Committee on the Future Sets the Stage
By Amanda D. Stein

As an institution grounded in providing future military and civilian leaders to the Navy and defense communities, the Naval Postgraduate School is consistently looking for ways to improve and adapt to meet the challenges facing the warfighter.

It was that mission that inspired NPS President Dan Oliver to assemble a committee of NPS faculty, administration and diverse external visionaries to assess the university's goals and objectives, and how to best prepare for the future. The NPS Committee on the Future presented the culmination of their efforts to university leadership during the group's final meeting, Sept. 13.

Assembled in Aug. 2010, the group's efforts to provide a framework for the evolution of the school's next strategic plan were summarized in a 74-page document, examining various aspects of the university, trends in defense and national security, and offered specific recommendations for opportunity and growth.

The committee presented the final document to Oliver and Executive Vice President and Provost Dr. Leonard Ferrari during their final meeting.

"[The process] truly showed, I think, to the leadership that we interviewed, that we really care about this school, and we are looking to the future."

—Jerry Ellis, Chair of the Committee on the Future

One aspect of the committee's process that was a source of pride for the group was the extensive number of interviews conducted with NPS stakeholders, including faculty members, defense leaders in Washington, D.C., and military and civilian personnel from across the country. Their recommendations will be considered in the development of the school's next strategic plan in 2012.

"In getting access to some of the senior-most leadership in the Department of Defense and other government agencies, we were able to hear their comments and thoughts," explained Committee Chair, retired Rear Adm. Winfred "Jerry" Ellis, "but we were also able to give them our thoughts and comments on the Naval Postgraduate School — what we are working on, what we see as important, and what we think we need to work on in the future. So there was a good exchange of information.

"[The process] truly showed, I think, to the leadership that we interviewed," he continued, "that we really care about this school. And we are looking to the future."
Dear Colleagues,

It is with great pleasure that I announce to you the establishment of the newest interdisciplinary Academic Group to join the diverse collection of national security-relevant scholarly endeavors on our campus — the Cyber Academic Group (CAG).

Early this year, then Chief of Naval Operations, Adm. Gary Roughead, made a special and specific request of the Naval Postgraduate School. That request was to establish a center of excellence in Cyber Systems and Operations at NPS. He had made a commitment to his Navy that they would have a strong, robust educational and research resource in cyber — a discipline that many defense officials believe will be one of the most critical capabilities to our future national security enterprise.

This request represents a tremendous opportunity for our institution. While cyber is clearly one of the key growth domains of current national defense, for the CNO to make this request of NPS is truly an expression of honor. It is, without question, a representative indication of the critical importance and trust the Navy places in NPS, and in our ability to produce quality education and research.

The Navy has also turned to us because NPS has established a reputation of flexibility and responsiveness to emerging defense needs. “Relevant” and “unique” are more than just words that are placed in our mission statement, they are guiding truths that both we at NPS, and the Navy's top leadership, believe in. And because these leaders have chosen NPS, we have been presented with a tremendous opportunity to once again prove our ability to be relevant — to provide quality, sophisticated graduate-level education and research in the most important arenas of national security. We are a true asset to the Departments of the Navy and Defense, and this new academic group will once again prove our worth to the leadership of these communities.

The essential function of the CAG will be to serve as the home for NPS’ new multidisciplinary graduate degree and research programs in Cyber Systems and Operations. As with other academic groups already established at NPS — such as the Space Systems Academic Group, and the Global Public Policy Academic Group — the CAG will be comprised of faculty from several relevant departments across campus, with these select faculty holding a joint appointment with their current home department and the CAG.

“Relevant” and “unique” are more than just words that are placed in our mission statement, they are guiding truths that both we at NPS, and the Navy’s top leadership, believe in.

The successful establishment of the CAG could not have been possible without the tireless, dedicated efforts of several members of the Cyber Academic Committee chaired by Dr. Cynthia Irvine, who I am proud to report has agreed to be the chair of the new CAG. Cynthia is a world-renown expert in the fields of trustworthy systems and information assurance. She, along with several senior CAG colleagues such as Professors Dorothy Denning, Chris Eagle and John McEachen, and Intelligence Chair retired Rear Adm. Andy Singer, will provide a dedicated, knowledgeable vision for the development of the CAG’s educational and research offerings.

As the CAG continues to evolve and its mission expands, we have very high expectations for this program. We will be aggressively engaging the Navy’s Information Dominance Corps and Fleet Cyber Command for both programmatic guidance and their best and brightest minds. In time, the CAG will seek to host up to 100 students in dedicated degree programs, and certificates in Cyber Systems and Operations, and be considered one of the nation’s premier resources in cybersecurity and defense.

In the coming months, you will hear much more about this new effort. Please join me in welcoming this new academic group to the campus, and take pride, as I do, in knowing that our university is answering the call of the most senior leaders across our Navy and defense establishments.

“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.
Doctoral Student Explores Algorithm for Force Protection

By Amanda D. Stein

Cmdr. Jay Foraker recently received his Ph.D. in Operations Research (OR), but his studies in optimal search patterns may not be coming to a close. In fact, it may become part of a much larger Office of Naval Research project with OR faculty and future students continuing the effort.

Foraker explained the work that went into developing the algorithm, supported by NPS Associate Professor Johannes Royset and Mechanical Engineering Professor Isaac Kaminer, and why the fleet can benefit from similar optimal search systems, particularly in constrained waterways, such as a straight or channel.

“If you are a terrorist cell and you want to take out an aircraft carrier, it’s hard to do that in the open ocean. But when they are in a constrained waterway, the ship can’t conduct fixed wing flight operations, so it’s limited to its escort and a helicopter or two that are doing the patrols.”

Like a car traveling along a highway, Foraker explained, the ships are on a set path through a narrow waterway, with little room to deviate from the path. If the adversaries know the ship’s path, they can easily attack. In order to protect the ship and crew, search helicopters or cruisers can use time and distance factors to determine an optimal search pattern to seek out threats.

“You choose your metrics and run the software that we developed as a part of this research, and it tells you the output of that path,” explained Foraker. “And that’s the path that—if the bad guy does his thing, and the carrier does its thing—the helicopter pilot can fly the path that, mathematically speaking at least based on the setup and based on the model, [is] the best path you could follow to find the bad guy.”

While his research has a direct link to a problem facing the Navy, it could also be applied to other maritime problems, such as piracy and land-based convoy operations. The general time and distance data methods can be applied to a number of different scenarios.

Foraker noted that his research was possible, in part because of the support he received from NPS faculty. He acknowledged the quality education he received in his previous graduate studies at Georgia Tech, but noted that the military has exceptional research needs that a traditional civilian institution might not be as focused on.

“I think the fact that I was able to do the high quality research that had direct military applications was key,” said Foraker. “If I had gone to Georgia Tech, I would have still been able to do some cutting-edge research, but I don’t know that their focus is on military applications, and I think that’s important to recognize.”

Since graduating in Sept., Foraker will be going on to teach Mathematics at the U.S. Naval Academy at Annapolis. He hopes to help prepare future Naval leaders for the complexities facing the warfighter, and the country.

“The world is complex, and continues to be more complex. There are a lot of threats. Machines are great and technology is great, but fundamentally, people have to make decisions,” Foraker explained. “I think it behooves us as a nation to educate the officer corps … and imbue them with as much ability as possible to think and understand the tools that are out there.”
The Naval Postgraduate School held its summer graduation ceremony to a packed auditorium of friends, family, faculty, and a large class of 377 graduates, in King Auditorium, Sept. 23.

The ceremony opened with NPS President Dan Oliver taking the opportunity to acknowledge the faculty and staff for their hard work in creating NPS’ challenging learning environment — paramount to the quality of the students’ education. He also recognized the hard work each graduate endured during the time at NPS.

“NPS graduates, you should be justly proud of what you have accomplished here,” said Oliver. “We are proud to call you NPS alumni and we look forward to hearing great things from you in the future.”

Keynote speaker Norman Augustine, also a recipient of the honorary doctorate of military science, gave an interesting perspective on the reasons for the day’s celebration. He said that a graduation is commonly referred to as a "commencement," or a beginning, not an ending. The focus for the graduates will be on what they do next, he said, not what they have done in the past.

“You will be expected to be part of the answer to the problems now confronting our nation,” he emphasized.

Augustine noted that the U.S. had to learn to adapt to the challenges of today’s fighting environment. That even with the nation’s might in conventional warfare, enemies were shifting their tactics and future leaders needed to adapt to this shift.

“In my experience, you exemplify the very best about America,” he said. “Speaking as a civilian, and as a private citizen, I thank each and every one of you for what you do for our country … May you always enjoy fair winds and following seas.”

After his address, Augustine joined Oliver and Executive Vice President and Provost Dr. Leonard Ferrari in presenting Distinguished Professor Awards to four NPS professors selected by their colleagues for the honorary title. A distinguished professor, noted Ferrari, is a senior professor that has been recognized as a role model among their colleagues, has given continued effective service to the NPS team, and has conducted work that has had significant impact in their fields.

A total of 366 graduates earned 393 degrees, with 246 crossing the stage during the ceremony. Of the 366 graduates, 134 were Navy, 30 Marines, eight Army, three Coast Guard, 18 Air Force, 147 DoD Civilians, two Air National Guard, one NOAA, and 23 international students.

There were five Ph.D.s, excluding Augustine, 61 Masters of Arts, three Masters of Business Administration, 279 Masters of Science, 30 Executive Masters of Business Administration, two Bachelor’s of Science, and 17 dual degrees.

Retired Lockheed Martin CEO Keynotes Summer Graduation

By MC1 Leonardo Carrillo

The power of an NPS education is its impact on our students’ and graduates’ effectiveness to lead,” said Oliver. “Today we have the special honor of welcoming an iconic leader to our ranks as an NPS alumnus. He is a friend of NPS whom I would proudly suggest to you or anyone else as a mentor.”

Throughout his career, Augustine has proven himself to be an exceptional leader, noting that the core principles — including an uncompromising moral compass and courage — picked up from his mentors, helped to shape his career.

“I am deeply honored to receive a degree from this great institution,” said Augustine. “I am acutely aware of the standard of excellence that you maintain and the demands placed upon each individual who is affiliated with the school.”
Workshop Explores Prevention Strategies

By MC1 Rob Rubio

Prominent military strategists have stressed that prevention of conflict is equally as valued as victory in conflict. The Navy, Marine Corps and Coast Guard’s very own “Cooperative Strategy for 21st Century Seapower” clearly states, “preventing wars is as important as winning wars.”

The concept of prevention, however, is difficult to transition from strategy into action. In support of this effort, the Global Public Policy Academic Group (GPPAG) recently held a Prevention Regimes and Strategies Workshop on the NPS campus—three days of dialogue and discourse on the tactics and challenges of implementing prevention strategies.

Research Associate Professor, and workshop co-organizer, Marc Ventresca noted, “The workshop brought together people from several communities, that frequently don’t speak directly, and the spirit and purpose was to find common language and concerns about prevention. GPPAG invited several social scientists and other academics who study international regimes and existing prevention policy in nuclear deterrence, humanitarian and disaster relief, complex operations and stabilization, energy security and innovation.”

The goal of the workshop was to explore how prevention looks as a strategic goal, a policy strategy, and in practice in these different worlds. In the end, organizers hoped to provoke new collaborations and set a research agenda.

Assistant Professor Karen Guttieri, also a co-organizer of the workshop, added that the idea of prevention, as the former United Nations Secretary General Kofi Annan described it, is to shift “from a culture of reaction to a culture of prevention.”

Guttieri explained, “The first step is to clarify the term, asking ‘prevent what?’ What are the boundaries of prevention? A lot of the discussion on prevention has been focused in recent years looking at the prevention of deadly conflict, particularly civilian on civilian conflict.

“What lessons can we draw from prevention strategies in different areas of international security?” she continued. “What systems of positive and negative prevention work best? We see a range of approaches including deterrence, competence and denial— even pre-emption.”

NPS Staff Training for a Worthy Cause

By MC1 Rob Rubio

Two members of the NPS community are pulling up their sleeves, and strapping on their running shoes, training to help raise funds and awareness for a worthwhile cause. Michele Merenbloom, Sponsored Program Financial Analyst for the School of International Graduate Studies, and Information Technology Specialist Andrew Ware are both members of the Monterey/Salinas Team in Training (TNT)—a nationwide program supporting the Leukemia and Lymphoma Society (LLS).

Merenbloom has been running for the past five years for her own fitness, but has become more serious about it in the last two years in terms of entering competition events.

“This started out as something to do for personal fitness,” Merenbloom said. “But I started thinking, ‘What can I do to give back?’ TNT was not something to do just for myself, but I can also help others.”

Merenbloom is training with a very specific goal in mind…to participate in the upcoming Nike Women’s Marathon in San Francisco on Oct. 16. As head of the local Team in Training group, Ware has been working with Merenbloom, providing encouragement, tips, pointers and a partner for training.

Motivation was a key factor to the effort, and as Merenbloom stated, there is plenty of inspiration within her group of TNT colleagues.

“We have cancer survivors on the team running with us, and to hear their stories and how LLS has helped them…It’s a really good feeling to know that we are all out there together and doing a joint effort,” she added. “It’s great to see everyone put one foot in front of the other in their own individual accomplishments.”

On Sept. 13, GSEAS Research Assoc. Prof. of Meteorology Tom Murphree, received the NPS Academic Year 2011 Richard W. Hamming Teaching Award for his outstanding teaching, excellence in thesis supervision, and strength of contribution to NPS students beyond the classroom.

On Sept. 23, Executive Vice President and Provost Dr. Leonard Ferrari announced the establishment of the Cyber Academic Group as the home for multidisciplinary degree and research programs in Cyber Systems and Operations. Computer Science Prof. Cynthia Irvine will serve as chair of the CAG.

In mid-Sept., GSBPP Assoc. Prof. of Economics David Henderson gave a lecture titled “Lessons Not Learned from 9/11: An Economic, Numerate, Constitutional Perspective” to 300 students and faculty at Western Kentucky University in Bowling Green, Ky.

GSEAS Prof. Mike Ross and Researcher Mark Karpenko were among the members of the TRA Optimum Maneuver Flight Experiment Team awarded NASA’s 2011 Group Achievement Award for their groundbreaking work on minimum time spacecraft maneuvering.

GSBPP welcomed three new tenure-track professors, Assistant Prof. of Finance Amilcar Menichini, Assistant Prof. of Operations and Logistics Michael Dixon, and Assoc. Prof. of Financial Management Stephen Hansen.

Have a story to share? Institutional Advancement is constantly seeking interesting news and stories for Update NPS. Send your tips to update@nps.edu.
Researchers at the Naval Postgraduate School’s Modeling, Virtual Environments and Simulation (MOVES) Institute have developed a prototype system to support Landing Signal Officers (LSOs), the men and women responsible for the safe and expeditious landing of aircrafts on the Navy’s fleet of carriers.

In a research and development project funded by the Office of Naval Research, the MOVES team of Drs. Michael McCauley and Mathias Kolsch, and Systems Engineering student Lt. Michael Ross, has spent the last year developing the four components of the LSOs’ pilot performance tracking system, called iPARTS, that will gather data on pilot carrier landing performance into a fleet-wide data collection system. Currently, a manual-entry logbook is used to track that data.

Part of the excitement surrounding iPARTS comes from the custom graphic user interface that the MOVES Institute has developed for a flight deck handheld device. In the training environment, the LSOs must also track pilot performance, calculate real-time grade point averages and boarding rates, and make quick decisions as to whether or not to halt a student’s progress based on their trends. Currently, all of these tasks are being done by hand.

“The system we developed directly supports Naval Aviation, one of the Navy’s core capabilities, in particular, the safe recovery of pilots and aircraft onboard aircraft carriers,” explained Kolsch. “It improves the workflow of the LSOs and automates several mundane and repetitive tasks during recovery and debriefing.”

The iPARTS handheld device streamlines the LSOs’ tasks by automatically providing them with the information they need to make real-time decisions on the flight deck and then automatically archives the data they collect to a centralized server along with similar data from across the fleet.

For Ross, this endeavor has been an extracurricular research project that allowed him to serve not only as a subject matter expert, but also as a point of contact and communication link with the LSO community. The close relationship between the NPS design team and the user community was essential for the success of the MOVES project.

“I’m extremely grateful for the opportunity to work alongside some exceptional faculty members at NPS to help develop a solution to a problem I saw as a Landing Signal Officer in the fleet,” explained Ross. “It has been a tremendous experience to take what I am learning as a Systems Engineering student and apply it in real-time to an ONR-funded development project that has the potential to have a significant impact on the LSO community.”

**MOVES Software Package Helps LSOs Track Pilot Performance**

By Amanda D. Stein

Focus On … Rapid Prototyping

A Monthly Look at Names and Faces on Campus

Space Systems Academic Group (SSAG) Research Associate Dan Sakoda can make just about anything!

As the primary operator of the school’s Fortus 400mc rapid prototyping machine, he takes computer-generated designs and turns them into three-dimensional parts for everything from robots to models. Like an industrial hot glue gun, the printer lays out layer upon layer of liquefied plastic to vertically craft rigid polycarbonate pieces that would take weeks if sent out to a machinist.

“The real value we saw in acquiring the 3D printer was getting involved in helping students get the hardware for their projects. The machine really reduces the cycle time for development,” he noted.

Sakoda added that since SSAG acquired the machine in 2008, it is now possible to produce in a single quarter what used to take months to complete. Sakoda has overseen a wide range of pieces — from housings, clips and various other working parts, to a life-size head used for modeling and simulation.

The 3D printer is a valuable tool, and it’s available to all departments on campus for research and development projects. While the user is responsible for material costs, as Sakoda explained, there is plenty of flexibility with the design process to reduce the amount of material used.

“I think the 3D printer is a good example of leveraging technology to help in supporting and maintaining the excellent research being done at NPS, and it’s a campus-wide resource,” he said. “For officer students working with hardware experimentation, it’s invaluable when you consider compressed timelines and the need for design iterations. So take a look at my wiki and send along your parts!”
Any Day at NPS ...

By Lt. Matthew Yokeley
Chairman, President’s Student Council

We have rapidly found ourselves at the end of another beautiful summer here in Monterey! Unfortunately, along with the end of summer comes the departure of many of our fellow students who have graduated and are now going forth with their NPS educations to continue serving their respective services. We wish them all the best in their endeavors.

Fortunately, this also means we have the opportunity to welcome many new faces to our campus. I had the pleasure of addressing the newest class of students to arrive here at NPS and I know that they bring with them a variety of knowledge and experience that will continue to contribute to the amazing fabric of student life here. I have noticed that every student brings with them a unique perspective on life and despite the fact we are all here to learn from our professors, the interactions we have with each other lead to a whole new level of learning that cannot be received in a classroom alone.

Many people fail to realize this interaction is one of the greatest opportunities offered here. There are few other places that allow for the open communications amongst senior and junior officers from all of the U.S. military services and our allied services around the globe. True, we could receive a great education at any civilian institution, but NPS offers an education unparalleled by any other institution because of this fact alone.

Best of luck to all the students during the fall quarter and during the rest of your time at NPS. Enjoy!

Lt. Yokeley 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

Oct. 4
Dr. Ryan Smith
Queensland University of Technology Professor
Joint NPS/MBARI Lecture
POC Professor Noel Du Toit, Ext. 1163

Oct. 15
236th Navy Birthday Ball
Barbara McNitt Ballroom
POC Ryan Birkelbach, navyballchairperson@nps.edu

Oct. 27
Terror in the Trident Room
MWR Halloween Party
POC MWR, Ext. 7955

Oct. 10
Columbus Day

Oct. 6-11
San Francisco Fleet Week
POC Alan Richmond, Ext. 3649

Oct. 30
Green Kids Conference
Monterey Conference Center
POC Dr. David Nickles, Ext. 3567

Historical Highlights

October is American Archives Month and the first anniversary for the Naval Postgraduate School’s Special Collections archive, which was officially dedicated on Oct. 14, 2010. Located in the Dudley Knox Library, the archive collections include manuscripts, reports, correspondence, maps, film, video and artifacts that preserve the important legacy of NPS and the history of Hotel Del Monte, the site of the school’s Monterey campus.

In addition to the NPS holdings, the library pursues an active research program to fill gaps in the historical record. Recent discoveries include a 1916 study of the early school, then called the Postgraduate Department of the Naval Academy, commissioned by Secretary of the Navy Josephus Daniels. Other findings include the 1924 silent movie, "Sporting Youth," which was filmed almost entirely on location at Hotel Del Monte. The library will show the "Sporting Youth" during an upcoming Archives Month brown bag event.

Historical Highlights are provided by the Dudley Knox Library.

NAVAL POSTGRADUATE SCHOOL
NEWS CENTER
Stay informed. Stay connected.
www.nps.edu/news