



Photo by Alyssa Ringler/NYSE Euronext



NAVAL POSTGRADUATE SCHOOL

UPDATE

NPS

## Alumnus Brings Ethical Leadership to NYSE

By Amanda D. Stein

From the Purple Heart to the New York Stock Exchange, NPS alumnus Marshall Carter has had quite a career. He has worked for some of the most powerful companies in banking, and now serves as Chairman of the Board of Directors of the NYSE Group, also known as the New York Stock Exchange. He also regularly lectures on leadership and management to graduate students at the Massachusetts Institute of Technology (MIT) and Harvard's Kennedy School of Government.

But before he became the head of one of Wall Street's most powerful organizations, Carter served two tours in Vietnam with the United States Marine Corps, where he was awarded the Navy Cross and Purple Heart.

He earned his Master of Science degree in Operations Research (OR) and Systems Analysis from the Naval Postgraduate School in 1970, and transitioned to the Reserves five years later, looking for a fresh start in the private sector.

*"I think that a graduate education really gives you the intellectual knowledge that you need to progress upward in your career."*

Relying on his years of experience in the service, Carter secured a position at Chase Manhattan Bank, launching his decades long career in finance. In an industry recently plagued by self-interest and a sense of public distrust, Carter has maintained the same values instilled in him at a young age, earning him a reputation as an honest and fair leader.

His reputation came into play in 2003 when the financial crisis triggered changes in the NYSE, and Carter was called out of retirement to join a new Board of Directors. Carter quickly moved up the ranks, becoming Chairman in 2005, the position that he still holds today.

In his lectures at Harvard and MIT, Carter notes the qualities that an effective leader possesses – traits that are necessary everywhere from the battlefield to the floor of the stock exchange. "To me, effective leadership all boils down to three essential skill sets: The first is technical competence in your job. The second is adaptability, because things change.

"And the third," Carter continued, "is the ability to communicate with people that work for you, around you, and above you. After 50 years of practicing those, they seem to me to be the most important, and ones that you really learn in the military.

"Those skills, regardless of your job or position, are still the core of leadership."

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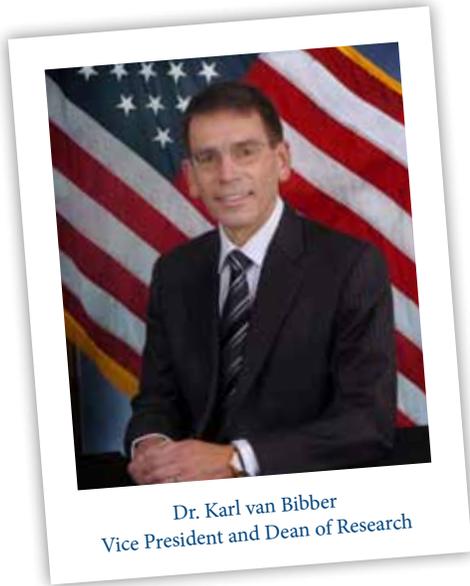
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MARCH 2011

# A Message From ...

Dr. Karl van Bibber, Vice President and Dean of Research



When I came to NPS two years ago, I was excited to see a burgeoning research program, but it was also clear that the scope and complexity of our activities, many involving hazardous or sensitive technologies, had begun to outpace our capability to protect personnel and information. Thus, one of my first goals was strengthening our protection and compliance processes.

Having come from the Dept. of Energy system, I had seen how a small number of lapses in safety and security had attracted congressional attention, and brought down draconian corrective measures and new assurance processes to the labs. While it seemed that the Navy had so far been immune from this culture, heightened scrutiny might be just a small misstep away.

That hunch proved out sooner than expected. In 2009, a self-assessment led us to stand down our nuclear activities here at NPS, and a Command Inspection by the Naval Sea Systems Command (NAVSEA) Radiological Activities Support Organization put us on a lengthy trajectory towards re-establishment of our program. (It should be noted that none of the identified deficiencies involved endangerment of personnel or environment.)

It has taken an enormous amount of effort but we are making excellent progress towards a best-in-class radiation safety program to safeguard critical programs we are entrusted with, e.g. the Free Electron Laser. We have set up a Research

Safety Department, and hired Ryan Greve as the Radiation Safety Officer (RSO). Ron James has joined the office as the ARSO, and Lead Safety Officer for Electrical, Mechanical and Chemical Hazards. The position of Laser Safety Officer has been posted. The Research Organization has been tasked by President Oliver to develop an integrated research safety program, which we are doing jointly with NSA Monterey Commanding Officer Capt. Gerral David.

*“We hold the public’s trust to protect sensitive national security information. A hallmark of NPS is its ability to perform classified research, and our practices for identifying and protecting classified information are well-established.”*

Similarly, we are required by the Navy’s Human Research Protection Program (HRPP) to protect subjects of human research, for which we are supported by our Institutional Review Board (IRB). A surprisingly large fraction of our projects requires IRB review, including human factors research (e.g. performance under stress), surveys, etc. A frequent refrain from our faculty is that the training and approval processes seem disproportionate with the actual risks, which often look innocuous enough. We continue to work with Navy HRPP to streamline requirements, but ultimately the IRB must evaluate each protocol carefully to ensure human subjects are not put at risk in any way. Our program has been greatly strengthened with the arrival of our new IRB Chair, Capt. John Schmidt. He is assisted by IRB Administrator Rikki Panis.

Additionally, we hold the public’s trust to protect sensitive national security information. A hallmark of NPS is its ability to perform classified research, and our practices for identifying and protecting classified information are well-established. A thornier problem in recent years has been the protection of technologies with military or dual-use application, which while not being classified, may not be shared indiscriminately with non-U.S. citizens. These fall under the rubric of ITAR (International Trafficking in Arms Regulations) and EAR (Export Administration Regulations), under jurisdiction of the Departments of State and Commerce respectively. The lists of controlled technologies are voluminous and dynamic, and penalties levied to both universities and individual investigators for even inadvertent disclosures to foreign entities are severe. If this all sounds daunting and confusing, you’re not alone. To protect our critical technologies as well as protecting you and the school, we have established an ITAR/Export Control Committee, chaired by Capt. Rod Abbott.

The Research Organization is here to help you do the right thing; stay tuned as we roll out all the resources you need to conduct research in a safe and secure manner.

**“Update NPS” is a monthly publication for students, faculty and staff of the Naval Postgraduate School produced by the Office of Institutional Advancement. For additional copies, comments, or to suggest story ideas, contact the editorial staff at [update@nps.edu](mailto:update@nps.edu).**

# USPTC, NATO Partner to Help Combat Corruption

By Amanda D. Stein

As the designated United States Partnership for Peace Training and Education Center (USPTC), the Naval Postgraduate School works closely with other Partnership for Peace Training and Education Centers and other related institutions on long-term capacity building programs and opportunities to coordinate on important initiatives. One such initiative, Building Integrity (BI), aims to reduce the risk of corruption in the security sector by promoting accountability and transparency.

In support of that initiative, the North Atlantic Treaty Organization (NATO) coordinated with the USPTC to host the 2011 NATO Building Integrity Conference from Feb. 23-25, held at the Monterey Plaza Hotel.

“The consequences of corruption are the deepening effects of organized crime, and public distrust,” explained Dr. Huguette Labelle, Chair of the Board of Directors for Transparency International. “The BI initiative has been a tremendous success in delivering world-class tools to tackle a problem that many have believed in the past to be too difficult or too sensitive to tackle.”

The conference brought together military and civilian leaders from NATO allied and partner nations and the public and private sectors to share ideas and tools for BI. The various panels throughout the week looked at the impact of corruption on development in Afghanistan, and understanding corruption in conflict environments. The conference fostered collaboration, and brought to light the importance of supporting partner nations in BI efforts.

“Building integrity is not about NATO giving lessons to everyone else on how to combat corruption,” explained NATO Supreme Allied Commander Transformation, Gen. Stéphane Abrial. “It is about partners coming together on an equal footing to advise concrete ways to enhance transparency and accountability to reduce the risk of corruption in defense establishments.”

Executive Vice President and Provost Leonard Ferrari began the conference noting the opportunities that NPS has had in serving as the USPTC, and in supporting various NATO programs and initiatives. NPS regularly collaborates with institutions in partner countries to help in their path to NATO

membership, and that support continues as members and partners come together to promote global peace and stability.

“This is a cooperative endeavor in which everyone stands to learn from best practices and to fill in where there are gaps,” echoed Abrial. “Fighting corruption is a very complex endeavor, which requires a wide array of tools and different perspectives. Building Integrity brings just that to the table, once again, in a true partnership setting. It does so in an even more phenomenal way than by just bringing together NATO members and partner nations. The BI initiative has integrated a wide array of organizations, prominent among which are our co-hosts today, the Naval Postgraduate School and Transparency International ... We are stronger when we are cooperative.”



*NATO Supreme Allied Commander Transformation, Gen. Stéphane Abrial, addresses attendees at the Building Integrity conference in Monterey. The international event brings military and civilian leaders from NATO allied and partner nations and the public and private sectors together to share ideas and tools for bringing accountability and transparency to developing governments. (U.S. Navy photo by Javier Chagoya.)*

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**MEZZ**

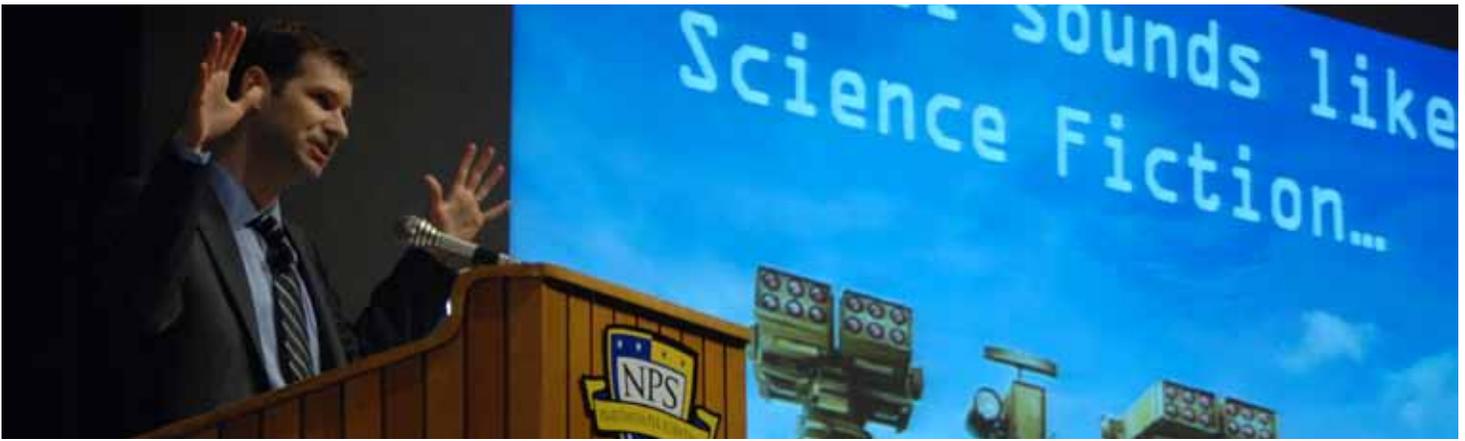
As part of the discovery and research process for the Committee on the Future, retired Rear Adm. Jerry Ellis, Chair of the Committee, and Dr. Christine Haska, Vice President of Information Resources and Chief Information Officer, traveled to Washington, D.C., to conduct interviews with 21 key leaders of the Departments of Defense and Navy, including the Chairman of the Joint Chiefs of Staff, the CNO, Vice CNO, the Under Secretary of the Navy and several others. The interviews provided vital information for the committee's efforts and helped to frame DoD/DoN priorities and expectations.

NPS was highly regarded, both in terms of education and research programs, with the school's 'value' recognized as the fundamental intersection of young, joint, international future leaders with the latest science and technology.

Future global trends that were consistently mentioned as important factors for NPS future priorities included establishing cyber, energy and climate change education and research programs; marketing the 'value' of NPS; developing unmanned systems; continuing leadership development; expanding international relations, classified facilities, investment by other military services, civilian agencies and international sectors; and using budget reductions to focus mission priorities.

In May, Ellis and Haska will travel to the Air Force Institute of Technology, the Naval War College and Washington, D.C. to interview additional institutional leaders and directors of federal agencies.

*From the Mezz provides a brief report on the activities of NPS' senior administration. For more details on any of these reports, please contact the Office of Institutional Advancement at [pao@nps.edu](mailto:pao@nps.edu).*



Dr. Peter W. Singer discusses the revolution in unmanned military systems during latest SGL. (U.S. Navy photo by Javier Chagoya.)

## Military Robotics Revolution Expert Offers Latest SGL

By Barbara Honegger

Just one day before “Watson,” the IBM Supercomputer, made history by defeating its human challengers, one of the nation’s top robotics experts held NPS students and faculty spell bound with his fast-paced review of the revolution in unmanned military systems.

Dr. Peter W. Singer, Foreign Policy Senior Fellow and Director of the 21st Century Defense Initiative at the Brookings Institution, presented the Secretary of the Navy Guest Lecture on the topic of his latest book, “Wired for War: The Robotics Revolution and Conflict in the 21st Century” (Penguin, 2009), Feb. 15.

“In 1960, the entire U.S. Navy computing power was less than on the chip in the singing Valentine’s card you bought the other day,” Singer said. “Soon, our computing power will be billions of times what it is today, and the technologies and capabilities such power will make possible, we can only imagine.

“We’re in the ‘game changer’ that we’ve been saying was coming,” Singer stressed, “a new experience of war in which robots and unmanned systems operated at distances of thousands of miles are being deployed at an exponential rate and changing the face of warfare. Just a few years ago, images like these were still science fiction, but today they’re science fact,” he noted as a metal menagerie of land, sea and air robots flashed on the screen behind him. “These unmanned vehicles aren’t future visions. They’re an integral reality on today’s battlefields.

“Today, for example, IEDs [Improvised Explosive Devices] are the

number one cause of death and injuries of our overseas military personnel. To reduce that toll, we recently sent in an EOD [Explosive Ordnance Disposal] trooper to check out a possible IED in Iraq. When the trooper got close enough to see if it was a real bomb, the device exploded. But the EOD trooper didn’t die. The trooper was a 42-pound robot made by a robot company in Massachusetts.

“But we’re still at the horseless carriage phase in this unmanned vehicle and robotics revolution,” Singer cautioned. “Microsoft’s founder Bill Gates has said that we’re probably where the computer was in 1980, when there were large mainframes with just a few functions. And the one thing we know is that in warfare there’s no such thing as a permanent advantage. Today, there are fewer IT [Information Technology] graduates than in 1986, and increasingly our soldiers and sailors are sent out with hardware made in China and software written in India.

“But what really matters, even more than the technology, is your vision, plans, doctrine and how to put it all together,” Singer stressed. “We’re leaping into this, but to maintain the advantage, we need to have a systems focus and take the time to experiment to get to the right decisions. We need to say ‘Let’s think this better, not more.’

“There’s no question we’re getting a huge advantage due to unmanned systems,” Singer concluded. “But the weaponization of drones also raises important ethical and legal questions, and questions of ‘who commands it’ ... I think, personally, that [targeting and shooting] autonomy could be a bridge too far.”

## Grad Attributes Education to Effective Leadership



U.S. Navy photo by MCSN Jonathan Sunderman

Throughout his career, Rear Adm. Kevin Scott, commander of Expeditionary Strike Group 2, has focused his efforts on higher education – Scott is a Financial Management graduate of NPS. While he is responsible for providing operational command of Expeditionary Strike Forces to deliver power projection ashore and rapidly respond to global crises, Scott attributes the confidence gained from his educational experience as a foundation for sound leadership.

“A military officer is known by his or her professionalism,” said Scott. “It is the relentless pursuit of knowledge and training which enhances professionalism through preparedness. Preparedness forms a foundation for sound decisions and gives the confidence to stand by those decisions.”

# Mathletics Competition Comes to NPS

By Dave Nickles, Ph.D.

Hundreds of young mathematicians will be grinding out solutions to challenging problems early Saturday morning, May 14, when the annual countywide math contest, Mathletics, comes to NPS for the first time. Designed to encourage students to excel in mathematics, Mathletics is open to any Monterey County upper elementary, middle or high school student. Competing students are sponsored by their school team and recognized for their achievements in mastering the mathematical skills tested during a 90-minute exam.

Each school may send a team of three “Mathletes” per grade level, although each participant takes the paper and pencil examination as an individual. The exams, administered at nine levels, consist of 40 multiple-choice items and one open-ended problem designed to test students’ computational and problem-solving abilities.

The richness of the event lies in its exams, written fresh annually by mathematics faculty volunteers from CSU Monterey Bay, and from the lunchtime activities that occupy the students as their exams are being scored and awards are determined. This year NPS astronauts have volunteered to host lunchtime presentations helping to illustrate the value of learning mathematics, which is generally considered the gatekeeper to entering exciting STEM (science, technology, engineering and mathematics) careers.

Volunteers are an important component to the program. NPS students are encouraged to serve as volunteers by assisting with gate access as trusted agents, directing Mathletes to and from their classrooms, proctoring exams, and offering general logistical support to children and parents. If interested, contact Dr. Dave Nickles in the Office of Institutional Advancement at danickle@nps.edu.

# All NPS Invited to Play Online Massive-Multi-Player Wargame

By Barbara Honegger

Beginning in late April, everyone at NPS will be able to participate in an exciting new massive-multi-player online wargame designed to tap the collective intellectual capital of the entire Navy in coming up with breakthrough solutions to a “wicked” real-world problem – defeating Somali pirates. The goal of the game – called MMOWGLI for Massive Multiplayer Online Wargame Leveraging the Internet – is to reach beyond the experts to build the critical mass of players needed to catalyze “knowledge accidents” and trigger the “outlier” ideas needed to crack really hard problems.

On February 17, NPS Modeling, Virtual Environments and Simulation (MOVES) Institute Associate Professor Don Brutzman, project partners from the Bay Area-based Institute for the Study of the Future (ISFF) and representatives from the sponsoring Office of Naval Research (ONR) Office of Innovation, held two briefs for faculty, students and staff on the overall vision and methodology of the interactive and collaborative web-based game.

“Our goal is a diverse audience of everyone in the Navy plus anyone who’s interested beyond the military, to build group insight leading to breakthroughs for Navy technol-

ogy investments,” said Brutzman. “We’ll then test the best new ideas that come out of the pilot through modeling and simulation, so you’ll know if your great new idea will really work.”

The tentative dates for the interactive online game are late April and early May. It runs on both PCs and Macs, and no prior installations on your computer are required. For more information, go to <http://mmowgli.nps.edu>.



Garth Jensen, Director of Innovation at Naval Surface Warfare Center, Carderock Division, briefs NPS faculty and students on the upcoming “MMOWGLI” massive participation online wargame, Feb. 17. (U.S. Navy photo by Javier Chagoya.)

## FACULTY news & notes



GSBPP Assoc. Prof. David Henderson appeared on John Stossel’s show on Fox Business Network to discuss his study of how the Canadian government changed budget deficits to surpluses and brought down debt as a percent of GDP. Henderson also gave a speech at U.C. Berkeley titled “The Costs of War,” and presented a paper at San Jose State University’s Economics Department Friday Workshop titled “Airline Security: A Numerate, Game Theoretic, Public Choice Analysis.”

In March, GSBPP Prof. George Lucas will attend and present at an international symposium on ethics and intelligence at Oxford University, and speak on ethics and military anthropology at a symposium at Case Western University and at Hiram College in Ohio.

In March, Assist. Prof. Jesse Cunha of GSBPP will be presenting his paper, “Financial Literacy and Development: Evidence from a Field Experiment in Rural Mexico” at the World Bank and a second paper, “Testing Paternalism: In-kind vs. Cash Transfers” at Texas A&M University.

The International Defense Acquisition Resource Management Program will be holding an Acquisition & Contract Management Workshop in early April for 35 delegates from Iraq. This course examines detailed principles of acquisition and contract management, from conceptual and practical perspectives, with an emphasis on how each topic can be applied successfully in real world situations.

Send your faculty news and notes to [update@nps.edu](mailto:update@nps.edu).

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

# Rear Adm. Simpson, Leadership Discuss IDC Curricula

By Amanda D. Stein

As part of a return visit to his alma mater, NPS alumnus Corporate Director for the Deputy Chief of Naval Operations for Information Dominance Rear Adm. David Simpson met with a small group of faculty from across disciplines to discuss the Navy's needs and the expectations that the Chief of Naval Operations (CNO) has for

“The technology curve is asymptotic,” Simpson explained. “Our investments in information technology used to be right on that technology curve. The DoD was really pushing that technology curve. We were defining it. But the adversary can pick and choose where he wants to be on that technology curve to achieve the desired affect.

We are not going to be able to defend everywhere on that technology curve at all times, so we have to be more agile in our ability to respond to the adversaries' movements in cyberspace.”

The Navy announced the establishment of the IDC in Oct. 2009, in an effort to streamline and unite the information communities with a common goal: dominance. The IDC looks to keep the Navy on the forefront of the information domain, in areas such as intelligence, electronic warfare, command and control, meteorology, and cyber- the fields that secure information against and retrieve information regarding potential adversaries.

“We initially had difficulty cross-communicating and defining the cyber battle space,” said Simpson. “When you get to the details of describing the boundaries of cyberspace, and who has responsibilities for cyberspace, that's not easy. Bringing the IDC together for the Navy has really allowed us to get past a lot of that. But now we need to ensure that our officers see that battle space, understand it, and are able to communicate it in terms that the larger command structure understands.”



Corporate Director for Information Dominance, Rear Adm. David Simpson met with a group of NPS faculty from across departments for a round table discussion about the Information Dominance curricula. Simpson graduated from the Space Systems Operations program in 1982. (U.S. Navy photo by Javier Chagoya.)

members of the Information Dominance Corps (IDC). One particular area of opportunity within the IDC expressed by Simpson during his Feb. 11 visit to NPS was in cyber systems and operations, and he noted that extra attention should be paid to fully incorporate the cyber domain into the IDC curriculum.

During his visit, Simpson spoke to NPS faculty about the kind of curricula that will best fulfill those goals. Given the broad spectrum covered under the IDC, including Information Professionals, Information Warfare Officers, Intelligence Officers, Oceanography Officers and the Space Cadre, NPS leadership strives to keep the most current and relevant curriculum possible.

## Focus On ... Fleet and Family

A Monthly Look at Names and Faces on Campus

The Fleet and Family Support Center (FFSC) serves the area's military community “with pride and distinction” by providing a wide range of services and assistance for service members and their families. Renowned for positively impacting the quality of life for their members, FFSC offers relocation, employment and retirement assistance, transition assistance management, information and referral, personal financial management, life skills education and support, and family advocacy through

specialized workshops, educational programs, and individual and family counseling.

“We have an extremely dedicated staff at FFSC, truly remarkable individuals, committed to providing high-quality, family readiness programs for service members and their families,” said FFSC Director Jodi Pallett. “Our team is customer focused - bringing our programs to wherever the need is.”

For more information, check out

<http://www.nps.edu/FFSC/>.

NSAM Fleet & Family Support staff are, standing left to right, Site Director Jodi Pallett and Clinical Counselor Rebekah Walton and, seated left to right, Victim Advocate Ginny Lott and Education Services Facilitator and Sexual Assault Response Coordinator Heather Ruppert Cleary. Not pictured is Work and Family Life Specialist David Cong. (U.S. Navy photo by Javier Chagoya.)



# Any Day at NPS ...



New Dean of Students (DOS) and former NASA Astronaut Capt. Alan Poindexter introduces himself and answers questions during a Secretary of the Navy Guest Lecture in King Auditorium, Feb. 1. Daily mustering was just one topic on a short list of the new DOS' do's and don'ts. (U.S. Navy photo by Javier Chagoya.)

The Honorable Robert Work was one of multiple NPS alumni headlining discussions during AFCEA West 2011, the defense and information technology conference and exposition co-sponsored by the Armed Forces Communications and Electronics Association (AFCEA) and the U.S. Naval Institute, Jan. 25-27 in San Diego, Calif. (U.S. Navy photo by MC1 Grant P. Ammon.)

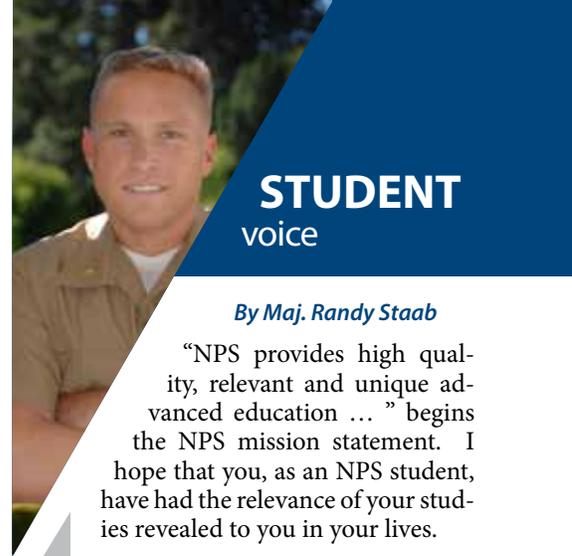


National Security Affairs Professor Robert Springborg is a nationally-recognized expert on Egypt, and last month's protests in the North African nation made him a popular resource for major media outlets across the world. Over just a few weeks, Springborg has been interviewed by "The New York Times," the BBC, "TIME magazine" and several other national and international outlets. (U.S. Navy photo by Javier Chagoya.)

NRSW Police Officer Jeffrey Pray wears a particulate respirator during the simulated exercise of a suspicious package at the base post office, part of the Solid Curtain/Citadel Shield Exercise held at Naval shore installations across the U.S. from Feb. 22-24. (U.S. Navy photo by Javier Chagoya.)



Members of the newly-formed Sea Service Leadership Association (SSLA) Monterey Bay Chapter gather in the Tower Room of Herrmann Hall, Feb. 3, for their first official event. Established in 1978, SSLA is the only non-profit organization in the U.S. dedicated to providing professional development through networking, education and mentorship of women from all three of the maritime armed forces. (U.S. Navy photo by MC1 Rob Rubio.)



## STUDENT voice

By Maj. Randy Staab

"NPS provides high quality, relevant and unique advanced education ..." begins the NPS mission statement. I hope that you, as an NPS student, have had the relevance of your studies revealed to you in your lives.

For instance, whilst enjoying a matutinal jog along the Monterey Bay Coastal Bike Trail, I was listening to a podcast of "The Economist" in which they discussed running out of Internet addresses. Granted, whilst we are indeed depleting our existing IPv4 addresses of about 4.3 billion, I knew that the notion of running out of IP addresses was not entirely correct because it was debunked in my EC4785 Internet Engineering course with Professor McEachen, where I learned that the implementation of IPv6 provides for 2<sup>128</sup> (over 340 undecillion) addresses.

Similarly, I was recently at a lawyer friend's birthday party in Salinas where one of the guests was bemoaning the wasteful fiscal policy of the federal government and decried the ridiculous expenditure of over half our tax dollars on defense. Once again, I knew from my GB4053 Defense Budget and Financial Management Policy course with Professor Brook that the facts were not correct - the DoD accounts for 52 percent of discretionary spending, but only 23 percent of total federal spending. Have you had similar experiences?

The President's Student Council needs your input; please consider joining Vice-Chairman, Capt Jim Gerber, Recorder, LTJG Kerri Ackman, and me on the student council by contacting [rjstaab@nps.edu](mailto:rjstaab@nps.edu). The PSC is the venue for your actionable ideas and suggestions to become a reality.

Maj. Staab is the Chairman of the President's Student Council. Visit the PSC on the intranet at <http://intranet/psc/index.html>.

# On Campus this Month



**March 8**  
Mary Ann Davidson  
Chief Security Officer, Oracle Corporation  
Speaker, SGL Series  
POC Lt. j.g. Patricia Bouldin Ext. 7773

**March 20-24**  
International Data Farming Workshop 22  
POC

**March 11**  
Girls Day In  
POC Dr. Dave Nickles Ext.



**March 21-25**  
Enrichment Week

*U.S. Navy photo by Javier Chagoya*



**March 11**  
Dr. Lee-Lueng Fu, JPL Fellow  
Speaker, GSEAS Lecture  
POC



**March 25**  
Winter Graduation  
Speaker, CNO Adm. Gary Roughead  
POC Lt. j.g. Patricia Bouldin Ext. 7773

*U.S. Navy photo by MCC Tiffini Jones Vanderwyst*

**Facebook.com/NPSmonterey**  
*Official NPS Facebook page reaches 1,000 followers. Are you one?*



## Historical Highlights

Today's Fleet Numerical Meteorology and Oceanography Center (FNMOC) in Monterey is the Navy's global hub for worldwide ocean and weather forecasting. Its origins can be traced to a 1958 research initiative called Project NANWEP (Navy Numerical Weather Problems). In 1959, NPS acquired CDC 1604 Model No. 1/Serial No. 1, Seymour Cray's pioneering concept for the world's first all solid-state, digital computer. To capitalize on this new computing capability, the Navy assigned Project NANWEP to NPS on March 9, 1959.

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



*Lt.j.g. Harry Nicholson at the console of CDC 1604, the world's first digital computer, in 1960.*