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**OUR LEGACY IN SPACE**

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Leading Nuclear Detection, Interdiction Research

Alumni Profiles:

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SAIC CEO Walt Havenstein
Our impact in space flight represents a proud heritage for our institution. Indeed. And although it is a highly visible one to the general populace, it is but one mark our institution makes on the fabric of the Navy, defense and national security establishments. Our impact in space flight represents a proud heritage for our institution. Indeed. And although it is a highly visible one to the general populace, it is but one mark our institution makes on the fabric of the Navy, defense and national security establishments. Our graduates go on to senior positions of leadership across our uniformed services – a Chairman of the Joint Chiefs, a Commandant of the Marine Corps, Combatant Commanders and four star leaders across our Armed Forces – these alumni guide their organizations and leave tremendous marks on the security of our nation.

Even out of the service, our alumni are forging legacies in fields they are passionate about, and you can also read about some of them in this edition. Marshall Carter is Chairman of the Board of Directors for the New York Stock Exchange, and is a driven leader and teacher on ethical leadership in a financial profession that needs it. Walt Havenstein, Chief Executive Officer at Science Applications International Corporation, dedicates his free time as Chairman of the Board of FIRST, or For Inspiration and Recognition of Science and Technology – an effort that inspires youth into exploring careers in the science and technology disciplines. These are graduates that will leave amazing legacies.

These are wonderful stories, spotlighting individuals in senior leadership positions across American society. But perhaps our greatest achievement – our greatest legacy – comes in the form of a collective of the approximate 1,200 students we graduate every year. They are provided with an impactful, relevant, quality education, and I can proudly say that it is not just me offering these exalting praises, for our university recently made history. For the second straight term, NPS has received the relevant, quality education, and I can proudly say that it is not just me offering these exalting praises, for our university recently made history. For the second straight term, NPS has received the outstanding award for a maximum 10-year reaccreditation from the Western Association of Schools and Colleges … again. It’s an achievement few universities across the nation can claim.

The Space Shuttle Endeavour is soon scheduled to blast-off into space from Launch Pad 39A at Kennedy Space Center in Florida – it will be the final mission for the Endeavour and one of just two remaining missions for the Space Transportation Systems (STS) program – a remarkable feat of human engineering and determination that has resulted in 30 years of continuous exploration into the frontier of space.

In command of Endeavour will be Capt. Mark Kelly, a 1994 aeronautical engineering graduate of the Naval Postgraduate School. Following Endeavour, the final Space Shuttle mission, STS-135, will propel Atlantis into orbit commanded by retired Capt. Christopher Ferguson, a 1991 NPS aeronautical engineering graduate. As a matter of fact, when the shuttle program comes to an end, four out of the final five shuttle missions will have been led by graduates of the Naval Postgraduate School.

It’s a truly honorable distinction, and one that compels me to think about legacies. In this edition of "In Review" you will read about this university’s amazing legacy in America’s manned space flight programs. From the Mercury Seven through the close of the space shuttle program, NPS graduate astronauts have been key players in some of the most impactful moments in American history.

The Naval Postgraduate School has granted graduate degrees to more astronauts than any institution in the world. As the shuttle program comes to a close, we reminisce about our place in America's journey into space.

The President's Message by Daniel T. Oliver, Vice Adm., United States Navy (Ret.), President, Naval Postgraduate School.
University Welcomes New Dean of Students

When NPS welcomed its new Dean of Students early this year, it was a face the campus had seen many times before. Capt. Alan Poindexter is not only an alumnus, earning a Master of Science degree in aeronautical engineering in 1995, he has also visited the campus on several occasions. With a couple of months now under his belt, he has settled into his new role, and looks forward to providing leadership to the 1,500 plus students on campus.

"I'm very glad to be back serving in this position," said Poindexter. "I think it's a great opportunity for me to lead and influence officers as they're going to school here. I think I have a lot to offer them and I hope I can serve them and help them make their way through the school."

As a veteran NASA astronaut with two previous space shuttle flights, one as commander of STS-131 in early 2010, Poindexter attributed part of his success to the technical education he received at NPS.

"The technical knowledge and the technical education certainly assisted me," said Poindexter. "I think a large part, though, was that I broadened my knowledge base. I learned about systems management, systems engineering and it allowed me to be more analytical in my thought process. . . . My NPS education was instrumental in my follow-in tours."

"It's no surprise that an NPS Dean considers education to be an important part of an officer's career path - in fact, Poindexter sums it up with one word."

"Critical," he stated. "Whether it’s to execute training, management, business or one of the many other great degrees we offer here, it will serve the individual and the Navy. NPS service will very much have to that capability and that background."

Poindexter affirmed that his goal is to continue to serve the student population. "I'm really honored to be back here in this job working for the school and working for the students,” he concluded. “I have an open door policy and I would be glad to talk with or counsel anyone, and I hope that I can influence them in some small way."

NPS Prepping for Massive Online Wargame

Everyone at NPS and far beyond will soon be able to participate in an exciting new massive-multiplayer 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 MMOGWL 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 Institute Associate Professor Don Brutzman, project partners from the Bay Area-based Institute for the Study of the Future and representatives from the sponsoring Office of Naval Research 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 technology 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.”

Dates for the interactive online game are still tentative. It runs on both PCs and Macs, and no prior installations on your computer are required. For more information, go to http://mmsgwl.nps.edu.

Field Project Uses UUVs to Map Tidal Inlet Flows

As future Navy SEALS swim silently toward shore, they will be armed with validated 3D maps of the tides, waves and currents that simultaneously tests the students that simultaneously tests the target thanks to cutting-edge research by a Naval Postgraduate School faculty-student team led by Assistant Professor of Oceanography Jamie MacMahan. Seven students in MacMahan’s Oceanography Assistant Professor Jamie MacMahan, center, gathers with officer students and teaching-assistants from his Littoral Field Studies course around NPS’ EcoMapper Unmanned Underwater Vehicle.

The Hartnell College STEM internship program coordinated by NPS mentors for the Hartnell students to be engaged in research projects and opportunities in a cutting-edge game. The Hartnell College STEM internship program took place Mar. 23, as 15 college students discussed research projects and opportunities in a small room with potential NPS mentors.

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Field Project Uses UUVs to Map Tidal Inlet Flows

Littoral Field Studies course participated in a 10-day capstone field experiment collecting tidal inlet measurements using portable unmanned underwater vehicles (UUVs).They programmed NPS EcoMapper UUV to collect real-time data on waves, currents, temperature, salinity, sediments, pollutants and bathymetry in the highly energetic Bear Cut tidal inlet near Miami, Fla., and learned how to input the data into the Navy’s nearshore Dell3D model and output the resulting maps using Google Earth Mathlab.

And finally, students from Hartnell College continued to take part in a campus internship coordinated by the Cebrowski Institute. The initial meeting was led with campus professors and researchers for the 2011 Hartnell-cruise STEM internship program took place Mar. 23, as 15 college students discussed research projects and opportunities in a small room with potential NPS mentors.

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The Hartnell College STEM (Science, Technology, Engineering and Mathematics) internship program began in 2006 with the placement of six students at the Fremont Peak Observatory and two students at NPS. Since then, the internship program and placement has expanded substantially.

The Cebrowski Institute took a leadership role in the program, expanding and recruiting more NPS mentors for the Hartnell students to be engaged in research with. Over the past few years, more than 50 Hartnell students have participated in this related research internships at NPS.

The strong relationship which has been established between NPS and Hartnell in mentoring students towards STEM majors has been tremendously effective, and several initiatives have now been expanded to include students with more diverse academic backgrounds. The program has now been expanded into campus-wide professional development opportunities at the Valley college. The program was also the key ingredient in NPS’ selection for the Hartnell President’s Partnership of Excellence Award in 2008.

NPS Expands Programs for Area Students of All Ages

More than 50 young women from Monterey-area high schools and middle schools descended from Monterey-area high schools and middle schools descended upon the Naval Postgraduate School campus, Mar. 13, as part of the Girls Day In! event program. Girls Day In is a new K-12 outreach program that aims to introduce science and technology disciplines to children in the local Monterey community by providing opportunities for female students from local schools to explore the fields of science, technology, engineering and math (STEM).

During the day-long event, the girls were exposed to a variety of events, presentations and activities which included volunteer work takes place at the students do internships within the science and research departments. The students started the day with an audio-visual presentation from Associate Professors of Physics Andres Larrazza and Bruce Denardo, where they witnessed the effects of the interaction between heat, cold and sound and the different research approaches that are being explored at NPS to take advantage of these effects.

"Girls Day In is a new K-12 outreach program that aims to introduce science and technology disciplines to children in the local Monterey community by providing opportunities for female students from local schools to explore the fields of science, technology, engineering and math (STEM)."
Dr. Timothy Chung, Director

A new group of unmanned systems enthusiasts from the Monterey Bay region will have a new home at the Naval Postgraduate School.

CRUSER Joins Robotics and Unmanned Systems Research, Education at NPS

Chartered by Under Secretary of the Navy Robert Work, NPS has commissioned the Consortium for Robotics and Unmanned Systems Education and Research (CRUSER). CRUSER is a wide base community of interest that offers a collaborative environment for researchers, industry, students and defense personnel interested in all aspects of employing unmanned system technology within an operational environment now and in the future.

Robotics and unmanned systems are rapidly developed and utilized within the Navy to handle tasks that are too dull, dirty or dangerous for humans. The Terrestr

DR. LEONARD FERRARI

Dr. Ronald E. Brown, whose contributions to the success and reputation of NPS go beyond his teaching and research contributions, said NPS Executive Vice President and Provost Dr. Leonard Ferrar"I'm very grateful for the acknowledgement of my work," said Brown. "I'm grateful for the opportunity provided here at the Naval Postgraduate School to follow a lifetime of dreamng and actually make things happen. The opportunity to contribute to the education and critical decision-making of our fine armed forces members." Brown noted that working with students is one of many valued aspects of his work at NPS. "The contributions cited in this award," Brown said, "resulted from close working relationships with dedicated and well-motivated student researchers and very rewarding collaborations here and abroad, and by the continuous support from the Office of Naval Research." Brown continues to do research on shaped charges and other projects that have a significant impact on explosive behavior.

DOE mission.

CRUSER’s overall goal is to capture NPS’ unique synergy between operationally-experienced students and a diverse faculty who focuses on defense related issues.”

"The innovation, technical talent and concept generation potential at NPS provides an excellent foundation for a Department of Defense venue to cooperatively engage in all aspects of unmanned system education and research." 

Dr. Timothy Chung, Director of Research and Education for CRUSER, and the RAID 400 Robot.

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National Security Affairs (NSA) Professor Robert Springborg was recognized as a top expert in the world, with his work being called the power curve on these topics. He has been a strong advocate for the importance of national security research, and his work has been widely cited in academic and professional circles.

During his visit, Simpson met with a group of NPS faculty from across departments for discussion about the Information Dominance curriculum. Simpson explained, “The technology curve is an essential part of the Navy’s future. We need to ensure that technology curve is used to achieve the desired effect. We are not going to be able to defend everywhere on the technology curve.”

In Memoriam, Distinguished Professor Emeritus Peter Lewis

Peter Lewis, a mathematician and computer scientist, passed away on April 8, at the age of 76. Lewis was known for his contributions to statistical computing and getting his work noticed and accepted into influential positions in the research community. He was an early promoter of statistical computing and getting his work noticed and accepted into influential positions in the research community.

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As part of a return visit to his alma mater, NPS alumnus and Corporate Director for the Defense and Space Operations Program at the Naval Postgraduate School (NPS), David Simpson met with a small group of faculty across disciplines to discuss the need for more research in the field of information dominance. The NPS has been a pioneer in this area, and its faculty have been instrumental in shaping the future of information dominance.

In conclusion, the NPS Faculty Showcase and Center for Stabilization and Reconstruction Studies (CSRS) annual workshop “Agriculture: Promoting Resilience and Recovery for Affected Environments” at Casa Munras Hotel in Monterey from Jan. 31 - Feb. 3. The workshop brought together military, government and non-government representatives from the U.S. and abroad to discuss the role of agricultural development in achieving political and socio-economic stabilization.

Participants were able to network with others in their field and to share insight and program ideas to help promote agricultural recovery in conflict-affected environments. The discussions ranged from property rights in conflict-affected environments to security and stabilization. As one participant noted, "Without security, there will be no peace. Without peace, there will be no development."

The workshop seeks collaboration on Military Use of Wireless Comms Technology

Computer Science Associate Professor Dennis M. Volpant has presented his research during the Military Wireless Communications Research Group Invitational Workshop, Jan. 12. Volpant explains the architecture of his project that is used to detect and recognize voices in the course of a single week. He was interviewed by “Wired Magazine” and NPS Associate Professor James Russell was interviewed for a piece on MINIC.

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NPS’ CENETIX a Leader in Network-Controlled, Stand-Off Maritime Nuclear Radiological Detection

For five years, a Naval Postgraduate School team led by Principal Investigator Prof. Alex Bordetsky has pushed the envelope of network-controlled, stand-off nuclear radiological threat detection through a unique program of Tactical Network Topology Maritime Interdiction Operations (MIO) field experiments jointly conducted by the NPS Center for Network Innovation and Experimentation (CENETIX) and Lawrence Livermore National Laboratory (LLNL).

The goal of the NPS-LLNL MIO program is a layered, wirelessly-networked, globally-integrated nuclear radiological detection, warning and interdiction system in which remote radiation source experts and biometric data analysts at geographically distributed command centers can actively see, hear and evaluate data online in near real-time from tagged and tracked small maritime targets, including video feeds and text messaging, to guide further surveillance and collection by decision makers.

“This is a high priority international counterterrorism effort that purposefully pushes the limits of synergistic communication and collaboration among sea, air and land sensors; homeland security and maritime personnel; and information subject matter experts; front-line first responders; special operations collaboration among sea, air and land sensors; remote operators and purposefully pushes the limits of synergistic communication and makers. text messaging, to guide further surveillance and collection by decision tags and tracked small maritime targets, including video feeds and text messaging, to guide further surveillance and collection by decision makers.”

“Historically, MIO experimentation emerged out of collaboration among geographically distributed Special ForcesISR [intelligence, surveillance and reconnaissance] units using cybersecurity to track high-value targets,” Bordetsky explained. “It’s evolved to the point that today, NPS Dean of Research Karl van Bibber has called our unique campaign of experimental studies in man-machine integration using cybersecurity collaboration a new direction in science.”

The heart of CENETIX’s experimental program is its interdisciplinary NPS faculty-student team.

“We have the enthusiastic participation of NPS master’s and doctoral students from Information Systems, Information Operations, C4I, and Defense Analysis/ Special Operations who help integrate the MIO detection and expert reachback network, design experimental tasks, play operational roles, capture data, and do post-experiment analysis,” Bordetsky said. “In 2004, the first German, Swedish, Greek and Singapore officer students focused on nuclear threat detection MIO for their thesis research here at NPS, and then set it up in their countries when they returned. We wouldn’t have been nearly so successful in developing the international portion of the program if we hadn’t had these student ambassadors.”

“The strongest facet of this research is that it brings researchers together with actual operators,” said Ph.D. student and Research Associate Sean Kragelund, who worked with the team’s first surface robot, the Sea Fox, and has been a mock combat swimmer for experiments. “Operator participation adds value to the research results, and they learn how to operate and leverage new technology including unmanned vehicles, biometric identification devices and nuclear detection equipment.

“The teams’ 2007 to 2009 experiments focused on network-enabled early detection and warning of nuclear related material at multiple overseas locations, tracking the contraband to its onloading onto small boats, and detecting and interdicting the craft at multiple U.S. entry points. A 2008 scenario was detecting, searching for and interdicting nuclear radiological material hidden in a large cargo ship, carried out jointly with the Port Authority of New York and New Jersey.

“The high priority the New York-New Jersey Port Authority places on maritime situational awareness for nuclear radiological material, including improvised nuclear devices, emerged out of their experiences surrounding September 11th,” Bordetsky noted.

Recent experimental scenarios include using fast boats equipped with Adaptable Radiation Area Monitor detectors for drive-by screening, detection and pursuit; feeding live reports and video from network-enabled swimmers and sensor data from unmanned robotic boats and unmanned aerial vehicles (UAVs) to remote experts who send back guidance to front-line responders; collaboration between U.S. experts and overseas operators in Germany and Greece on network-controlled check point set up; open water tracking of a source transfer to a sea port point of entry near an overseas NATO-U.S. installation; and patrol crews from multiple countries collaborating in targeting small craft tracking, screening, pursuit and interdiction incorporating UAVs.

“Our swimmers and autonomous vehicles are now fully-integrated network nodes,” stressed Senior Researcher Eugene Bourakov. “Our goal is to have full autonomy for all of our gear to have not just tactical networking reach, but true global reach in near real-time.

“What I like best is that we’ve shown how to integrate swimmers and autonomous vehicles into the system so they become network nodes, feeding video to distant experts,” seconded Mike Clement, a doctoral student and research associate.

In late April, the team will integrate real-time reachback to radiological experts into the daily patrols of San Francisco Bay Maritime Police and Coast Guard vessel crews. “This will be a bring-your-own-boat, plug-and-play, real-world testbed where we’ll get set up virtual private networks [VPNs] in just a few hours,” Bordetsky said. “In June, we then plan to augment the network with pico [less than 1 kg] satellite-based ad hoc mobile orbital nodes assembled and launched by CENETIX in cooperation with the NPS Space Systems Academic Group’s Cube Satellite team “to add the tracked capability to track covertly tagged targets and share detection findings via ‘private’ orbital nodes.”

“In addition to the students, our success is due to the talent and dedication of CENETIX researchers,” Bordetsky stressed. “Eugene Bourakov provides invaluable contributions to swimmer networking, adaptive antennas, voice control, electronic tagging and masking the test bed infrastructure. Other key participants are Michael Clement, Marianna Verett, John Looney, Sue Hutchins and Peter Guest; Ph.D. students Steve Mullins, Bryan Hudgens and Richard Bergin; and partner faculty from a number of NPS departments.

In addition to NPS and Lawrence Livermore, participants in the MIO program are Lockheed Martin’s Center for Innovation, the Army Research Center at Picatinny Arsenal, the University of Bundeswehr in Germany; the Swedish Naval Warfare Center jointly with the Swedish Defense Research Agency, and NATO’s MIO Training Center in Souda Bay.

CENETIX Team Advances Networked Medicine

NPS Associate Professor Alex Bordetsky and his CENETIX team are advancing network-enabled battlefield medicine, part of NPS Tactical Network Topology test-bed (TNT), upon the request of the Air Force Special Operations Chief Surgeon and in collaboration with Salinas Valley Memorial Healthcare System (SVMHS), field tests continue in hopes of developing network-controlled, unmanned systems to assist medics in delivering remote medical assistance to casualties in the battlefield.

“We started battlefield medical networking experimentation upon the request of the Air Force,” said Bordetsky. “They wanted to explore how to benefit from network-controlled systems to assist medics in delivering medication to a casualty site under fire or otherwise hazardous conditions.”

In a recent experiment at Camp Roberts, Bordetsky simulated a casualty in a remote location and established a network link to a medic on the ground then to a UAV flying over the casualty site. Finally, these readings were transmitted to an operations center, then to an advanced SVMHS workstation where it simulated the vital signs of the casualty.

The research scenario has future soldiers donned in advanced battlesuits that would send a soldier’s vital signals and could administer medicines if the soldier was injured in battle. A medic or an unmanned vehicle would get close enough to the soldier to establish a network link that would send the data to a Tactical Operations Center where it would then be sent to any location in the world. Doctors monitoring the patient’s vital signs could make medical decisions and take action by controlling the nano patch remotely.

Sounds like it all should be part of a science fiction novel, but with the NPS’ CENETIX team’s field experimentation effort, it is slowly becoming a reality.

By Barbara Honegger

"The strongest facet of this research is that it brings researchers together with actual operators," said Ph.D. student and Research Associate Sean Kragelund, who worked with the team’s first surface robot, the Sea Fox, and has been a mock combat swimmer for experiments. "Operator participation adds value to the research results, and they learn how to operate and leverage new technology including unmanned vehicles, biometric identification devices and nuclear detection equipment."
His mission in becoming an astronaut was to inspire future generations. On January 28, 2003, aboard the Space Shuttle Columbia, he began, when Navy pilot Scott Carpenter (Navy General Line School) walked the campus in 1959. Carpenter was selected in the first round of astronauts to lead the U.S. in the space race with the Soviet Union. His astronaut class, known as the Mercury Seven, were the first Americans in space, and paved the way for the 325 astronauts to date that have followed in their footsteps. The Mercury Seven were part of an unforgettable era, and a series of historic firsts that proved the U.S. to be a leading contender in the quest to explore the vastness of space. NPS Professor and former astronaut John Phillips (ORML, 1977) recalled being a child in the thick of the space race, and the beginning of a lifelong goal that would take him on four space missions, and ultimately, to the Naval Postgraduate School.

"It was just before my tenth birthday that the first human space flight happened. It was Yuri Gagarin, the Russian cosmonaut," explained Phillips, one of four former astronauts currently serving as faculty at NPS. "He flew in space in 1961, and I decided that's what I wanted to do. To me, it's about exploration. If I had been born a hundred years earlier, maybe I would have wanted to be a polar explorer or a jungle explorer. But in my particular period of history, space was the beckoning field of exploration. "In human nature to want to explore and learn about your environment," he continued. "As soon as a culture stops doing that and starts looking only inward, they stagnate. I think that exploring the unknown keeps our culture and our society viable and dynamic."

That exploration has taken shape through the National Aeronautics and Space Administration, NASA, and the space programs they oversee: Mercury, Gemini, Apollo, Skylab and Space Transportation System (STS), also known as the shuttle program. With the early programs’ astronauts commonly selected from a pool of military candidates, NPS had an opportunity to provide NASA with highly-qualified young pilots fit for spaceflight. In the years since Carpenter, that involvement has developed tenfold, and NPS has maintained a commitment to furthering the U.S. role in space exploration.

Retired astronaut and 1963 aeronautical engineering graduate Eugene Cernan is most noted for being the latest man to set foot on the moon. He served as Commander of Apollo 17, which launched December 7, 1972, alongside fellow NPS alumni, Command Module Pilot Ronald Evans (Aeronautical Engineering, 1964). He was one of four NPS astronauts to serve in the Apollo program.

"I think in the Mercury through Apollo and early shuttle days, we were really taking some risk in space exploration," explained astronaut and NPS alumnus Capt. Kenneth Ham (Aeronautical Engineering, 1996). "Shuttle missions today are still risky, however our engineers, flight controllers, and maintainers have had the luxury of working on the same vehicles over and over again to learn how to hammer the risk out of the flights."

After 30 years and 133 missions, the space shuttle fleet is scheduled to retire this year, with NPS alumni Capt. Mark Kelly (Aeronautical Engineering, 1994) and Chris Ferguson (Aeronautical Engineering, 1991) commanding the final two missions, STS-134 Endeavour and STS-135 Atlantis respectively. NPS’ new Dean of Students, Capt. Alan Poindexter (Aeronautical Engineering, 1995), and Ham also commanded two of the programs five final shuttle missions aboard STS-131 Discovery and STS-133 Atlantis in 2010.

Most recently, STS-133 Discovery retired after her final mission on March 9. It was a bittersweet moment for former astronaut and current NPS' new Dean of Students, Capt. Alan Poindexter (Aeronautical Engineering, 1995), and Ham also commanded two of the programs five final shuttle missions aboard STS-131 Discovery and STS-133 Atlantis in 2010.

Capt. Michael Smith, USN

April 30, 1945 - January 28, 1986

Smith graduated from the Naval Academy in 1967, and went on to receive his Master of Science degree in Aeronautical Engineering from NPS in 1969. He served a tour in Vietnam as a pilot aboard the USS Kitty Hawk. He was selected to the astronaut program in 1986 and completed a year-long training program for the shuttle missions. Smith was posthumously awarded the Congressional Space Medal of Honor and the Defense Distinguished Service Medal. He is survived by his wife and three children.

"Sometimes when we reach for the stars, we fall short, but we must pick ourselves up again and press on despite the pain."  
President Ronald Reagan

January 1986

"Mankind is led into the darkness beyond our world by the temptation of discovery and the longing to understand. Our journey into space will go on."

President George W. Bush

February 1, 2003

McCool graduated from the Naval Academy in 1963, and went on to receive his Master of Science degree in Aeronautical Engineering from NPS in 1969. He flew 24 different aircraft during his time in the Navy, and was a seasoned pilot before he was selected to the astronaut program in 1986. Before the launch of STS-107, McCool noted the importance of their mission to helping future generations through discoveries in science and technology. McCool was posthumously awarded the Congressional Space Medal of Honor and the Defense Distinguished Service Medal. He is survived by his wife and three children.
MERCURY GEMINI & APOLLO SKYLAB SPACE TRANSPORTATION SYSTEMS

Four of the Final Five Shuttle Missions are Commanded by NPS Graduates

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Challenger was lost on January 28, 1986, when a faulty O-ring caused the shuttle to break apart 73 seconds after liftoff. NPS alumn Cap. Michael Smith was among those killed in the Challenger disaster.

“If you die before your time, you want people to remember you with a smile. And that is certainly the case with both Mike Smith and Willie McCool,” said Coats.

In their memory, NPS established the Astronaut Michael J. Smith, CAPT, USN and Astronaut William C. McCool, CDR, USN Astronautics Award. The award was established to recognize outstanding graduates of NPS Space Systems programs.

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Today is a very special day of great achievement for each one of you nearly 200 accomplished students and future leaders who will play a major role in institutions of great importance to your nations. “I can’t express strongly enough how wonderful it’s been to be a student here at NPS. As an officer matures into the senior ranks, critical thinking skills become invaluable in both staff and command assignments, and the NPS faculty and curricula hone these priceless skills of thinking and writing critically,” Reynolds said. “You learn how the academic world integrates with military operations and strategy, and because of the joint and multinational nature of the student body, you get to know a broad demographic of U.S. military officers from across the services, foreign officers and civilians you would never otherwise meet.”

On Mar. 15, top faculty and students were recognized for outstanding achievement at the Winter Quarter Awards ceremony. Highlighting the honors was the presentation of the Bronze Star Medal to Air Force Special Agent 1st Lt. Kevin Burleson for meritorious achievement and exemplary leadership in intelligence operations while assigned to Air Force Special Operations Investigations in Baghram, Afghanistan. Reynolds received the Navy League Award for Highest Academic Achievement and the Chief of Naval Personnel Award for Academic Excellence in Manpower Systems Analysis, and distance learning student, Susan LaShomb, Technical Manager for Patrol Aircraft Programs, won the Outstanding Academic Achievement Award for a Department of Defense student.

“Though I undertook an NPS master’s program in Program Management to increase my knowledge of Department of Defense acquisition, I acquired far more value than just an increase in my knowledge base,” LaShomb said. “In addition to broadening my understanding of logistics, software, manufacturing, finance and systems engineering and advancing my program management and team skills, my research project was extremely rewarding and important to the Department of the Navy.”

My NPS degree in combination with on-the-job assignments resulted in advancement at work to Naval Undersea Warfare Center Technical Program Manager for the Maritime Surveillance Systems Program and NAVYEA Acting Distributed Undersea Sensor Systems Technical Warrant Officer.”

The outstanding faculty awards went to Professor of Physics Ronald Brown, who won the Richard W. Hammer Faculty Award for Interdisciplinary Achievement, Professor Anders Strindberg of the Center for Homeland Defense and Security who received the Lieutenant Commander David L. Williams Outstanding Professor Award, and Dr. Donald Mandell, Jr. who won the Meyer Award for Teaching Excellence in Systems Engineering (Distance Learning).

“I’m overjoyed with the acknowledgment of my work,” said Brown, an expert in modeling explosive detonations who came to NPS in 2002 after retiring from four decades in the aerospace industry. “I’m very grateful for the opportunities provided here at the Naval Postgraduate School to follow a lifelong dream of teaching and, more recently, a desire to contribute to the education and critical decision-making of our fine armed forces members.”

Of the 262 graduates, 139 came from the Navy, 22 Marine Corps, 11 Air Force, three Army, one Air National Guard, and one Coast Guard. The class also included 72 Department of Defense civilians and 13 international students from nine allied and coalition nations. Degrees awarded were three Ph.Ds, 95 Masters of Science, 110 Masters of Arts, 51 Executive Masters of Business Administration, seven Masters of Business Administration, two Mechanical Engineering, and five dual degrees. Seventy-five graduates also earned Joint Professional Military Education (JPME) certification from the Naval War College. Sixty-five degrees were awarded in absentia to students unable to attend due to operational commitments.
From the halls of NPS to the Chief Executive Officer of the New York Stock Exchange, the comprehensive Operations Research program at NPS helped prepare alumnus Marshall Carter for over 30 years in finance.

By Amanda D. Stein

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 for the Sloan School of Management at MIT and Harvard’s Kennedy School of Government.

Before he became the head of one of Wall Street’s most powerful organizations, and a speaker on ethical leadership, Carter served two tours in Vietnam with the United States Marine Corps, where he was awarded the Navy Cross and Purple Heart.

He was well educated through the services, receiving his Bachelor of Science degree in Civil Engineering from the U.S. Military Academy at West Point, and his Master of Science degree in Operations Research (OR) and Systems Analysis from the Naval Postgraduate School in 1970.

He transitioned to the Reserves in 1975, and looked for a fresh start in the private sector. That time in America was a difficult one, however, and the heated debate over the Vietnam War had left employees wary of hiring vets.

"At the end of the Vietnam War, if you were a heavy combat vet, you couldn’t get a job. Because at that time, people hated the war, and the public seemed to also hate the service people. I got rejected by 85 companies. It was very tough for vets to get a job."

Despite the difficulties he found in transitioning his career out of the public sector, he was always confident that some of the biggest lessons he learned in the services, such as ethics, leadership and the value of education, would translate seamlessly to the private sector.

Relying on his experiences from years in the service, Carter secured a position at the Chase Manhattan Bank, working towards establishing a system similar to the Defense Department’s planning, programming and budgeting system.

"There was a direct application of the skills I had learned in the graduate program at NPS, and in working at the Marine Corps headquarters in the Pentagon."

Banking ultimately proved to be something that Carter was very good at, and was a place where his skill set and values were both needed and applicable. "I think that a graduate education really gives you the intellectual knowledge that you need to progress upward in your career.

Marshall Carter worked for First Union Bank and fallen Branch Executive Officer of Science Applications International Corporation (SAIC), which uses scientific, engineering and technology applications to solve real-world problems. He also serves as the Chairman of the Board of Directors of For Inspiration and Recognition of Science and Technology (FIRST), a not-for-profit organization founded to inspire young people’s interest and participation in science and technology.

"Many of the solutions to national problems, and ways to improve our lifestyles here in the United States and around the world, come from science, technology, engineering and mathematics,” explained Havenstein, who received his master's degree in electrical engineering from NPS in 1977. “Virtually all of our standards of living are based on innovation and that start with a fundamental understanding of science, the application of science through engineering, and inevitably, mathematics. Whether it’s the house you live in, the water you drink, the energy you use, or the healthcare that we take for granted, all are based on solutions or inventions that came from the application of basic science and mathematics.

Naturally, as the STEM workforce ages, the need for fresh young faces or inventions that came from the application of basic science and mathematics.

The Naval Postgraduate School has long been vested in the STEM – or Science, Technology, Engineering and Mathematics – disciplines, not only for the thousands of military officers and DoD civilians who have crossed the stage in King Auditorium, but also for the dozens of young adults interning across campus at any given time. NPS alumni see first-hand the opportunities for college scholarships. Havenstein has a noticeable passion for FIRST, noting that there should be an emphasis on the STEM fields in much the same way sports are encouraged at an early age.

"If you are going to inspire young people to want to deal with the rigors of these academic disciplines, you have to capture their imaginations relatively early in life, and reinforce that imagination by making what I will call heroes out of scientists and engineers, the way we do out of athletes."

When Havenstein took his position at SAIC in 2009, he brought his excitement for FIRST with him, garnering support throughout the company, and adding new volunteers and mentors to the roster. The collaboration allows SAIC to give back to their community by providing young people with an academic coach to help in their projects.

“The future generation of our nation … frankly the people who are going to find a cure for cancer, and the people who are going to find better ways to protect our environment and be good stewards of our natural resources … are going to be building upon a firm understanding of science, mathematics and technology” said Havenstein.

One of FIRST’s widely-recognized projects, First Lego League (FLL), the collaboration allows SAIC to give back to their community by providing young people with an academic coach to help in their projects.

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Walt Havenstein
CEO, Science Applications International Corp
Electrical Engineering, '77

By Amanda D. Stein

Continued on page 22

Continued on page 22
Alumnus Carter Continued

In his lectures at Harvard and MIT, Carter notes the qualities that an effective leader possesses—traits that are necessary everywhere from the contributions that benefit society, the result is people are broke or they’re too much on making money for the corporation, as opposed to making ethics training very early on, starting at 18 or 19 years old. And the second for that, “he added. “The first is that in the service academies, you get age, and earned him a reputation as an honest and fair leader.

And I think it gives you a certain level of maturity. “

As for Carter, he spends his free time flying his seaplane over New England, an activity he says allows him to clear his head of work challenges and focus on his hobby. “As a military leader, you don’t have a problem with you when you’re flying an airplane,” he said, “You have to leave that on the ground.”

Alumnus Havenstein Continued

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As all military pilots know, you don’t take a problem with you when you’re flying an airplane,” he said, “You have to leave that on the ground.”

Naval Postgraduate School Earns Landmark Second Consecutive Ten-Year WASC Reaccreditation

The Naval Postgraduate School has just received the highest possible ten-year reaccreditation from the Western Association of Schools and Colleges (WASC), for the second consecutive term.

In a March 7 letter notifying NPS President Dan Oliver of the maximum ten-year reaccreditation, WASC President Ralph A. Wolff said the visiting team remarked the school was “a model for others” in mapping coursework to program learning outcomes, conducting and supporting rigorous and robust program and curriculum reviews, and utilizing direct measures of student learning. The letter noted that “NPS has been energized under strong leadership” from the offices of Oliver and Executive Vice President and Provost Leonard Ferrari to every academic department and research institute on campus.

“NPS leadership, especially the President and Provost, should be praised for setting the tone that this is an important campus-wide effort,” said Vice President for Academic Affairs Dr. Doug Moses, co-chair of the WASC Planning Group. “This second consecutive ten-year reaccreditation is a strong endorsement for the high quality of our academic programs and the dedication and effectiveness of our faculty.”

Oliver, in turn, thanked and praised the entire NPS community. “I want everyone to know how proud I am to be here and to have been part of the team that worked so hard to earn this highest possible ten-year WASC reaccreditation,” Oliver said. “It was a true all hands’ effort—an all-inclusive win—involving all of the campus community. It’s both a great achievement and recognition that we’ve met the exacting WASC accreditation criteria with flying colors.”

That external peer review process included in-depth visits and assessments by a Capacity and Preparatory Review team and an Educational Effectiveness Review team, together consisting of two university presidents, two experts on educational effectiveness, a professor of electrical engineering, and a university vice president for finance and administration. Overseeing and shepherding the four-year reaccreditation effort was the WASC Planning Group with input from select faculty, campus leaders.

The WASC Planning Group was the heart and soul of the process, a team of immensely dedicated individuals who kept a continuous, rigorous and systematic self-review process moving for four years, on top of their regular duties,” said Dr. Fran Horvath, Executive Director of Institutional Planning and Communications, and member of the group. “This is a tremendous achievement for the Naval Postgraduate School—not many schools get the full ten years,” Horvath stressed. “It’s a strong reaffirmation that we have been and are on the right track, that we truly have been dedicated to continuous improvement, and that this has been recognized by our regional reviewing agency who are top professionals in their fields.”

“We should be very proud of this ten-year accreditation,” agreed Planning Group Co-Chair, and Operations Research department Chair Bob Dell. “It’s a recognition, after an external review process by a group of our peers, that we really care about providing high-quality academic programs and instruction to our students and that we have the robust means to provide that.”

Members of the Planning Group reflected on why the outcome was so successful.

“The major reason for the success, in my opinion, is the degree to which NPS embraced and leveraged the WASC reaccreditation process as a framework to encourage real change across campus,” noted Moses. “We were also successful because of the special culture here at NPS. We had a strong culture of self-evaluation, even before the process began, where we’ve highly attended to our sponsors. Our natural way of operating is that we’re continually asking if we’re providing high-quality, military-relevant programs and instruction to our students and that we have the robust means to provide that.”

Naval Postgraduate School

The Naval Postgraduate School in Review • April 2011

By Barbara Honogor

A view of the FIRST Robotics Competition in Washington, D.C. On Mar. 23 shows all 63 teams competing in the event. FIRST competitions like these offer scholarship opportunities to get young people involved in the STEM fields.

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Security Experts, NATO Leadership Headline Quarter's Lecture Series

Several experienced leaders and security experts took the stage in King Auditorium throughout the Winter quarter as part of the Secretary of the Navy Guest Lecture (SGL) series. NPS Executive Vice President and Provost, Dr. Leonard Newman, began the quarter with the State of NPS address on Jan. 18 to a packed auditorium of students, staff, faculty and guests.

He offered a brief overview of some of NPS’ noteworthy departments, projects and faculty accomplishments from 2010. As exciting as the past achievements have been, he noted, there are only more to come for 2011.

As an institution known as the nation’s premier national security research institution, Ferrari explained, NPS offers an entirely unique learning environment, rich with research opportunities that directly impact the Navy. Some examples that he gave included small satellites being developed in the Space Systems Academic Group under the direction of Jim Newman, research in modeling ice melt in the Arctic Ocean, and the advancement of weather processing capabilities.

"Our greatest asset is definitely our students," said Ferrari. "And I say that not because you outnumber me terribly in this audience, but because the advancement of weather processing capabilities."


The book, which made "The New York Times" bestseller list in its first week of release and has been named Book of the Year by "The Financial Times," is official reading at the National Defense University and a wide range of U.S. Air Force and Navy and Royal Australian Navy organizations.

"We're in the 'game changer' that we've been saying was coming," said Singer, "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 monstrosity 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."

The following week, NATO’s Supreme Allied Commander Transformation, French Air Force General Stéphane Abrial, strongly defended NATO's future's promise of an "allied spirit" and "a cooperative endeavor in which everyone stands to learn" from others.

"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 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. "Building 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 partners.

"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 really 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 Newman also began the quarter with the Quarter’s Lecture Series Leadership Headline "Amarillo" keynote talks.

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 nearby Monterey Plaza Hotel.

"The conferences 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.

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The Naval Postgraduate School is used to challenging the status quo. Whether it’s new inventions, tools, discoveries or academic programs, NPS is home to experimentation and innovation, an institution with academic quality and a commitment to academic excellence as its enduring values.

Leadership say this is precisely why imagining the future of NPS is an exciting opportunity for the Committee on the Future (CoF) as it continues its discovery process, helping shape a vision of what is possible and what is imperative as the committee forges ahead in support of the school’s strategic planning process.

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“The Committee on the Future is using the springboard of the school’s legacy to support, in a persuasive and compelling way, the continuation of our mission of exceptional education and research programs,” said NPS President Dan Oliver.

In January, the committee and its 10 working groups met to assess their progress in collecting and evaluating research, benchmarking data, consultations with peer organizations, and personal interviews. The results were impressive, according to committee leadership, a rich mix of internal and external information that provoked thought and invoked lively discussions that will form the basis for the committee’s final report to campus leadership in August 2011.

“I’m honored and pleased to be working with such a dynamic group,” said CoF Chair retired Rear Adm. Jerry Ellis, “all of whom understand the value of NPS, and are committed to demonstrating the school’s value and impact to those it serves.”

In early February, Ellis 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 Chief of Naval Operations, the Under Secretary of the Navy, Vice Chief of Naval Operations, Director of the Naval Staff, Director of the National Security Agency, Chief of Naval Research, and the Commander of the Naval Sea Systems Command, among others. The interviews provided vital information for the committee’s efforts and helped to frame DoD/DoN priorities.

NPS was noted as a high-quality institution, both in terms of education and research programs. The value of an NPS education was emphasized as the distinction between training and education, and the school’s “value” was recognized as fundamentally the intersection of young, joint, international future leaders with the latest science and technology.

Future global trends that were consistently mentioned as an important factor in DoD/DoN planning include cyber competency, climate change, unmanned systems, energy, budget reductions and international relations, topics noted by Executive Vice President and Provost Leonard Ferrari in January when he told the committee that “because NPS is a demand-driven institution, our educational mission must expand to include global partnerships, and our research efforts must remain responsive to DoD/DoN priorities as we advance into another century of serving our nation’s security.”

In late April, Ellis will present an update on the Committee to the NPS Board of Advisors. In May, Ellis and Haska will travel to the Air Force Institute of Technology, the Naval War College and again to Washington, D.C., to further interview institutional leaders and directors of federal agencies as the committee’s discovery process continues.

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Jaclyn Clement Kinney is captured here following the successful defense of her doctoral dissertation entitled, “The Bering Sea: Communication with the Western Subarctic Gyre, Mesoscale Activity, Shelf-Basin Exchange, and the Flow Through Bering Strait.”

Kinney received her Doctor of Philosophy this past quarter as a civilian oceanography student at the Naval Postgraduate School. Her work, supervised by world-renown Arctic expert Research Professor Wieslaw Maslowski, advances understanding of the exchange of water between the Bering Sea and the North Pacific, at the surface and at depth, via the western Aleutian Island passes.

Understanding the physical oceanography of the Bering Sea is of clear importance to the U.S. Navy due to the increase in ship traffic and exploration of natural resources that will likely coincide with the ongoing retreat of sea ice in the Western Arctic.

Chief of Naval Operations Adm. Gary Roughead adorned Kinney with the academic regalia that come with a doctoral degree during Winter quarter graduation ceremonies, but it wasn’t too long ago that students like Jaclyn would have been a much rarer sight on campus.

Doctoral programs at NPS have been in existence for several years, but the university has made a concerted effort to increase its number of doctoral candidates. In fact, this past 2010 academic year saw a total of 89 doctoral candidates engaged in studies across campus – just a few years prior, in 2006, that figure was less than half of that. It’s an effort that continues to the day.