NPS Welcomes BoA for Annual Spring Meeting

By Amanda D. Stein

NPS welcomed members of the university’s Board of Advisors (BoA) for a series of meetings and campus tours, April 26-27. The BoA is a 19-member federal advisory committee carefully selected for their balance of expertise to provide guidance to NPS on its operations and programs. The group meets twice a year to receive updates on campus happenings and to discuss areas of opportunity – from potential partnerships to budgetary decisions.

“I really believe in the power of the Naval Postgraduate School, and I think it needs to be embraced as the unique institution that it is. The Board of Advisors helps us achieve that.” – NPS President Dan Oliver

The meetings brought the board members from military, industry, research and academic institutions together for briefings on radiation safety, Committee on the Future, and an installation update on Naval Support Activity Monterey among many others.

Acting Board Chairman, retired Vice Adm. Lee Gunn, offered opening remarks to start off the two-day session, announcing the newest member of the board, retired Adm. Timothy Keating, former Commander of the U.S. Pacific Command.

NPS President Dan Oliver addressed the group about the latest goings on at NPS including a look at the budget, noting the upcoming renovations to Herrmann Hall and the Roman Plunge, and acknowledging some noteworthy achievements by NPS faculty. Oliver also praised the WASC Planning Group for their role in securing a ten-year reaccreditation, a huge victory and nod to the quality education provided to young officers, DoD civilians and international allies at NPS.

“I really believe in the power of the Naval Postgraduate School, and I think it needs to be embraced as the unique institution that it is. The Board of Advisors helps us achieve that,” said Oliver. “They serve as enablers of our mission, and assist in guiding the school into the future. Through the board, we have not only strengthened existing partnerships, but we consistently foster new ones.”

The board includes members from across military and civilian institutions, including Rear Adm. Nevin Carr, Chief of Naval Research; Vice Adm. Marc Ferguson, Chief of Naval Personnel; and the Honorable G. Kim Wincup, Vice President of Science Applications International Corporation. Their combined expertise has enriched NPS’ academic programs and enabled discussion of ways to develop new partnerships with other academic institutions.

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There was a flurry of PowerPoint slides, performance metrics and round table discussions at the end of April as we welcomed the Naval Postgraduate School’s Board of Advisors – our collective ‘think-tank’ of experts – to campus.

Most universities, many non-profits and corporations for that matter, use a board of directors to create a synergistic, diverse and balanced pool of expertise to assist in guiding their respective institutions. Our university follows this model as well, incorporating a collective of 19 senior military, defense, academic and corporate experts to advise the Secretary of the Navy and the Chief of Naval Operations, along with the Naval Postgraduate School administration in how to best lead this institution.

We are quite fortunate to have a level of expertise that rivals any university’s governing body with this group. Our Board of Advisors consists of multiple corporate leaders, men and women who have led the business world with savvy and strong character. We have highly-respected individuals from academia who have, and continue to hold, prominent leadership positions at some of the nation’s most prestigious schools. And we have a strong contingent of both active duty and retired military officers, whose diverse and distinguished careers provide a wealth of knowledge about current and future national security and defense issues.

Our meetings during this Spring get-together were productive and fruitful, promising and optimistic, candid and realistic. The board was quite proud to hear of NPS’ recent ten-year reaccreditation, and was equally impressed with our progress with the Committee on the Future, program development and the university as a whole.

As President of this institution, there is one truth that I hold with great conviction and comfort. And that is simply this … an examination of the Naval Postgraduate School, regardless of program, curriculum or research effort, will reveal its value to the Navy and national security.

As are we, the board is also fully aware of the Department of Defense’s mandate to scrutinize its budget. In times of fiscal dissection, an institution like ours should always be ready to demonstrate its overall value to the Navy, to the defense and homeland security establishments and, ultimately, to the United States.

As President of this institution, there is one truth that I hold with great conviction and comfort. And that is simply this … an examination of the Naval Postgraduate School, regardless of program, curriculum or research effort, will reveal its value to the Navy and national security. This simple principle affords our leadership the ability to welcome scrutiny, to encourage our supporters and detractors alike to learn more about NPS, and to do so with great vigor, for their efforts will pay dividends for this institution.

Across every sector of society, through every nation and culture, there may be no better use of scarce and sacred resources than in the effort of education. But in these lean times, our institution must be eagerly ready to demonstrate the return for what I firmly believe is a very worthwhile investment.

Ultimately, it is our Board of Advisors, that collective group of diverse leaders and experts, that will be a crucial component to help bridge the gap between welcomed scrutiny and achieved objectives. They will provide a wealth of advice and we will be listening carefully. We will take full advantage of their guidance as we continually strive for the highest quality execution of our mission. We will count on their wisdom, as they return to their diverse and demanding roles throughout the defense, academic and corporate landscapes. And we will always be ready to share our university’s story with the many communities and constituents who are ready to hear it.
One Giant Leap for Visualization

By Joan Ackerman

MOVES Research Associate Jeffrey Weekley, Dr. Christine Haska and Joe LoPiccolo of ITACS are keeping NPS at the forefront of digital data preservation research and network-enabled High-Performance Computing visualizations.

CineGrid Exchange member volunteers and staff — including CineGrid Exchange Director and Associate Director Dana Plepys of the Electronic Visualization Lab at University of Illinois; Dr. Nathan Brock of Calit2 at UC San Diego; Director Andy Maltz of the Science and Technology Council of the Academy of Motion Pictures Arts and Sciences; Laurin Herr and Natalie Van Osdol, founders of CineGrid; and others — are helping the Navy and other government agencies move a step closer to protecting, managing, distributing and preserving their huge quantities of video data by participating in the CineGrid Exchange Project.

Original funding for the Project was provided under the U.S. Library of Congress' National Digital Information Infrastructure and Preservation Program. This funding allowed for the development and staffing of the early versions of the CineGrid Exchange — a peta-scale, global storage architecture, currently totally over 300 Terabytes as a testbed. NPS recently procured an additional 32TB that will act as the initial preservation archive for digital video courses recorded in support of the Sub-base Bangor Mech. E/A Distance Learning program. Additionally, efforts are underway to establish the ACM SIGGRAPH History Video Archive, a digital compilation of all the available animations, visualizations, live action video and other media generated for the SIGGRAPH Electronic Theater, SIGGRAPH Video Review, SIGGRAPH History Committee plus lab-generated videos. The archive represents the entire body of work for the SIGGRAPH community, work that has been fundamental to the science of visualization, visual computing and the multi-billion dollar entertainment industry. NPS will be the initial home to the digitized assets spanning nearly 40 years of work in this area.

"Many of the SIGGRAPH pioneers of visualization, computer animation, and interactive techniques are retiring or passing away. There is no area of computer graphics, digital photography, scientific visualization or mass entertainment that has not been touched by these visionaries. In many cases, these early pioneers of digital technology literally invented the art and science of computer graphics. Their work deserves to be honored and preserved," said Weekley.

In 2010, ITACS and MOVES advanced visualization capabilities at NPS by providing ultra-high quality 4K video streaming to and from NPS of both live and recorded imagery through the use of NPS' connection to the 10Gbps Global Lambda Integrated Facility. Multiple events leveraged this capability, most notably during a demonstration...
One of the most lethal, and understudied, methods of improvised explosive device (IED) attacks come in the form of personally-carried IEDs. In a recent experiment utilizing a standard radar gun, NPS Professor William Fox was able to detect members of a crowd wearing simulated IED vests 85 percent of the time.

Fox and University of California, Santa Cruz (UCSC) Professor John Vesecky and Dr. Kip Laws, examined cross sections returned by a radar gun after using it to scan a crowd.

“There is a particular signal in that cross section that returns differently when a person is wearing a wire on their body,” said Fox. “It’s subtle, but there are metrics we use to determine who is wearing wires on their body.”

Anchoring the research is the ability to utilize traditional, commercially available equipment to collect data and skillfully interpret the results in new and novel ways.

“I’m a math modeler,” noted Fox. “I try to make sense out of data that is collected or out of variables and equations. I try to put them together in a way that they make sense and are applicable or unique to a specific problem.”

In addition to interpreting cross sections returned from radar scans, the guns are also being looked at to measure walking and movement speed as an indication of dubious members within a crowd of people. Research funding came from the Department of Defense's Joint Improvised Explosive Device Defeat Organization (JIEDDO).

“I went to a class given by Professor Gordon Bradely of JIEDDO, and learned they had been doing a good job at detecting roadside bombs and bombs in cars, but not a lot had been studied on suicide bombers. We wrote a proposal for a joint effort, sent it to the JIEDDO office through NPS and the funding was approved.

“I think if we said go, this technology could be out there in a year,” noted Fox. “We have to go from proof of principle to putting the device together. Several proposals have been submitted back to JIEDDO, the Army Research Office and other places to continue the next phase of the research. We did it with a single radar and one kind of crowd, but now let’s look at several radars, or maybe even different types of radars.”

One Giant Leap for Visualization continued from page 3 ...

at the 2010 CENIC Conference and in critical technology demonstrations for Calit2 in June and July. In support of visualization and visual computing, the two departments also extended Remote Rendering to the hamming supercomputer using RenderMan compliant 3D rendering software packages, creating a permanent rendering capability of the highest-quality, and implemented a cluster rendering architecture for Pixar’s RenderMan Pro Server, using Tractor Engine and Tractor Blade. These architectures are widely adopted in 3D animation, scientific visualization and the entertainment industry. Another visualization tool designed and built was the NPS OptiPortal, used in both 2D and 3D environments for viewing high-definition static images, video, or in streaming mode across one or more OptiPortals, the computers (nodes) comprise a cluster capable of general computations for display and collaboration management and include middleware applications SAGE, DMX, Chromium, CGLX, OpenCOVER (Covise). NPS pioneered the use of Octal graphics cards for low-cost Optiportal installations suitable for classrooms, small labs and even office spaces. Work in this area continues and NPS will soon test the Calit2-developed OptiPortal.

“Advanced information technologies, the backbone of our cyberinfrastructure, include networking, computation, visualization, and collaboration tools,” said Haska, Vice President of Information Resources and Chief Information Officer. “Supporting the expansion of visualization capabilities at NPS leverages resources, enhances our partnerships, and increases opportunities for the school’s continued success in the execution of its education and research mission.”

Research on these projects is ongoing throughout 2011.
First Cost Estimating Cohort Underway

By MC1 Leonardo Carrillo

The first cohort of a jointly developed and jointly instructed, part-time distance learning Master’s Degree in Cost Estimating and Analysis (MCEA) program began this quarter at the Naval Postgraduate School (NPS). The 24-month program, sponsored by the Naval Sea Systems Command (NAVSEA), is a joint project between NPS and the Air Force Institute of Technology (AFIT), and is offered to government civilian employees and active duty military personnel.

The MCEA degree started as an effort to train government employees in cost estimation, an immediate response to the Weapons System Acquisition Reform Act of 2009 (WSARA 09) signed by President Barack Obama.

"As commander in chief, I will do whatever it takes to defend the American people ... but I reject the notion that we have to waste billions of taxpayer dollars to keep this nation secure," said Obama before signing the act.

"One of the line items of the WSARA 09 was the need for better trained cost estimators," said Professor Greg Mislick of the Operations Research (OR) department, one of MCEA’s two program managers. "We need better trained and better educated cost estimators.

"The MCEA program is the only one of its kind," added Mislick. "It is the only distance learning graduate degree in cost estimation available to government employees."

The program, also led by OR Professor Daniel Nussbaum in collaboration with Professor Alfred Thal of AFIT, includes selected courses from the OR department, the Graduate School of Business and Public Policy, and AFIT with focus on specific military cost-related topics to prepare students for an array of demanding cost estimation functions in the DoD.

The curriculum is presently being delivered by two methods: asynchronously and video tele-education (VTE). This offers the student options and flexibility combining web-based, online and video conferencing. The next MCEA cohort is scheduled for March 2012, based on student demand. Later cohorts may begin every six months thereafter.

Chair Surveys 100 Years of History

By Barbara Honegger

Chairman of the Applied Mathematics Department Carlos Borges regaled faculty, students and staff on "A Century of Mathematics at the Naval Postgraduate School" in a special lecture, Apr. 14.

Beginning with NPS’ origins in a 1909, Borges took the audience on a whirlwind tour of 100 years of NPS math, applied statistics/operations research and computing history in a single hour.

In a moment that drew gasps from the audience, Borges revealed that he’d discovered the first book purchased by NPS’ predecessor while organizing the Applied Mathematics library – “Differential Equations” by William Johnson, published in 1906. "This isn’t just the first book bought by the Mathematics and Mechanics Department," Borges stressed. "It’s the first book purchased by the entire Postgraduate Department at Annapolis.

"The first civilian professor and second faculty member to be hired was Ralph Root – my great-great-great-great doctoral grandfather after whom Root Hall is named – who joined the Postgraduate Department in February 1914 and headed its program in Mathematics and Mechanics," Borges said.

"After the end of World War I, the Postgraduate Department reopened in June 1919 under then Capt. and later Fleet Admiral Ernest J. King, after whom King Auditorium is named. Root worked with Capt. Spanigel, who headed the Postgraduate Department beginning in 1944 and after whom Spanigel Hall is named, to transform the department from a preparatory school to a university."

The lecture concluded with a review of the "four children" of the NPS Department of Mathematics: the Departments of Operations Research, Aeronautical Engineering and Computer Science; and the NPS Computing Center.
Focus On ... Service with a Smile
A Monthly Look at Names and Faces on Campus

Chances are, if you’ve placed a request for assistance through Information Technology and Communications Services (IT-ACS), you’ve met one of the staff pictured here.

Pictured, from left to right, are AT3 (SW/AW) Karee Lattier, IT2 (SW) Robert Hillard, IT2 (SW) Joy Nakakihara, IT2 (SW) Angelica Santana, AT3 (AW) Frederic Germer, and ITSN Matthew McCarthy – along with IT2 (SW) William Crago not shown – and they make up NPS’ enlisted Information Technology (IT) and telecommunications specialists. They are often out and about on campus answering questions, solving problems, and providing customer support to more than 5,000 NPS students, staff and faculty.

These military staff, vital to IT-ACS’ successful operations, are also focused on their futures – every one of them wants to obtain a bachelor and/or master’s degree, and each hopes to expand their IT knowledge during their tenures at NPS.

“The ITACS employees are amazing coworkers and I enjoy working with them all,” noted McCarthy. Expecting mom Santana added that, “NPS is a great location to bring a child into the world,” while Crago said he appreciates the “outstanding level of support here at NPS, which leads to a more positive learning environment.” Regarding his future, Germer hopes to one day join the FBI, but it’s his past that helps him to appreciate being at NPS. “This sure beats ship life!” he quips.

Student, Faculty Briefs Spotlight Infrastructure Protection Research
By Amanda D. Stein

Protecting the critical infrastructures of the United States – the electric power grid, oil and gas, transportation, communications, food and agriculture, and water – is a key focus for the Department of Homeland Security (DHS), and of the Department of Defense (DoD).

The risks to infrastructures, however, come not only from terrorists and other deliberate threats, but also from non-deliberate sources, such as accidents, failures and Mother Nature. Infrastructure systems need to be equipped to function even when they suffer damage, and the Center for Infrastructure Defense (CID) at NPS routinely studies vulnerability assessment and optimal investment for these systems.

Established last year under the Operations Research (OR) department, CID looks at how infrastructures respond under stress, and how to invest limited resources to make them more resilient to disruptions. In a recent presentation to NPS leadership, CID Director Professor Dave Alderson and Executive Director Distinguished Professor Gerald Brown provided an overview of the center and how it helps students utilize the skills learned in their OR studies to test the resilience of some of the country’s most critical infrastructures.

“In order to assess the resilience of an infrastructure system, you have to understand how it operates,” explained Brown. “OR is first and foremost about modeling systems and their operation, so all the tools and techniques we use in OR apply directly to modeling infrastructure systems and how they will respond to any inflicted damage.

“We couple a model of infrastructure operation with one of how an intelligent adversary would attack, given knowledge of how the target system works,” he continued. “The result is a model federation that discovers the most-damaging attacks and how the infrastructure would best respond. We measure resilience in terms of the level of degradation in system response to the worst-case disruption.”

In the CID presentation session, students Lt. Timothy Yuhas, Lt. Jason Ileto and Cmdr. Tino de la Cruz briefed leadership on their theses, analyzing two infrastructure systems in the Hawaiian Islands, and planning the emergency evacuation of citizens from the California Central Valley in case of a major flood.

“I looked at the systemic capacity of highways in Central California to accommodate inordinate demands in an evacuation,” explained Yuhas. “This model will be used during Golden Guardian 2011, which is a yearly state-wide emergency planning and response exercise that is conducted for emergency services throughout the state of California.”

Alderson noted the unique military perspective of NPS’ OR department in contrast with other OR departments around the world. “We look at our own domestic critical infrastructures through the eyes of intelligent adversaries. Through system modeling and analysis, we explore weaknesses in infrastructures, and explore ways to effectively strengthen them,” said Alderson.
Any Day at NPS ...

By Lt. Matthew Yokeley

What a great opportunity, and an even greater honor! I want to take a moment to introduce myself – my name is Matt Yokeley and I am the new Chairman of the President’s Student Council (PSC) here at NPS. I am the head of the student-run body whose primary purpose is to serve you, the students of NPS.

I have been here for a little more than a year now, and have been actively serving as the representative for all the Navy students here since last August.

I also want to introduce our new Vice-Chairman LT Ryan Birkelbach and Recorder LT(j.g.) Kerri Ackman. Both are hard working individuals who are just as enthusiastic as I am about this opportunity to help lead the student council to make things better for all of us.

Many of you may not be aware, but there are a lot of issues that the PSC handles “behind the scenes.” Our group is dedicated to helping investigate and resolve these issues in the most effective manner possible and I want all of you to think of the PSC as your first point of contact in resolving any problems you may think are impacting the student body. We are the direct line between the student body and the staff.

Do you think you have something that needs to be addressed? Want to help make things better? Then please, join me and the PSC and you can be an active member of the process for change!

Lt. Yokeley is the Chairman of the President’s Student Council. Visit the PSC on the intranet at http://intranet/psc/index.html.

Have a story to share? Institutional Advancement is constantly seeking interesting news and stories for Update NPS. Send your tips to update@nps.edu.
On Campus this Month

May 2-5
Center for Stabilization and Reconstruction Studies
Joint Humanitarian Operations Course
POC Graseilah Coolidge Ext. 3359

May 3-4
Imaging with Segmented and Distributed Telescopes Workshop
POC Brij Agrawal Ext. 3338

May 9-12
Naval Helicopter Association Symposium
NPS Outreach
POC Kari Miglaw Ext. 2077

May 11-12
8th Annual Acquisition Research Symposium
POC Karey Shaffer Ext. 2257

May 25
Former Senator John Warner Receives Honorary Doctorate
POC Protocol Ext. 2466

May 30
Memorial Day Concert on the Lawn
POC Alan Richmond Ext. 3649

Historical Highlights
Herrmann Hall, the most distinctive building on campus, was of course once the world famous Hotel Del Monte. Renowned architects Lewis Hobart and Clarence Tantau designed its current Spanish Revival architecture following a 1924 fire, with the new Hotel Del Monte holding a gala re-dedication on May 8, 1926.

In the midst of the Jazz Age and the Roaring Twenties, the new hotel captured the imagination of world leaders and celebrities … Charlie Chaplin, Bing Crosby, Bob Hope, Clark Gable, Charles Lindbergh and Walt Disney among many others.

Crosby congratulated his close friend, Samuel F.B. Morse, president of Del Monte Properties Company by saying, “I shall always be grateful to that eminent sportsman Sam Morse, whose vision, dedication and devotion to quality made this one of the showplaces of the world.”

Historical Highlights are provided by the Dudley Knox Library.