENETIX Director, NPS Professor Alex Bordetsky and NPS Research Associate and Team Lead Eugene Bourakov, in collaboration with the Space Systems Academic Group (SSAG).

"The big output of this project was a proof-of concept using immature kits to develop the tube satellites," said Bordetsky.

"This project is a great example of where a craft with limited capabilities can create an unlimited source of research and development tasks that are extremely valuable to our students," added Bourakov.



German Navy 2nd Lt. David Ohst and Ensign Sebastian Stoppe built this operational TubeSat as part of their exchange program at NPS' CENETIX Lab. (U.S. Navy photo by Javier Chagoya)

The kits themselves cost about \$8,000. According to their manufacturer, successful assembly includes a guaranteed launch into low-Earth orbit on an Interorbital Neptune modular rocket. Designers intend to launch the first 36 TubeSats completed to standard at a date to be determined.

The kits are fairly basic, they include printed circuit boards, a battery pack, solar cells, a power management control system, microcomputer, software, antennas, a power switch and an instruction booklet.

Stoppe and Ohst had to contend with a host of challenges before finally assembling the satellite.

According to Stoppe, a series of design problems and the need to adjust schematics, rewrite files and make adjustments to voltage, circuit board design and solar panels.

But, by applying their previous electrical engineering skills and collaborating with the experts at the CENETIX lab and SSAG, Ohst and Stoppe were able to do everything from recreate circuit boards to recalculate resistor values.

"We had to develop the rings, configuration and layout ... We even used a 3-D printer to produce some of the parts that made this possible," said Stoppe.

"Without our background in electrical engineering, we would not have been able to complete this project," added Ohst.

"What made this an actual functional satellite is the injection of the students and Eugene [Bourakov's] talent while incorporating 3-D printing technology," said Bordetsky. "You have a seemingly simple thing, but it is actually the product of a highly-educated group of engineers."

The completion of the satellite is big news for researchers at CENETIX who now hope to be able to use TubeSats in their continuing ad hoc networking and Maritime Interdiction Operation (MIO) experiments.

Bordetsky said, "With this completed TubeSat we can now incorporate the TubeSats into our MIO testbed.

"This satellite, by virtue of being perishable, allows us to study how we bring these new network nodes into orbit without wasting expensive satellites," Bordetsky explained.

## FACULTY news & notes



Operations Research Professor of Practice retired Navy Capt. Jeff Kline received the Navy's Superior Civilian Service Award for his distinguished contributions as Director for the Consortium for Robotics and Unmanned Systems Education and Research (CRUSER) from university President retired Vice Adm. Ronald A. Route, during a ceremony at Glasgow Hall, Oct. 10.

The award was presented for Klein's innovative and visionary leadership, strategic planning initiatives, and effective execution as CRUSER director from February 2011 to September 2013.

Modeling, Virtual Environments and Simulation (MOVES) Institute Program Manager Wendy Walsh was recently honored with the 2014 Cybersecurity Symposium Award of Excellence. Walsh received the award for her role in helping to build California's state Cybersecurity Task Force, and was presented the trophy by the California Department of Technology's Information Security Office.

NPS Department of Operations Research Assistant Professor Emily Craparo was honored with the Dr. Wilbur B. Payne Memorial Award for Excellence in Analysis (Large Group Category). The award recognizes the best large and small group operations research analyses conducted in the previous year by Army analysis organizations.

Craparo contributed to the project by developing the Joint Platform Allocation Tool (JPAT). JPAT evaluates inputs such as mission requirements, locations of available equipment, and budgetary constraints to determine an effective assignment of unmanned aerial reconnaissance and surveillance assets to missions.

*Have a story to share? Public Affairs is constantly seeking interesting news and stories for Update NPS. Send your tips to [pao@nps.edu](mailto:pao@nps.edu).*



NPS Staff Development Council (SDC) members pose for a picture outside Herrmann Hall. The council provides professional development education to NPS staff members. (U.S. Navy photo by MC2 Danica Sirmans)

## SDC Officers Encourage Professional Development

By Kenneth A. Stewart

The NPS Staff Development Council (SDC) recently held its 2014 officer elections with Sponsored Programs Analyst Jennifer Watson elected chair.

Formally established in 2010, the council provides professional development education to NPS staff members in an effort to create value, competencies and opportunities for self-improvement.

“We want to find ways that we can use our limited budget to help people around the campus. We are looking at what offers the greatest benefit to the most people,” said Watson.

Research Associate Laura Cole is the Staff Development Council’s training coordinator.

“My role is to coordinate and work with the vendors, and to bring trainers to campus,” said Cole. “We rely heavily on staff feedback to ... bring our fellow employees meaningful classes.”

While the council’s first priority is to provide training resources to NPS staff members, in the event that a class cannot be filled, it is opened up to NPS faculty members and students. Formal class instruction is also augmented through online learning opportunities.

“In addition to bringing people on campus, we offer opportunities to continue training at our online portal, the Biz Library,” said Cole.

At the Biz Library, employees may take up to 20 courses per year and watch an unlimited number of streaming videos on a slew of topics.

“When we offer a course on a particular topic, we follow it up with similar course content from Biz Library that builds upon the instructor based course and allows employees to work at their own pace,” said Cole.

Director of Admissions Susan Dooley has been with the council since its onset.

“In 2007 I was asked to chair the Staff Development Advisory Committee, and I was bound and determined to not allow the program to go away,” said Dooley. “I didn’t want to create something good and then have it dwindle.”

Today, council members are working to ensure that the courses it offers match the skills that NPS employees need to become more efficient. A challenge, Dooley acknowledged, is that it is sometimes difficult to get away from the office and devote time to professional development.

“The time you spend away from the desk is not a waste ... some managers loathe to allow staff to attend training and some staff are afraid to ask, but that sort of thinking is ultimately harmful to the organization, our staff members need these courses,” said Dooley.

## Former NPS Dean of Research Returns to Share Efforts in Nuclear Non-Proliferation

Executive Director of the Nuclear Science and Security Consortium (NSSC), University of California at Berkeley Chair, and former NPS Dean of Research Dr. Karl Van Bibber, discussed the importance of advanced education in the areas of nuclear science and non-proliferation with students, faculty and staff at Root Hall, Sept. 11.

Van Bibber discussed recent changes in national priorities relating to nuclear non-proliferation, citing a 2010 presidential posture review in which prevention of nuclear proliferation and nuclear terrorism became a top concern.

“Every time we did the nuclear posture review, the different issues related to nuclear weapons were put in order of importance and priority. Recently, preventing nuclear proliferation has become our primary concern,” said Van Bibber.

In addition to presenting information on the NSSC, Van Bibber used his NPS visit to discuss the potential for energy security education and collaboration. Van Bibber also discussed nuclear power as a potential clean energy source noting that nuclear energy provides 70 percent of all non-fossil fuel electricity in the U.S.

# Navy's Senior Financial Management Leadership Tour Campus

By Dale Kuska

Assistant Secretary of the Navy, Financial Management and Comptroller, the Honorable Susan J. Rabern, and Deputy Chief of Naval Operations, Manpower, Personnel, Training and Education Scott Lutterloh, recently spent two days on campus for a series of briefings and meetings on the university's unique graduate education and research programs.

Both Rabern and Lutterloh are key figures in the Navy's efforts to manage personnel and manpower controls established through a congressional requirement. While Lutterloh has been to NPS a number of times over the past few years, this visit marks Rabern's first, providing her with a first-hand view at several of the institution's programs.

"We appreciate the time Secretary Rabern dedicated to visiting our institution, and to learning more about our programs and efforts," said NPS President retired Vice Adm. Ronald A. Route. "She was engaged during our meetings, asked thought-provoking

questions, and enjoyed interacting with many of our students, faculty and staff."

Rabern's visit to the campus included several briefs with senior leadership across the Quad related to the Navy's end strength requirements, as well as lab tours and meetings with students. She also met with local Congressman, the Honorable Sam Farr, U.S. Representative for California's 20th District.



Assistant Secretary of the Navy, Financial Management and Comptroller, Susan J. Rabern, speaks with Lt. Ervin Mercado during a campus tour, Oct. 1. (U.S. Navy photo by Javier Chagoya)

## NPS, METOC Communities Honor Beloved Oceanography Professor

By MC2 Danica M. Sirmans

Friends, family and NPS colleagues gathered to remember longtime NPS Department of Oceanography Professor Mary L. Batteen at Herrmann Hall, Sept. 26. Batteen joined NPS in 1985. She is survived by her husband, fellow Department of Oceanography Research Associate Professor Tim Stanton, and their children Matthew, 22 and Elizabeth, 17.

Batteen was a renowned member of the NPS

faculty and a revered contributor to the Navy's Meteorology and Oceanography (METOC) community. She personally trained some 80 percent of the Navy's active-duty oceanographers, many of whom traveled to the university to honor her.

"I represent the students who Mary taught for three decades," said Department of Oceanography Program Officer Cmdr. William Sommer. "While we mourn her loss, it also stands that we are grateful for her service."

Upon concluding his remarks, Sommer rendered Bateen a salute on behalf of the METOC community.

Batteen was awarded countless honors during her academic career. Her many recognitions include the Department of Oceanography's Outstanding Teaching Performance Award and NPS' Top Teaching Excellence Award. She was also selected for inclusion in the 2010 Who's Who in America.



NPS Research Associate Professor Tim Stanton speaks in remembrance of his wife, Professor Mary L. Batteen, at Herrmann Hall, Sept. 26. (U.S. Navy photo by MC2 Shawn J. Stewart)

## CAMPUS news & notes

NPS President retired Vice Adm. Ronald A. Route, and Provost Dr. Douglas Hensler, met recently with Academic Affairs staff and leadership at the Peacock Room. The meeting was one of a continuing series of campus communication gatherings scheduled to facilitate an open exchange of information between senior leadership and members of the faculty and staff.

After a productive discussion, the gathering was concluded with the honoring of several staff members. Director of Academic Administration Mike Andersen, Director of Admissions Susan Dooley, and Class Scheduler Cheryl Roston were each honored for more than 20 years of service to NPS and the Navy.

Dr. J. Steven Herring, a retired Laboratory Fellow with the Idaho National Laboratory, recently kicked off the first in a series of six biweekly Energy Academic Group sponsored seminars devoted to the subject of nuclear power.

Herring recently retired from a chairman position at the Idaho National Laboratory and as Deputy Director for Nuclear Systems Analysis and Design. He is a fellow of the American Nuclear Society, and in 2004 received its Mishima Award for contributions to the development of thorium-uranium fuels.

**THIS MONTH ON  
INSIDE NPS**

"INSIDE NPS" AIRS MONTHLY ON THE DEFENSE NEWS NETWORK

- Analyzing 50 Years of Tropical Cyclone Forecasting and Observation
- Highlights from the Warfare Innovation Workshop
- An Introduction to Design Thinking

# NPS Patent Office Helps Safeguard Intellectual Property

By Kenneth A. Stewart

Associate Counsel, Intellectual Property Attorney Lisa Norris, and her assistant, Paralegal Kate Black-Will, are an Army, or perhaps a Navy, of two, with a singular mission to protect the intellectual property of NPS students and faculty.

Norris came to NPS six years ago after practicing patent law at a local patent firm in Monterey and earlier at a large Silicon Valley



Associate Counsel, Intellectual Property Attorney Lisa Norris, left, and her assistant, Paralegal Kate Black-Will, right, are pictured in their NPS office with some of the patents that they have worked to file and defend. Their work ensures that NPS students and faculty receive proper recognition and that their intellectual property is protected. (U.S. Navy photo by Javier Chagoya)

patent firm. But prior to beginning her legal career, Norris served in the Air Force as an electronic-communications officer where she was given the opportunity to study at NPS earning a Master of Science in Systems Technology.

"I love this school, it is really great to be back here at NPS," said Norris.

Black-Will was brought on recently to assist Norris. As a paralegal, she is trained to spot legal and factual issues and to properly file actions with the courts and agencies that support the patent process.

"My job as a paralegal is to make the attorneys' lives easier, allowing them to do more legal work as I take on some of the administrative burdens," said Black-Will.

But although Norris was a one-woman-show for longer than desired, she has been an effective advocate for NPS inventors.

"When I came on board, there were six active patents, now there are 39," said Norris. "All of them are very interesting in their own way. I have filed for everything from satellite release, electronic circuit, and plasma propulsion systems.

Filing a patent application can be a very arduous process and can require filings for both provisional and non-provisional patent applications.

"Provisional patent applications are placeholders' applications," explained Norris. "We have a year to file a regular non-provisional patent application, filing a provisional patent application buys time for the inventor until he or she is ready to file a non-provisional patent application."

When a patent application is filed, Norris must also argue as an advocate for NPS inventors. When [U.S. Patent and Trademark Office] examiners examine a patent application, they can find that an item already exists, or they can say that the information "art" is already out there.

"When you get an action you have to look at all of the art and argue why yours is unique," said Norris. "I have argued 133 actions to date; some are very easy to argue, others are quite hard, but the inventors always work with me."

The work accomplished by Norris and Black-Will is an important tool in the NPS toolbox - a tool that seeks to ensure that the work of NPS students and faculty receives its proper recognition.

## Focus On ... Customer Service

A Monthly Look at Names and Faces on Campus

Administrative and Accounting Assistant Holly Rose works to ensure that guests staying at the Navy Gateway Inn and Suites at NPS, "receive the highest quality accommodations at an affordable price."

"In previous jobs I have been an administrative assistant, but this is the first time I have worked so closely with the military," said Rose.

"Our whole mission is to support our guests by providing

the best in leisure and comfort," Rose added.

Some of Rose's other responsibilities include managing staff training records, purchasing amenities for the hotel, central cashier work and the important front desk auditor position. Additionally, she ensures that both NPS and NSA Monterey are notified when distinguished visitors stay at the hotel.

Rose takes great pride in her ability to contribute to the Hotel

Del Monte Legacy.

"It's a beautiful historical building and I am proud to be part of this team and organization," said Rose. "It was a team effort to get four stars. Now, we are shooting for five."

Rose's work to build a winning team included the creation of an employee appreciation program that highlights exceptional employees.

According to Rose, caring for



Administrative and Accounting Assistant Holly Rose.

guests is hard but rewarding work.

"Making people happy and trying to exceed their expectations is both very difficult and rewarding," said Rose.

# Any Day at NPS ...



Electronics Technician 2nd Class Brandon Meyerdirk, left, and Aviation Electronics Technician 2nd Class Scott Froom, right, join members of the NPS color guard to explain the proper way to fold the ensign to Cub Scout Pack 13, Sept. 15. (U.S. Navy photo by MC3 Michael Ehrlich)

Union Stewards Dudley Knox Library Special Collections Manager John Sanders, left, and Public Affairs Lead Staff Writer/Editor Kenneth Stewart, right, carry National Federation of Federal Employees Local 1690 President Pete Randazzo across the finish line at the 2014 Fall Fun Run 5K, Sept. 25. More than 90 NPS students, faculty and staff participated in the event. (U.S. Navy photo by MC2 Chablis J. Torrence)



Lt. Cmdr. Reginald Johnson dons his flight suit for Warrior Day, a student-driven initiative to build awareness of the diverse warfighter communities that make up NPS. (U.S. Navy photo by MC2 Shawn J. Stewart)



Center for Defense Management Research Director Dr. Douglas A. Brook receives his public retirement certificate from NPS President retired Vice Adm. Ronald A. Route during his retirement ceremony in Reed Hall, Sept. 18. Brook is retiring from federal service, but will continue to teach public budgeting and public policy at Duke University. (U.S. Navy photo by MC3 Michael Ehrlich)



Naval Support Activity Monterey Deputy and Technical Director retired Army Col. Peter Dausen bows his head during a Patriot Day observance in front of Herrmann Hall, Sept. 11. (U.S. Navy photo by MC3 Michael Ehrlich)



## STUDENT voice

By Capt. Alexander "Kronk" Beachy, Chairman, President's Student Council

I recently volunteered for the opportunity to have breakfast with Assistant Secretary of the Navy, Financial Management and Comptroller, the Honorable Susan Rabern, who asked if the NPS juice is worth the squeeze? As I pondered on this question, I asked myself, "What truly is the cost of our education?"

I argue that while cost is important, the fostering of intellectual thought cannot compare to the dollar. These are the times that will introduce us to new problem solving techniques. Further, the opportunity to work in a joint and multinational arena also has no price tag. The friendships we make here will carry with us for the duration of our careers, if not our lives. The insight into how another community operates, that cultural awareness, and our common understanding will pay ten-fold for the entire military.

The investment that our uniformed services have made in us will only pay dividends, if we are placed into positions where we can use our education to make a difference. Jobs should align with curricula. I would argue that the military should make this decision well before we even get the orders to NPS. To truly make us useful, those expected new jobs could list a series of thesis ideas that require research. In this way, our education and research align perfectly with our planned positions beyond NPS.

A paradigm shift must occur that not only proves more beneficial to the military, but also more beneficial to the careers of those studying here. Hopefully, we can be the pioneers, and not our children.

Have a story to share? Public Affairs is constantly seeking interesting news and stories for Update NPS. Send your tips to [pao@nps.edu](mailto:pao@nps.edu).



# On Campus this Month

**Oct 8**

Multicultural Heritage Committee  
Hispanic Heritage Month  
Special Guests: Yaocuahtli Danza Cultural  
10:00 a.m., Roman Plunge  
POC: MC2 Danica Sirmans  
(831) 656-1070



**Oct 18**

Navy Birthday Ball  
Barbara McNitt Ballroom  
<http://www.nps.edu/navyball/>



**Oct 9**

Spouse Orientation  
6:00 p.m., Barbara McNitt Ballroom

**Oct 24**

Freaky Family Friday  
Barbara McNitt Ballroom  
POC: Cecillia Legario  
(831) 656-7955

**Oct 13**

239th Navy Birthday  
Columbus Day

**Oct 31**

Halloween



[Facebook.com/NPSmonterey](https://www.facebook.com/NPSmonterey)

# Are you connected?



## Historical Highlights



The fresco in Herrmann Hall's Tower Room captures the beguiling shape of a Monterey Black Cypress called The Witch Tree at Pescadero Point on the 17-Mile Drive. Painted by Ferdinand Burgdorff, the tree is part of a small grove of native cypress trees – some as old as 300 years – that includes the Ghost Tree and Lone Cypress. The Witch Tree was severely damaged by a storm 50 years ago. A small portion of the tree survived but visitors today only see a long, thin, lonesome trunk with two barren branches stretching skyward. Burgdorff's masterful fresco provides a haunting reminder of the tree's former beauty.

*Historical Highlights are provided by the Dudley Knox Library.*