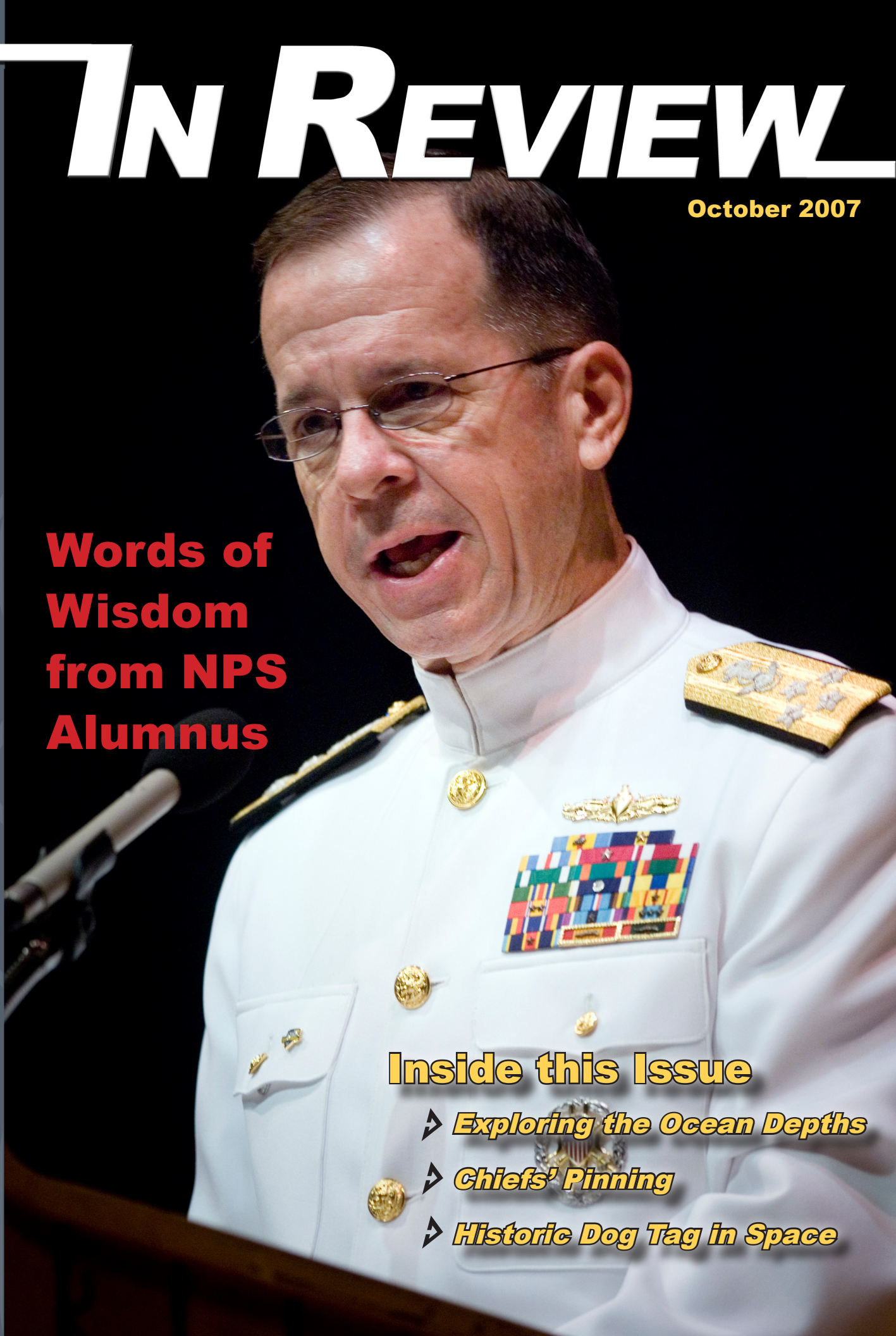
In Review

October 2007

Naval Postgraduate School



Words of Wisdom from NPS Alumnus

Inside this Issue

- Exploring the Ocean Depths
- Chiefs' Pinning
- Historic Dog Tag in Space

President's Message

As I make my rounds of Naval Postgraduate School, I continue to be impressed with the seemingly endless expertise and professionalism that I encounter at this institution. In addition to the basic functions of the enterprise, activities abound that support our mission to serve the Department of Navy and Department of Defense.

We have reviewed the strategic plans of peer institutions, and by modeling their best ideas and adding metrics, we have updated the NPS Strategic Plan: A New View to the Future, which we will use as a tool to assess our progress. The Strategic Plan reflects the first milestone in the process of accreditation reaffirmation. The accreditation steering committee is also moving forward with the capacity and educational effectiveness reviews.

In anticipation of unveiling the interactive online network for alumni in December, we will sponsor an alumni event in San Diego at the end of October. The trip will afford me the opportunity to visit the various commands in San Diego, as well as the University of California and its visualization facilities.

The Centennial Planning Committee is fully engaged, organizing volunteers to serve on subcommittees for social and academic events, history, marketing, finance, campus appearance/pride and volunteer recruiting for the 2009-2010 celebration.

The NPS Foundation hosted the 2nd Annual America's Heroes Charity Golf Tournament and teamed with the Injured Marine Semper Fi Fund as well as the Navy-Marine Corps Relief Society. This event, in which nearly 200 golfers participated, raised over $600,000 for those wounded in action.

Finally, NPS was proud to have the Navy's former Chief of Naval Operations, current chairman of the Joint Chiefs of Staff and NPS alumnus Admiral Michael Mullen as the keynote speaker at its graduation ceremony. Acknowledging NPS for being "an epicenter of knowledge for the Navy, our sister services, federal agencies and international partners," Admiral Mullen also said of NPS, "There is something about this institution. I can almost feel the vibrant energy radiating from this place."

I concur.

Dan Oliver
President

In Review

Naval Postgraduate School

President
Vice Admiral (USN, Ret.) Daniel T. Oliver

Provost
Dr. Leonard Ferrari

Associate Provost
Information Resources &
Chief Information Officer
Dr. Christine Cermak

Office of Institutional Advancement
Naval Postgraduate School
1 University Circle
Monterey, CA 93943

Editor

MCCS (AW/SW) Jacqueline Kiel
pao@nps.edu

Production Editor
MC2 (AW) Sarah Bir
sebir@nps.edu

Journalists
MCCS (AW/SW) Jacqueline Kiel
Barbara Honegger
MC2 (SW) Corey Truax
John Sanders
Javier Chagoya
Grace Castro

Photographers
Javier Chagoya
MC2 (AW) Sarah Bir
MC2 (SW) Corey Truax
MC1 Chad J. McNeeley

ON THE COVER: *Then Chief of Naval Operations Adm. Mike Mullen speaks at the NPS commencement ceremony. During his visit, Mullen also frocked three new chief petty officers assigned to NPS. U.S. Navy photo by Mass Communication Specialist 1st Class Chad J. McNeeley*

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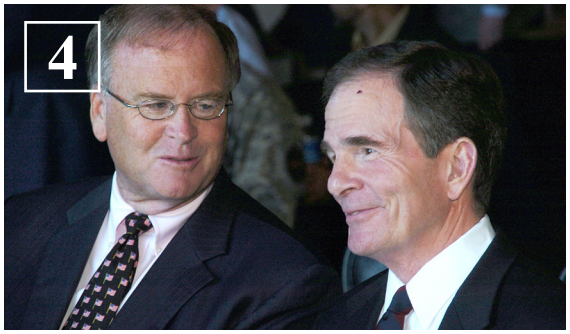

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Team Monterey Farr More than the Sum of Its Parts

By Barbara Honegger

President Daniel Oliver (right) and Rep. Sam Farr

President Daniel Oliver hosted the first formal meeting of Team Monterey, a consortium of ten military commands located in Monterey County, Aug. 16.

The evening program on the Quarterdeck was the first step in fulfilling Rep. Sam Farr's (D-Calif. 17th District) vision to link and leverage the resources of local federal organizations and civilian communities to solve national security issues and local challenges.

"This evening marks an opportunity for representatives of local government to become more familiar with the Department of Defense and Homeland Security organizations right here in the Monterey area," Oliver said in his opening remarks. "I hope this marks the beginning of many more gatherings as we unite to solve the challenges posed in securing our homeland."

"This is the beginning of a working partnership among our amazing breadth and depth of military commands and community leaders," Farr said. "There are all kinds of opportunities to expand if we work together to use our existing capabilities in new ways."

"What made me realize the incredible depth and uniqueness of the federal commands concentrated in the area was the BRAC [Base Realignment and Closure] process, when we realized all the local military commands really are far more than the sum of their parts," Farr recalled. "There is no other place with this much world-class basic and applied research, this much training and this much 24/7 operational capacity that reaches out to the whole world. Our combined annual military defense team budget in Monterey totals almost $1 billion with over 11,000 personnel."

Leaders from seven area military commands briefed participants on their missions, capabilities, budgets and personnel: Deputy Director Col. Dan Scott of the Presidio of Monterey; Acting Deputy Director Mark Breckenridge of the Defense Manpower Data Center; Executive Officer Cmdr. A. J. Rice of Fleet Numerical Meteorology and Oceanography Center; Base Commander Col. Kevin Riedler of Fort Hunter Liggett; Director James Riedel spoke of the Defense Personnel Security Research Center; Commanding Officer Lt. Marc Warren of Monterey's U.S. Coast Guard station; and Dr. Gary Roser of the NPS School of International Graduate Studies Associate Dean for International Affairs.

In addition to Farr, local elected officials attending the event were Monterey County Supervisors Chairman Dave Potter and Simon Salinas; Monterey Mayor Chuck Della Sala and City Manager Fred Meurer; Salinas Mayor Dennis Donohue; Marina Mayor Ila Mettee-McCutchon and Mayor Pro Tem Gary Wilmot; King City Mayor Jeff Herrera; and Del Rey Oaks Mayor Joe Russell.

Faculty Win Best Paper Prize

By Barbara Honegger

In a gala evening ceremony in Vienna's city hall, Naval Postgraduate School Operations Research Profs. Nita Lewis Miller and retired Army Col. Lawrence Shattuck were awarded the prestigious Roland Calori Best Paper Prize by the European Group for Organizational Studies (EGOS), in July.

The topic of the winning article, "Extending Naturalistic Decision Making to Complex Organizations: A Dynamic Model of Situated Cognition," is a paradigm-changing dynamic process model for designing and assessing network centric systems. Miller and Shattuck, co-directors of the NPS Human Systems Integration Program, are also the first Americans to win the prize.

The award honors the memory a highly respected French social scientist and philosopher whose work in management and strategy paved the way for breakthroughs in strategic decision making.

"In the spirit of Roland Calori's own work, the winning paper displays methodological quality, theoretical innovativeness and the diversity of social science perspectives as they relate to organizations and the organized," notes the society's web site.

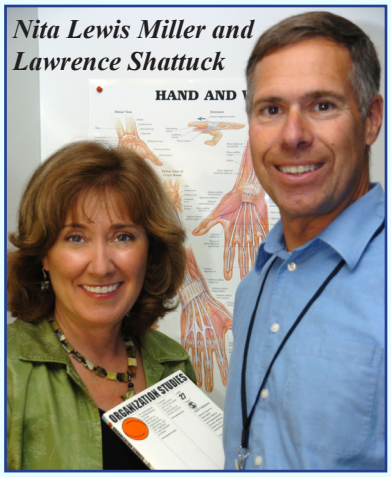
"We were treated like royalty from the minute we arrived," Miller said. "They swore us to secrecy ahead of time so no one would know who'd won it until it was announced at the EGOS general assembly and celebrated over dinner at the ballroom of the elegant Vienna Rathaus. It doesn't get much better than that."

"This was a huge honor," Shattuck agreed. "When we got there and realized how big an honor it was, we were really humbled."

"What's new with this paper is that traditional situational awareness (SA) models only look at what people know, not how they know it," Miller explained. "Our model is a process model that formalizes how they know what they know in the real world, inside specific battlefield task environments, while also incorporating more traditional systems analysis concepts."

"This model resonates with people because of its intuitive nature," she added. "It's one of the few models that couples both the technological and human aspects of complex systems, and is also valuable for speeding the evolution of new technology."

Over the past five years, Miller and Shattuck have honed the model and applied it to computer-based simulations, studies of human error and field exercises.

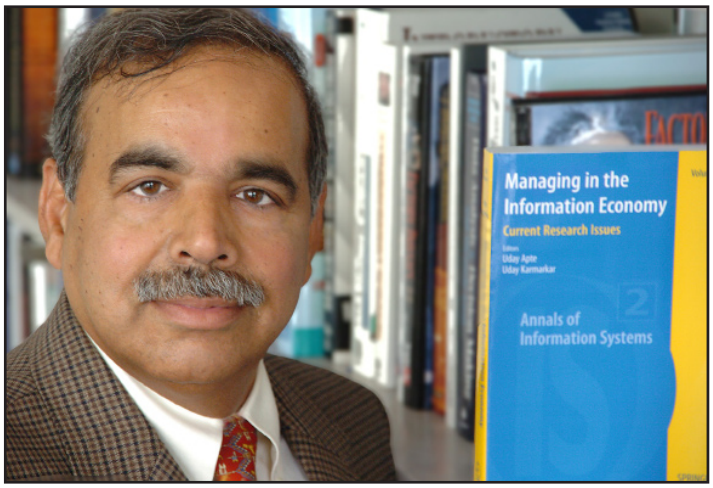


Nita Lewis Miller and Lawrence Shattuck

The paper was selected in a rigorous peer review process from among 125 papers published in EGOS' professional journal Organizational Studies in 2005 and 2006.

For more information on the NPS Human Systems Integration curriculum, contact (831) 656-2381 or humansys@nps.edu. The program's website is http://www.nps.edu/or/hsi.

GSBPP Professor Co-Edits Research Anthology *by Barbara Honegger*



Graduate School of Business and Public Policy Professor Uday Apte has co-edited a book called, "Managing in the Information Economy: Current Research Issues," published by Springer Publications in June

"The strategic management of information is a critical success factor for business worldwide..."

Graduate School of Business and Public Policy Prof. Uday Apte, a specialist in service-sector operations management, has co-edited the first book on managing the information economy written for the business research community. Apte is also the author of three research papers in the new anthology, *Managing in the Information Economy: Current Research Issues*, published by Springer Publications in June.

"The research papers and articles in this book represent the state of the art in the emerging area of managing in the information- and knowledge-based economy, and highlight important areas for future study," Apte said. "This is important because the information economy is now over 60 percent of the overall U.S. economy in terms of value added to the Gross National Product."

The book opens with a discussion of the information economy as a whole, followed by sections on structure and organization, marketing and e-commerce; emerging strategy and ethics issues, operations and empirical studies of business practices. One of its surprises is that the U.S. is estimated to only just past the middle of the shift to a fully mature information economy.

"In 1967, the U.S. information economy comprised 46 percent of the total, and forty years later it has now risen to 63 percent in response to the surge in investment in information technologies and training," Apte said. "It's important to note that the shift to an information- -- and particularly an information services-based -- economy is an ongoing process with different countries at different stages. As the European empires expanded and then receded, they left their languages behind, impacting especially the educated segments of colonized populations. We're now in the next phase, where mostly English and Spanish speakers in these former colonies can participate in the move towards the outsourcing of information-service jobs from the developed economies. India is the prime example, where up to 30 million English speakers are able to perform this work. Because there are lots of rich and poor English speakers in the world, but few in the middle, outsourcing will increase the middle class worldwide. Increased global trading in information-intensive services will ultimately make the world more flat and more fair."

"Across all the G7 countries, which includes the U.S., our management principles and models were mainly developed for the industrial age," Apte noted. "So using them when traditional physical goods manufacturing represents only a small part of the economy is like fighting the last war. Business managers everywhere need to know how to adapt to the changed environment, and this book addresses that need."

"Strategic management of information is a critical success factor for business worldwide," said GSBPP Dean Robert Beck, "so I am pleased to see one of our NPS faculty is leading its development."

Apte's co-editor for the anthology is Prof. Uday Karmarkar of the University of California at Los Angeles. Other contributors are faculty members and leading researchers in the field from Harvard, Stanford, Wharton, Northwestern and the University of California at Berkeley, among others.

DA Professor Selected as FDD Fellow

By MCCS (AW/SW) Jacqueline Kiel

Dr. Michael Freeman, an assistant professor in the Defense Analysis department, was accepted as a 2007-08 Academic Fellow with the Foundation for Defense of Democracies (FDD), a non-profit, non-partisan think tank based in Washington, D.C.

This year the FDD Academic Fellowship Program took place in Israel for 10 days, ending June 6. The program consisted of lectures and field trips to areas throughout Israel, with the goal of educating participants on terrorism and how Israel combats the threat. "The whole purpose of it was to see how they do counter-terrorism," Freeman explained. "[FDD's] whole mantra is to fight terrorism and protect democracies. Lecture subjects covered everything from the basics, for people with little counter-terrorism experience, to more detailed briefings on Hamas, Hezbollah, other Palestinian groups and Iran.

"We stayed in Tel Aviv, but traveled all around Israel, including north to a prison housing terrorists and south to a naval base that's in charge of everything from Egypt and the Gaza strip border all the way up to the middle of Israel," Freeman continued.

"One of the most striking things was how normal it was there," said Freeman,. "We got off the plane and got on the bus and a colleague from San Francisco was looking around expecting it to be a war zone. I kept telling him 'It's not Baghdad. We're not going into the middle of the war.' That's to the Israeli's credit. They don't obsess about it. You see a lot of soldiers on the street, so you're aware of it, but it hasn't changed their society. They still maintain their normal lives."

Freeman said one of the most interesting presenters was the legal advisor to the Israeli Defense Forces who lectured about the legal issues in dealing with terrorism. "The main thing I got out of that was how much oversight they have in terms of balancing civil liberties and security."

Freeman called the program amazing."FDD gave us access that most Israelis would never get."

This was the fifth time this particular program was done. While there are usually 25 to 30 participants, this group consisted of 45 academics from all over the U.S.

An Exercise in Peace and Learning

By MC2 (SW) Corey Truax

Three students from NPS' School of International Graduate Studies (SIGS) returned from Mongolia after participating in Khaan Quest 2007, a multinational, peace-support operation which concluded on Aug. 10 in the Mongolian capital of Ulaanbaatar.

Khaan Quest 2007, designed to improve the mission effectiveness, interoperability and unity of effort during peace-support operations, brought together 22 nations. The exercise gave SIGS students the unique opportunity to work in a real-world environment with multiple nations.

"We produced 103 qualified staff officers and more than 500 qualified peacekeepers and trainers," said Air Force Lt. Col. Mike Madsen, who worked as a logistics officer in the logistics branch of Khaan headquarters staff.

To coordinate, train and prepare for an exercise of this type, the operation was broken down into two phases. The first phase was a command post exercise (CPX), which was followed by a field training exercise (FTX) that focused on 33 common peacekeeping tasks as defined by the United Nations' Department of Peacekeeping.

The 33 tasks were categorized into six training lanes of operations peacekeepers commonly contend with in present times.

"We focused on six paths, or lanes, comprised of checkpoint operations, patrolling as part of U.N. operations, food distribution sites, guarding fixed sites, convoy operations with international Red Cross, and cordon and search," said Army Capt. Lazander Tomlinson, who acted as the after-action review officer and assisted with coordination of platoon level information dissemination during the FTX.

The CPX was a week-long instruction designed to bring everyone to a comparable knowledge-level. The instruction utilized team-building exercises for participants to practice and coordinate communication procedures, as well as become acquainted with one another.

"It was really good for us, because many of the foreign officers weren't aware of the international program we have here [NPS], and many of them are senior leaders for their militaries," said Marine Maj. Alexandra Nielsen, who functioned as a civil affairs officer in the Civil-Military Co-Operation branch of Khaan headquarters staff. "Having us conduct briefings enabled them to learn more about the school and what's available to them."

(from left) Air Force Lt. Col. Mike Madsen, Marine Corps Maj. Alexandra Nielsen and Army Capt. Lazander Tomlinson

As the students familiarized themselves with their new environment and met fellow peacekeepers they soon realized their first problem --communication.

"See the book in my hands," Madsen asked, pointing to a photo of him holding a small book while sitting next to a Mongolian Colonel. "That's a Mongol/English dictionary that the Colonel and I spent a lot of time using."

"As time went on communication improved. That's how it goes while working with other nations and learning how everyone else does things," said Nielsen.

The second phase was designed to apply skills acquired from the first phase in a scenario that took place in three fictional countries on a fictional mid-Pacific continent called Pacifica.

"The overall scenario was a mock U.N. peace accord that was being enforced to support refugee and food movements," explained Madsen. "It was a multinational region experiencing a territorial dispute as well as ethnic and religious issues."

As orders were passed to the FTX site Tomlinson ran into his first hurdle, which wasn't so much communication, but preparing military forces from 22 countries to comprehend their roles in the scenario and collaborate to fulfill mission goals.

"Language was less of an issue during the FTX, because tactics are tactics, rules of engagement are rules of engagement," said Tomlinson. "The only difficulty we encountered initially was disseminating the information and communicating the purpose of the FTX through a U.N. operation."

The three regional affairs specialist students felt the opportunity to travel to Mongolia will benefit them in the long run.

"This exercise was a valuable experience for us, because it gave us a very real basis to understand multinational security cooperation and how it works," said Madsen.

The Dean of the School of International Graduate Studies, retired Army Lt. Gen. Robert L. Ord III, mirrored the students' opinion on the experience.

"I appreciate you doing this and thank all of you for volunteering. This was a great opportunity early in your careers," Ord told the students during an after-action meeting. "You're all war fighters and you have learned through your war-fighting experience that it's the coalition that makes a difference in the world we live in. Here you were exposed to a tremendous foreign force and you learned some valuable lessons that will be useful later on in your careers."

"This experience has been wonderful and has helped me open my eyes, take a look at everything that goes on, and really see what's going on behind the curtain," said Tomlinson. "Did it help me write my comps exam, no, did it help me put it all into a box and shake it up and look at if from a different perspective, yes."

CHDS Celebrates "Five Years of Meeting the Homeland Security Challenge"

By Grace Castro

The NPS' Center for Homeland Defense and Security (CHDS) has grown to become the nation's premier provider of homeland security (HS) graduate- and executive-level education. January 2008 will mark the five-year anniversary of the Center.

CHDS will commemorate the anniversary during its annual conference set for January 29. The topics of the conference will center on the development and evolution of the HS discipline and focus on the challenges local, state and federal leaders face in this rapidly changing field.

Following the terrorist attacks on Sept. 11, 2001, the U.S. Department of Justice identified a need for terrorism-related graduate education for government leaders. At the same time, NPS had considerable knowledge, experience and resources that could be leveraged to answer the national call for homeland security. A partnership was developed between the two organizations and CHDS was established.

Programs are now developed in partnership with and sponsored by the U.S. Department of Homeland Security. Through graduate- and executive-level coursework, seminars and research, public, private sector and military leaders gain analytical skills and substantive expertise to prevent, deter and respond to terrorist attacks, and to bridge gaps in interagency and civil-military cooperation.

CHDS developed the nation's first HS master's degree program. The master's degree is offered at no cost to eligible local, tribal, state and federal officials. More than 180 leaders have earned a degree in HS at NPS in the five years since the program was launched. There are currently 120 officials taking HS classes at the NPS campus in Monterey, Calif., and at the program's National Capitol Region location in Shepherdstown, W.Va.

In addition, CHDS offers non-credit versions of master's degree courses online. The courses are designed for HS professionals who wish to enhance their understanding of key HS concepts and require the flexibility of self-paced instruction. There are currently more than 1,000 active participants in the process of completing online courses.

The Executive Leadership Program was created in August 2006 for the nation's most senior HS leaders who, for various reasons, are not able to participate in the master's degree program. The goal of the program is to provide an educational forum to enhance senior leaders' capacity to identify and resolve HS problems as well as an opportunity to build networks among the nation's HS officials.

CHDS has conducted more than 85 Mobile Education Team (MET) seminars since 2003, benefiting 2,500 senior officials across the country. MET seminars are intensive, half-day sessions that provide elected officials with a neutral educational forum to discuss and debate HS issues, concepts, roles and responsibilities. It is designed for state governors and their cabinets, as well as for mayors and other urban area leaders.

The CHDS University and Agency Partnership Initiative increases the number and diversity of students receiving homeland security education across the nation in a cost-effective manner. It provides an opportunity for all those engaged in and teaching HS to collaborate thus furthering the study of the new discipline. CHDS makes available through the partnership its curriculum, distance-learning technology, digital library and all other resources. In return, partners share curriculum and specialized expertise with CHDS and the other 130 partners.

The HS Digital Library (HSDL) is the nation's premier collection of HS policy and strategy related documents. The HSDL collection provides quick access to over 50,000 important policy documents, presidential directives and national strategy documents, as well as specialized resources from universities, organizations and government agencies.

The master's degree and executive leadership alumni total more than 200 HS leaders. This number will grow by more than 100 per year beginning in 2008. The NPS Center for Homeland Defense and Security's next five years will not only continue to maintain a sharp focus on program quality, it will be marked by the national impact of CHDS alumni shaping the nation's maturing homeland security system.

Oceanography: Exploring the Depths

By MC2 (SW) Corey Truax

The ocean can be a navy's strength or its undoing. To ensure it's our Navy's strength, the Naval Postgraduate School's Oceanography Department is constantly diving into it as they probe deeper into understanding its characteristics and nature.

The department, consisting of 28 faculty and 10 technical staff, works in many different aspects of oceanography including acoustical oceanography, air-sea interaction and ocean turbulence, nearshore oceanography and polar oceanography to name a few.

"This is a great place to work, because we interact with students and teach," explained Prof. Timothy Stanton, an Associate Research Professor in the Oceanography Department. "The students conduct and help with research and that lends a lot of strength to the department."

(from left) Oceanographer Jim Stockel, Rob Wyland, a general engineer, and Prof. Timothy Stanton, an associate research professor discuss and work on an autonomous ocean flux probe that directly measures temperature and heat flux transfer occurring under polar ice

As Professor Mary Batteen, Chair of the Oceanography Department explained, "Our students are actively involved in our research programs and participate in research cruises, conference presentations and as co-authors of research reports and papers. Many of our results, both theoretical and applied, are incorporated into the METOC [Meteorology and Oceanography Command] and USW [Undersea Warfare] curricula we support."

One recent example of research conducted by NPS faculty that has changed the way scientists look at the ocean is a study on rip currents conducted by Prof. Jamie MacMahan, a new Assistant Professor of Oceanography. MacMahan has been known to strap a global positioning system (GPS) to his head and jump into rip currents.

"My area of interest is from where waves break to the shoreline," explained MacMahan. "Typically when you talk about a rip current people think you are going to by sucked offshore and you won't be able to get back, and the general statement was that you should swim parallel to it."

Using inexpensive GPS units, students and himself, MacMahan made an interesting discovery. "The data we collected showed that if you just stay afloat in a rip current you will be redeposited on the shore," said MacMahan. With roughly 100 people struggling against the rip and drowning a year, his findings will hopefully save many lives.

Another researcher changing the way we view the ocean is Tim Stanton.

"We develop instruments that go under the surf zone to measure the wave breaking dynamics and the way it pushes sediment around," said Stanton. "This is very Navy oriented, because we want to be able to predict the way the beaches evolve, predict what the wave breaking conditions would be for amphibious landings, shore operations or inner-shelf operations."

To do this, Stanton, along with his colleagues, build and place underwater devices in Monterey Bay, as well as other locations documenting the changing conditions of the ocean floor. He then uses this information to create or improve models of behavior.

In addition to underwater devices, Stanton also works on a completely different type of research in the polar regions of the world, specifically on the melting ice caps.

"We've been putting a series of buoys in the North Pole each April, which are designed to measure the heat and salt transport and see what role the ocean plays in keeping the ice up there or not," said Stanton.

Thanks to his well-placed buoys and the wealth of new information being released concerning the melting ice caps, Stanton feels he will be working more directly in the polar field once more. "It's gearing up to be a hotly talked about topic, no pun intended," Stanton quipped.

While Stanton may be finding answers in the Arctic by looking at underwater fluxes, another faculty member, Prof. Thomas Herbers, isn't just looking at the ocean a little differently, he's listening to it as well.

"The acoustics community is very interested in understanding the seafloor properties as it helps them detect buried mines or other buried objects," explained Herbers. "As waves produce a back and forth surge in shallow water, small ripples are created on the ocean bottom. These ripples or micro-topography affect the penetration of high-frequency sounds through sediment that can be used to detect objects on the ocean floor."

By deploying precise instruments on the surface and underwater Herbers hopes to be able to predict how waves affect the micro-topography of the ocean floor. He feels if they can understand this process, they can infer bottom characteristics from satellite images of the sea surface.

These few examples touch only a part of the research the NPS Oceanography Department does as they constantly evolve to meet the demands of an ever-changing military and world. They are always happy to get their feet wet and find solutions to problems as their quest for knowledge continues.

MacMahan put it best saying, "When you have a problem, you just need to develop the instruments and research to adapt and get the results you need."

Aim-able Undersea Sound Beams Aid Hunt for 'Red Octobers'

By Barbara Honegger

Two Naval Postgraduate School Undersea Warfare students got the message loud and clear -- if the key to real estate is location, location, location, the key to stealthy submarine communications and sub detection is direction, direction, direction.

Lt. Tim Shivok, a submarine officer, received the Naval Undersea Warfare Center Newport Award for Excellence in Undersea Warfare Technology for his research on tiny microphones that can detect the direction of a sound source based on how flies hear, and Lt. Noble Hetherington III, a surface warfare officer, won the Chief of Naval Operations Undersea Warfare Award for his work with special speakers that radiate sound so loud it changes frequency and becomes confined to a tight beam, like a sonar spotlight. The two technologies may soon provide for improved underwater communications and submarine detection.

"A major problem with current underwater sound technology is that we can hear things but don't know which direction they're coming from," Shivok explained. "If you're towing a linear array, for example, you can only tell the bearing of a sound event -- say 40 degrees from the center line -- but not the direction, left or right, so the ship needs to reposition to eliminate the uncertainty. It's very important not to have to turn the sub to resolve the bearing, because doing so puts flow noises into the ocean, which makes us more detectable and compromises stealth.

"Having directional microphones will make a huge difference in helping our subs run more silent while detecting potentially unfriendly subs," Shivok stressed. "In fact, it was 'The Hunt for Red October' -- the movie about the challenge and excitement of tracking enemy submarines -- that got me into the Navy.

Shivok's microphones aren't just directional, they're also extremely small. "They're literally micro microphones," he said. "We're talking 1 millimeter by 2 millimeters – so light and micro they can be used on even the smallest UAV [Unmanned Aerial Vehicle] or UUV [Unmanned Underwater Vehicle], as well as on submarines and in surface ship towed arrays. After all, the micro-electro-mechanical technology they're based on is modeled on the hearing mechanism of the tiny Ormia ochracea fly that uses coupled bars hinged at the center to achieve directional sound sensing by monitoring the difference in vibration amplitude between them."

Lt. Noble Hetherington

If the key to Shivok's research is to be able to tell which direction an incoming underwater sound is coming from, the heart of Hetherington's is to be able to tightly control the direction in which underwater sound is sent and also narrow the direction from which it can be heard.

"My thesis research is about how the physics of loud -- or high intensity -- sound waves interact with the air or water medium they're in to create new frequencies that are not directly produced by the speaker, and which form an aim-able beam of sound on which voice signals can be transmitted or information encoded," Hetherington explained. "These piggybacked signals channeled inside the aim-able beam can then be exploited for underwater communications and, potentially, for indirect detection of a target submarine's position.

"This nonlinear acoustic effect is important, because it lets you use a much smaller array than traditional arrays or hydrophones to create a low-frequency sound beam which radiates out and is heard only along the direction it's aimed -- like an underwater audio spotlight," Hetherington stressed. "The new low frequencies that are generated in this way can travel farther and much stealthier in the water, and the signal at the receiving end experiences less degradation due to reverberation because of the narrowness of the beam. Traditional hydrophones and arrays can't be directed nearly as well at low frequencies because their sound radiates out in all directions, which makes your own ship, the source, far more detectable."

Lt. Tim Shivok

Both award-winning USW students highly value the time they invested in the Naval Postgraduate School.

"Nowhere else can you earn a technical master's degree along with officers from other branches of the Department of Defense and foreign militaries in an environment totally committed to improving DoD capabilities," Hetherington said.

Shivok strongly agreed. "The NPS undersea warfare program is an incredible experience that's both tactically relevant and academically challenging," he stressed. "I will highly recommend it to every junior officer on my ship."

CNO Hold
Chiefs' Pi

ds *Final*
inning at NPS

By Barbara Honegger

The Naval Postgraduate School Quarterdeck was a sea of khaki for the historic pinning of three new chief petty officers under the watchful eye of then Chief of Naval Operations Adm. Mike Mullen, Sept. 21. The ceremony was Mullen's last as Chief of Naval Operations, as he reported as Chairman of the Joint Chiefs of Staff Oct. 1.

The CNO addressed the standing-room-only audience before Chief Special Warfare Operator Kenneth Reeves, Chief Cryptologic Technician Administrative Matthew Kline and Chief Cryptologic Technician Interpretive Brandace Martin received the Chief's anchors on their lapels.

"This is a joyous celebration and a very special day for the Navy and for me personally," Mullen said. "Today, 4,171 new chief petty officers are receiving their anchors around the world, and this is the only CPO pinning ceremony I get to do. It's also my last in the Navy, as I move on to [become] Chairman of the Joint Chiefs of Staff. You have achieved a great level of success and I have great expectations that you will make even greater contributions to our service in the future.

"As you join this exalted fellowship, Job Number One will be to lead and lead well with authority and accountability, and bring to life the wonderful ethos that resides in CPOs to raise and mentor the young Sailors who will come to lead next. As new chiefs, you've been specifically tasked to guide these young Sailors in a time of dramatic change when we're all going to have to be more special-forces like in terms of speed, agility, precision and flexibility.

"As the Master Chief of the Navy has said so well, it's the chiefs who make the place run -- our ships and our entire Navy. Welcome to this honored community, and congratulations."

Chief Cryptologic Technician Interpretive Glynn Rodgers read the Chief Petty Officer Creed, alerting the new chiefs, "Your entire way of life is now changed. You have joined a unique fellowship."

As "Anchors Away" rose to the rafters, other chiefs from across the Monterey peninsula, fellow service members, family and friends lined up to congratulate the new inductees. First in line was Mullen, who reached into his pocket and presented Reeves, Kline and Martin with his CNO command coins.

Asked what it felt like to be the last chief pinned by the CNO and next Chairman of the Joint Chiefs of Staff, Martin beamed, "It makes the best day of my life even more special."

"This is especially significant for me because my Cryptologic Technician Administrative [CTA] rating is being merged with the Yeoman rating as of Oct. 1, so I'm not only one of the last chiefs pinned by our CNO in his naval career, but one of the last 18 CTA chiefs in the Navy. That's a really big deal," Kline stated.

"In general, the chiefs pinning is the most significant promotion ceremony the military has, officer or enlisted," Kline added. "There's no other promotion in any service where you have to go through a six-week induction process."

Astronaut Alums to Take Historic Dog Tag into Space

By Barbara Honegger

When the Space Shuttle Atlantis blasts off in December, the World War II dog tag of the Naval Postgraduate School's first superintendent, Capt. Herman A. Spanagel, will be on board. And after it comes back to Earth, it will be a focus of the school's 100th anniversary celebrations, which take place over the 2009-1010 academic year.

National Reconnaissance Office Chair Dan Bursch (left) and Prof. Rudy Panholzer, chair of the NPS Space Systems Academic Group, with Spanagel's WWII dog tag.

NPS alumni Stephen Frick, the mission commander, and pilot Alan Poindexter (Aeronautical Engineering, 1994 and 1995, respectively) will carry the historic memento on the U.S.-European Space Agency STS-122 mission slated to deliver the laboratory *Columbus* to the International Space Station.

Knowing his alma mater's 100th anniversary was approaching and that NASA lets astronauts carry up to 10 small items on each mission, Poindexter offered to take along an object of the university's choosing. The NPS Centennial Planning Committee chose the WW II dog tag of NPS' first superintendent.

Spanagel, an alumnus in ordnance engineering, wore the tag while serving as commanding officer of the USS Nashville light cruiser in the Pacific theater. In late 1944, he received orders to detach and report as head of the Naval Postgraduate School, then at Annapolis. Spanagel served as NPS head at the Naval Academy until 1947, when he was promoted to rear admiral and appointed the school's first superintendent, serving until 1950.

"It's very fitting that Cmdr. "Dex" Poindexter will be flying Capt. Spanagel's dog tag on the Space Shuttle Atlantis later this year," said NPS National Reconnaissance Office Chair Dan Bursch, himself a record setting former astronaut. "Capt. Spanagel was the first superintendent of the Naval Postgraduate School, a huge supporter of science and technology (S&T) and a true visionary who recognized the vital importance of S&T to our national security."

"This is one more example the incredible leaders whose careers have been elevated by coming through the Naval Postgraduate School," said Graduate School of Business and Public Policy Dean Robert Beck, co-chair of the centennial planning committee. "Capt. Spanagel, a giant of military advanced education, and the two astronauts leading our nation and the world in this international mission are all NPS graduates."

Frick and Poindexter are two of 34 NASA astronauts who have graduated from the Naval Postgraduate School, more than from any other graduate institution.

Planning Group Envisions NPS' Centennial Year Celebrations

By Barbara Honegger

Naval Postgraduate School leadership, faculty, students and staff have come together to form a new Centennial Planning Group to envision and organize the historic centennial celebrations of the school's founding, which will be held during the 2009-2010 academic year.

The planning group is team-chaired by Dean of the Graduate School of Business and Public Policy Robert Beck, Professor of Computer Science Rudy Darken and Director of Alumni Relations Kari Miglaw.

"The Centennial is literally a once-in-a-century opportunity to gain higher visibility and recognition of NPS for its vital contributions to the Department of Defense, both by DoD and the general public," planning committee co-chair Miglaw noted. "This milestone also provides a unique platform to boost campus morale and better connect with our over 60,000 alumni; enhance NPS' academic and research programs and student recruitment; showcase individual, department and school achievements; improve links with NPS international students, both current and alums; and present a clear history of NPS' first century as well as envision the next."

The NPS centennial year officially begins June 9, 2009, the 100th anniversary of the June 9, 1909 signing by then Secretary of the Navy George von L. Meyer of the general order that established a school of marine engineering at Annapolis. Three years later, Meyer signed a second order renaming the school the Postgraduate Department of the United States Naval Academy, subsequently renamed the Naval Postgraduate School.

To volunteer for the Centennial, see the committee's web page http://intranet.nps.edu/Centennial/Planning/ or contact your department or area representative, or Miglaw at klmiglaw@nps.edu, (831) 656-2077.

(left to right) Michael Herrera, Todd Wyatt, Mike DiFranco, Liza Rosa; Beny Neta, Vicky Hoy, Kari Miglaw, retired Rear Adm. Merrill Ruck, Susan Heath, Pete Charette, John Sanders and Alf Cooper. Members not pictured are Dean Robert Beck, Rudy Darken, Irene Berry and Gary Phillips.

Denning Receives Awards

By Barbara Honegger

Prof. Peter Denning, chairman of the Naval Postgraduate School Department of Computer Science and director of the Cebrowski Institute, has been tapped by the National Science Foundation (NSF) to transform computer science education nationwide.

Denning was named one of the agency's first two NSF Computer and Information Science and Engineering (CISE) Distinguished Education Fellows at a ceremony at the Foundation's headquarters in Arlington, Va., July 13.

The fellowships, which include a $250,000 grant, are part of NSF's Pathways to Revitalized Undergraduate Computing Education (CPATH) program to improve the quality of undergraduate computer science education nationwide. Recipients are challenged and encouraged to develop bold, original ways to expand and strengthen undergraduate computing education.

"These first fellowship awards were juried by a blue-ribbon panel of experts even more distinguished than the selection panels for most NFS grants," said NSF spokesman Dana Cruikshank. "So in addition to endorsing his vision for revitalizing computer science education and choosing him as a national ambassador for change, this is peer recognition that Prof. Denning is an creative and accomplished national leader in the field."

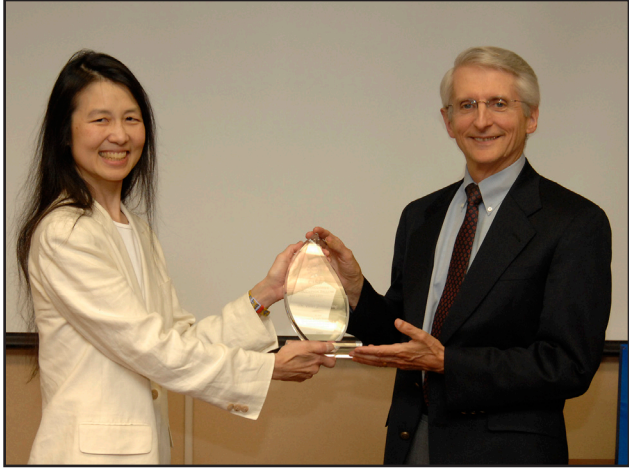
The NSF grant and fellowship came only a month after Denning received a surprise special award from the Association for Computing Machinery (ACM) "for exceptional vision, devotion and commitment to excellence." The honor was presented at the society's awards banquet celebrating "the best and the brightest computing innovators and innovations" in San Diego, June 9.

"Professor Denning has been making extraordinary contributions to this organization since 1968," ACM President Stuart Feldman told the audience at the ceremony. "His 40 years of dedication and guidance have been an inspiration to the Association and all those who have served with him."

The award was so special the association kept it a secret by leaving it off the published schedule.

"I wasn't told in advance that they were doing this and it wasn't on the awards agenda," Denning said. "Dorothy [Professor of Defense Analysis Dorothy Denning, his wife] remarked that I had already gotten most of the other ACM awards, so they had to invent a new one."

Denning has received numerous awards from the association, including its Best Systems Paper Award, Distinguished Service Award, Karlstrom Outstanding Educator Award, Computer Science Education Special Interest Group Educator Award, Outstanding Contribution to ACM Award and designation as one of the society's first ACM Fellows.



Prof. Peter Denning recieves Distinguished Education Fellow award from CISE Assistant Director Jeanette Wing

Denning has served the association as a volunteer continuously since 1968, first as newsletter editor for one of its special interest groups (SIGs). Over time, he became its chair, founding chair of the SIG Governing Board, a member of the ACM Council, vice president and finally president from 1980 to 1982. In 1983, Denning took over responsibilities as editor-in-chief of the association's monthly magazine ACM Communications.

"Sometimes I feel like Peter Sellers, having played all the major roles [in the society]," Denning quipped in receiving the award. "On this occasion, I feel like George Burns, who said 'They pay attention to you when you get older, because you're the last man standing.'"

Management Professor Does Well by Doing Good

By Barbara Honegger

If you want to change the world, create a business that does good and manage it well.

That was the theme -- 'Doing Well by Doing Good' -- for this year's Organization Development and Change (ODC) division program refereed by Naval Postgraduate School Professor of Management Frank Barrett for the annual Academy of Management (AOM) conference in Philadelphia, Aug. 4-9. The Academy is the world's premier organization of professors and other academic professionals in business management, and the ODC division is one of the organization's largest with over 3,000 members.

Barrett is a member of the ODC division executive committee, a five-year post, and was elected program chair for the 2007 conference.

"This really puts the Naval Postgraduate School on the map as a world leader in organization development and change," said NPS Graduate School of Business and Public Policy Dean Robert Beck. "AOM is the most prestigious annual symposium and academic showcase for 12,000 management professionals from 80 countries worldwide with a conference program the size of the phone book, and thanks to the stellar efforts of Frank Barrett, the Naval Postgraduate School played a major and highly visible role. Frank is a leader and one of the most cited researchers in the field, and the ODC division he designed and refereed the program for is one of the largest."

"Three hundred papers were submitted, and one of my jobs as program chair was to manage the review process that honed these down to the 123 that were accepted for the division symposia," Barrett said. "I also shaped the themes and sub-themes of the call for papers. The efforts of submitters and reviewers -- of which there were almost 400 -- was unparalleled, resulting in an awesome slate of papers and intriguing symposia that captured the interest of everyone who attended."

One of Barrett's main responsibilities as ODC division program chair was to create the theme session that opened the conference, "What Good is Theory for the Practice of Organizational Change?" Speakers included four leaders in the field: Ken Gergen on social constructionism; Karl Weick from the University of Michigan; Steve Kelman from Harvard's Kennedy School of Government; and Jean Bartunek from Boston College. An overflow crowd attended the opening session on the relationship among theory building, research and practice. The distinguished speaker was David Cooperrider on his pioneering work on "Business as an Agent of World Benefit."

This is the third year of Barrett's five-year responsibilities as a member of the ODC division executive committee.

"Next year the program will be just as exciting," said Barrett. "In 2008, I'll be in charge of the pre-conference doctoral student consortium."

The 2008 conference will be held in Anaheim, Calif., home of a world renowned business that's been doing well by doing good -- for kids -- for over half a century.

GSEAS Ed Tech Receives National FEW Scholarship

By Barbara Honegger

Graduate School of Engineering and Applied Sciences educational technician Evangelina "Eva" Anderson received a nationwide competitive scholarship from Federally Employed Women (FEW) to attend the society's 38th National Training Program in Washington, D.C., July 16-20. The theme of the almost week-long program was "Training Today, Leaders Tomorrow."

FEW is a professional organization with over 300 U.S. chapters dedicated to ending gender discrimination and increasing employment and promotional opportunities for women in government. Anderson is past president and current membership chair of the Central Coast of California chapter, which includes NPS, the Defense Language Institute, Fleet Numerical Meteorology and Oceanography Command, Edwards Air Force Base and Vandenberg Air Force Base.

(left) Evangelina "Eva" Anderson and distinguished alumnus Vice Adm. Nancy Elizabeth Brown

"This year's experience in Washington was truly educational and memorable," Anderson said. "There were over a thousand federally employed women there and a sense of excitement just to be among them."

The highlight for Anderson was the awards banquet "Celebration Honoring Military Women" held at the Washington Hilton Hotel the evening of July 17. High-ranking active duty and retired military women addressed the packed audience. NPS distinguished alumnus Vice Adm. Nancy Elizabeth Brown, director, Command, Control, Communications and Computer Systems for the Joint Staff (M.S., Telecommunications Systems Management, 1982) formally greeted attendees at the conference opening.

"These women are truly an inspiration and role models for us all," Anderson said.

The local FEW chapter, founded in 1993, is part of the organization's western region covering California, Arizona, Hawaii, Nevada and the Pacific. The current president is Lita Mosqueda of the NPS Civilian Institutions office. Monthly meetings include a guest speaker and discussions on professional development, total quality leadership, health issues and other topics of current interest to members.

"I'd like to see more NPS staff join FEW and discover how it can really help their career in government through training and networking," said Mosqueda. "I'd also like to see NPS leadership and management become actively involved in supporting FEW's goals and objectives."

For more information about the local chapter, or to join, contact Anderson at (831) 656-2044 or eanderson@nps.edu.

ONR S&T Partnership Conference

By John Sanders

When Rear Adm. William Landay, Chief of Naval Research, delivered opening remarks for the 2007 Naval Science & Technology (S&T) Partnership Conference, he showed the unique return-on-investment of graduate education for an unrestricted line officer.

Landay, a surface warfare officer, has been a commanding officer of a hydrofoil, USS Aquila (PHM 4), and an Arleigh Burke class guided missile destroyer, USS Paul Hamilton (DDG 60). During his command, the Paul Hamilton earned the Battle Efficiency "E" for operational performance, two Silver Anchor awards for retention excellence, and the Spokane Trophy for outstanding combat readiness.

But on this day, Landay, an NPS distinguished alumnus with a master's degree in systems technology (C4I), came to discuss a new vision for naval science and present the Office of Naval Research's Naval Science & Technology Strategic Plan. The plan, he said, would better align Navy and Marine Corps S&T priorities with requirements and strategy drivers. And it would focus on the needs defined by the Chief of Naval Operations, Commandant of the Marine Corps and Secretary of the Navy.

His comprehensive technical remarks underscored a Navy, Marine Corps and industry partnership to provide a research portfolio that addresses needs of today's warfighters while developing tools for future sailors and Marines. "Our one driving concern is that you've got to make sure that while you're helping us with today's problems, you're also thinking about tomorrow," Landay told Navy Times.

Assistant Secretary of the Navy for Research, Development and Acquisition Dr. Dolores Etter reinforced Landay's point. She told attendees, "If we don't do the science and technology part right, we won't have the [assets] we need in the future."

The new S&T portfolio established 13 broad focus areas with the overall portfolio dividing resources into four categories: discovery and invention (40%), acquisition enablers (30%), leap-ahead innovations (10%) and quick reaction science and technology (10%).

According to ONR, the strategy serves as a roadmap to "address the complex challenges presented by both rising peer competitors and irregular/asymmetric warfare. It puts us on a path toward maturing and transitioning enhanced Naval capabilities, such as persistent ISR (intelligence, surveillance and reconnaissance) and dominance of the electromagnetic warfare spectrum, and toward pursuing revolutionary advances, such as speed-of-light weapons."

NPS alumnus Capt. Daniel Gahagan, commanding officer of the Naval Research Laboratory, also spoke at the conference. Gahagan noted that NRL has "about one-half of the Ph.D.'s in the Navy" and outlined the lab's research and development programs.

Dean of Research Dan Boger, who was the senior NPS official at the conference, noted: "It is always important for NPS to have a presence at this annual conference, but this year's was even more important. The emphasis on the new Naval S&T Strategic Plan shows that NPS research activities are leading the way. Additionally, I was pleased that so many decision-makers and NPS alumni decided to drop by the NPS exhibit."

From Professor to Deputy Assistant SECDEF for Special Operations

By MCCS (AW/SW) Jacqueline Kiel

"It was a call to service, and given the situation our country faces at this time, I could not have said anything but yes..."

Going from an assistant professor to a deputy assistant secretary of defense may not be an everyday occurrence, but one of NPS' Defense Analysis (DA) Department professors did just that.

A DA assistant professor since August 2003, Dr. Kalev Sepp began preparing for the job as soon as he was asked by Michael G. Vickers to serve in the position. Vickers, who was confirmed by the Senate on July 23 as Assistant Secretary of Defense for Special Operations/Low-Intensity Conflict and Interdependent Capabilities, wanted Sepp as one of his four deputies. "Late last year, I was asked if I would accept his nomination for me to be his deputy for special operations capabilities," Sepp said. "I replied immediately that I would."

This position meant Sepp had to take a leave of absence from NPS, but he knew he would be back in just a year and a half. "This is a 'Schedule C,' non-career appointment, and will expire at the end of the current administration, in January 2009."

It was also an appointment that Sepp couldn't turn down. "It was a call to service, and given the situation our country faces at this time, I could not have said anything but 'yes,'" Sepp explained.

Once the nomination was approved by the White House, Sepp sensed the seriousness of his new job. "This is a position that affects policy and real-world combat situations around the world every single day," he stated. It's not theoretical. It's not administrative. It directly impacts on the men and women who serve in U.S. special operations forces."

Sepp has a great deal of work to do in the short time he will occupy the position. "Because the secretariat has recently been reorganized, the portfolios for each of the deputies has changed, and part of what I'm tasked to do is to help my deputate through this new organization.

Sepp also said that Vickers has a well-developed set of ideas about what he wants done. "I've got to learn all of this from him, and then make the plans for my deputate," he explained.

There may soon be some significant changes in the way special operations are conducted. "There's been a concern that special operations forces may be too focused on what's called direct action, that they may be over-emphasizing manhunting in the global war on terrorism," Sepp explained. "There's an emerging sense that a broader approach is required. It's necessary to pursue known terrorists, but much of the work in countering terrorism lies in dealing with the causes of violence and the conditions that give rise to radicals and extremists."

"The idea is to support governments, especially new democracies," Sepp continued. "It's to build their capacity for good governance and law enforcement, and that doesn't involve sending divisions or fleets or wings. It requires small teams of personnel, and sometimes just individuals."

While the total length of the appointment is only a year and a half, Sepp is optimistic about how much can be accomplished. "It's a challenge to achieve significant policy changes in just a year in a half. However, Mr. Vickers believes a lot can be done," he emphasized. "You can set immediate goals, then mid-range and long-range objectives, and set policies and plans in motion that will come to fruition in later years."

"You can't expect al Qaeda is going to be wiped out before the end of this administration in 2009, but you can begin the efforts that will make the global environment so inhospitable to them that they won't be able to succeed," Sepp continued. "You can't quite wipe them out, but you can drive them into irrelevance. It's always a question of degree."

CNO Lauds Summer 2007 Grads *By Barbara Honegger*

Then Chief of Naval Operations Adm. Mike Mullen gave the Naval Postgraduate School Summer 2007 graduating class the experience of a lifetime by handing out the diplomas at commencement ceremonies, Sept. 21.

NPS President Daniel Oliver introduced Mullen, a distinguished alumnus (Operations Research, 1968), as "the Navy's Senior Sailor, a great friend of the Naval Postgraduate School and a thoughtful, decisive leader. The country is very fortunate to have this man chosen to be the Chairman of the Joint Chiefs of Staff in just ten days."

Mullen returned the accolades, lauding the NPS president as a mentor and "one of the finest leaders I have known in the Navy. I can think of no one better to lead this institution at this critical time in our nation's history than Dan Oliver."

The 28th Chief of Naval Operations praised the university's faculty and staff for world-class scholarship and "for making this school a crown jewel, an epicenter of knowledge for the Navy, our sister services, federal agencies and international partners. You are the ones who unleash the powerful shockwaves of creativity and innovation that rock our enemies back on their heels."

Mullen then turned to the 327 about-to-be graduates, including 26 international officers, "whose spectrum of uniforms shows it's a great day for all the U.S. services and for officers from every corner of the globe."

"You, the class of 2007, represent our asymmetric advantage in the long war of ideas, the generational battle against radical jihadists," he said. "I need each and every one of you out there developing new strategies, tactics and technologies for this new era . . . In this war of ideas, reason and free inquiry, curiosity and innovation, and willingness to pursue multi-cultural enlightenment will undermine the flawed doctrine of extremists, insurgents and politically malevolent oppressors who, unable or unwilling to contend with change, live shackled to the past and threaten freedom and stability around the world. Whether or not we decide to remain shackled to the past will determine the fate not only of the United States, but of the whole of humanity."

Graduating were 209 U.S. military officers, including 112 from the Navy, 42 from the Marine Corps, 32 from the Air Force, 15 from the Army, four from the Coast Guard and one from the National Oceanic and Atmospheric Administration; 26 international officers; and 91 U.S. government civilians. The degrees awarded were two Ph.D.s, 224 Masters of Science, 60 Masters of Arts, six Masters of Business, 45 Executive Masters of Business and ten dual degrees.

At the reception following the ceremony, Mullen held the ceremonial sword with Oliver, NPS Provost Leonard Ferrari and top Summer 2007 class graduate, Lt. Cmdr. Andrew Dittmer. Just after, the about-to-be-Chairman of the Joint Chiefs of Staff reached into his pocket and handed Dittmer's young son a CNO command coin. The boy beamed.

NPS Honors Top Grads, Faculty at Summer 2007 Awards *By Barbara Honegger*

The Naval Postgraduate School recognized 40 students and six faculty members for exceptional academic and instructional achievement at the Summer Quarter 2007 Awards Ceremony in King Hall, Sept. 11. The ceremony, officiated by Dean of Students Capt. Kathryn Hobbs, honors the highest levels of achievement in academics, instruction, research and community service.

Faculty Awards

The prestigious Distinguished Professor Award went to Profs. Peter Denning and Richard Rosenthal for their "scholarly accomplishments and lasting educational contributions to the Naval Postgraduate School." The two now join the select group of NPS faculty who bear the title of distinguished professor.

Denning is chairman of the Department of Computer Science and Director of the Cebrowski Institute; Rosenthal is a professor in the Department of Operations Research.

The Richard W. Hamming Teaching Award for excellence in instruction and thesis advising was presented to Professor of Electrical and Computer Engineering and Space Systems Hershel Loomis, also a member of the NPS Space Systems Academic Group.

The School for International Graduate Studies Lieutenant Commander David L. Williams Outstanding Professor Award went to Prof. Francois Melese of the Defense Resources Management Institute. The presentation was particularly special as it fell on Sept. 11 and honors Williams, who lost his life at the Pentagon six years earlier to the day.

The Meyer Award for Distance Learning Teaching Excellence in Systems Engineering went to six Systems Engineering faculty: Dr. John S. Osmundson, Gregory A. Miller, Associate Professor Robert Koyak, Senior Lecturer David Matthews, Marine Corps Lt. Col. Sergio Posadas and Dr. Frank Shoup.

The first Command Military Leadership Award went to NPS Senior Intelligence Officer Capt. Timothy Doorey.

Student Awards

Forty graduates of the Naval Postgraduate School Summer 2007 class were recognized for outstanding academic achievement, research and community service.

Lt. Col. Oleksiy "Alex" Petrov, an officer in the Ukrainian Defense Ministry, received the Graduate School of Business and Public Policy Faculty Outstanding International Student Award. The winner is selected based on academic achievement, quality of thesis research, motivation and community involvement. Oleksiy, whose position before coming

to NPS was deputy chief of the Main Directorate's External Relations Service, is the first Ukrainian student to complete the NPS Master of Business Administration System Management curriculum.

"I will highly recommend NPS to my fellow officers," Petrov said. "This is one of the best schools in the world. The fact that I've been sent here, and that Ukraine is committed to sending an officer to the National Security Affairs each year and another to the Graduate School of Business and Public Policy every two years, shows my country is serious about investing in a bright future."

In 2000 to 2001, Petrov participated as an international liaison officer in the United Nations Mission in Kosovo, and studied English intensively for ten months at the Defense Language Institute Foreign Language Center's English language campus in Texas before coming to NPS.

Lt. Timothy Shivok, winner of the Naval Undersea Warfare Center Division Newport Award for Excellence in Undersea Warfare, was equally enthusiastic about the value of the Naval Postgraduate School.

"NPS is an incredible experience," Shivok said. "The applied physics and undersea warfare curricula are both tactically relevant and academically challenging. The big 'take away' from NPS is that you learn advanced problem solving, which can be applied to anything at any point in your future career."

Lt. Col. Oleksiy Petrov of the Ukrainian Defense Ministry was one of 40 NPS students to be honored for exceptional academic achievement and service at the Summer Quarter 2007 awards ceremony

Foundation Raises $600,000 for War Wounded *By Javier Chagoya*

Over the past 2 years, concerned Americans on the Monterey Peninsula have banded together to help in the recovery of Soldiers, Sailors, Airmen and Marines, who have been wounded in action while serving in Iraq and Afghanistan. Leadership at the Naval Postgraduate School Foundation was committed to help. With connections at a world-class golf course and friends ready to donate desirable auction gifts, the idea to create a program that would inspire the community to give came to Naval Postgraduate School Foundation Trustee David Liskin. He approached Foundation President Bill Warner and colleague Peter Blackstock to begin the America's Heroes Charity Golf Tournament at the donated facilities of the Monterey Peninsula Country Club. It was the right type of program and at the right venue to be a success. Since the Peninsula is home to some of the world's most competitive golf courses and smack in the middle of both enlisted and officer academic institutions, teeing up to meet the need of returning war wounded was a certainty. This year's program included inspiring stories of recovery from four NPS students, who have returned from the fight. U.S. Marine Corps Maj. Stephen Mount, Capt. Jonathan Disbro, Capt. Jonathan Towle and Army Capt. Christopher Distifeno. They spoke briefly about their experiences, following their injuries, and touched the hearts of a grateful audience at the tournament's reception and dinner that followed a day of spectacular golf.

This year's charity tournament benefits a fledgling organization started by a Marine Corps officer's wife, Karen Gunther. As she and her husband arrived at Camp Pendleton for duty a few years ago, she began to see Marines returning from the war completely ill-prepared to start their lives anew. Gunther sensed a great need and started the Injured Marine Semper Fi Fund (IMSFF) in order to carry out additional assistance to wounded service members. The NPS Foundation had teamed up with this worthy cause at the first America's Heroes Golf Tournament event in 2006 and raised monies for both the IMSFF and the Navy Marine Corps Relief Society. This year the NPS Foundation rose over $600,000 and looks forward to another successful program in 2008 at the Monterey Peninsula Country Club, which has graciously donated their facilities for a third year.

Student's RAPIDS Chip Enables 3-D Shared Situational Awareness with UAVs

By Barbara Honegger

There was a big difference between this year's Cooperative Operations and Applied Science & Technology Studies (COASTS) shared situational awareness capstone field experiment and those from previous years: a new dimension. It was as if the Naval Postgraduate School's Royal Thai Air Force partners had put on red-and-green 3-D glasses and were seeing the world remotely as it really is for the first time.

COASTS is a U.S.- international field experimentation program that tests advanced commercial-off-the-shelf [COTS] command and control, communications, computers and intelligence [C4I] systems of systems to provide real-time shared situational awareness for multi-national, tactical and remote decision makers. The program's goal is to integrate COTS technologies in innovative ways to generate advantages for warfighters, search and rescue operations, peacekeepers and disaster response personnel. Its demonstrations span the entire fiscal year, with the capstone field experiment usually taking place in Thailand in late May.

Thanks to the Remote Automated Position Identification System (RAPIDS) developed by Hellenic Air Force Maj. Evangelos Foutzitzis, information technology (IT) leader for the 15-student Naval Postgraduate School team, position data from Unmanned Aerial Vehicles (UAVs) was seamlessly fused with three-dimensional digital maps generated from air, ground and maritime platform videos for the first time to include real-time vehicle tracks. Integrating smart algorithms and cursor-on-target applications, RAPIDS enables the automatic tasking, orientation and coordination of unmanned vehicles to detect, identify and follow friendly and hostile targets in support of day and night reconnaissance, over-the-hill surveillance, combat search and rescue, maritime interdiction, port security and target acquisition missions.

RAPIDS devices were on all three UAVs used in the 2007 Thailand advanced technology systems demonstration 'flown' by on-the-ground pilots via 802.11 wireless mesh networks. The 3-D terrain maps with real-time vehicle tracks were then displayed on distributed laptops and on large, elevated flat-panel wall monitors in the experiment's Tactical Operations Center (TOC).

"The highlight is that this is the first year we've provided 3-D situational awareness to every level of command so that decision makers, regardless of where they're located, share the same real-time 3-D representation of the actual area of operations," said Foutzitzis, an F-16 pilot and Summer 2007 graduate in Electronic Warfare Systems Engineering who coordinated the 3-D system from the TOC.

"Advances in situational awareness are very important because they allow you to recreate the reality of what happens in the field in real time and project it simultaneously to decision makers anywhere," Foutzitzis stressed. "It's not a simulation, but the 3-D reality of what operators in the field are actually seeing, as they see it."

"The impact of RAPIDS is that decision makers and observers anywhere can look at 3-D maps showing people walking on the ground, boats moving across the water, and UAVs flying – all as they actually were, in real time," noted meteorology student and COASTS-07 student leader LCDR Amy Bleidorn. "He even integrated sensor inputs from the UAVs with his IFF [Identify Friend or Foe] trackers so that when a downed pilot in the Blue Team rescue scenario we were testing activated it, it made the UAV automatically turn towards him."

"Another major success of COASTS is that, after three years of spiral development of advanced COTS technology, we have a track record of accelerating the traditional technology test cycle from the eight to 14 years typical for DoD research and development to only one to two [years]," Ed Fisher, COASTS Deputy Program Manager, noted.

In addition to the 15 NPS students, COASTS-07 included 15 Naval Reservists led by Capt Paul Marshall, 30 officers and observers from the Thai Royal Air Force, technology vendors, contractors and observers.

"All together, about 80 people were involved in this year's capstone experiment in Thailand, which is the third in the series, said Fisher, "and this year built on the successes and lessons learned from 2005 and 2006. Our work with the Navy on field test exercises this year also quickly led to two full fleet exercises and going forward to countries we hadn't even dreamed of."

"Our partnership with the Office of Naval Research reservist team, lead by Capt Paul Marshall, was also a major contributor to the success," Fisher said. "The can-do spirit of the reservists deployed to a remote location in Southeast Asia, willing to work 12 and more hours a day despite extreme temperatures is nothing short of remarkable."

"Vendor support, from Mercury Data Systems to Kestrel Technologies, to AeroVironment, just to name a few, also grew five fold over 2006," Fisher noted. "I attribute that to the quality of our NPS students and their thesis projects, which allows companies to develop and test their products in demanding operational environments that make them more attractive to DoD and foreign markets."

COASTS is directed by Naval Postgraduate School Information Sciences Research Associate James Ehlert.

For more information about COASTS, contact Capt. Paul Marshall at paul.g.marshall@saic.com, (858) 826-5465. For more information about all Naval Postgraduate School programs, go to www.nps.edu.

(Left to Right) Javier Santoro, Canadian-based Programmer; Major Evangelos Foutzitzis, Greek Air Force; Colonel Johnston, Australian Army; Squadron Leader Aswin Baramee, Royal Thai Air Force; and Jeremiah Engelman, ICX Corp. at the RAPIDS Watchstation

UPDATE NPS

Update NPS is a monthly newspaper for faculty, military and civilian personnel of NPS created to improve the information flow across campus, to foster shared institutional values and to provide information that benefits NPS in its partnerships.

Highlights include:

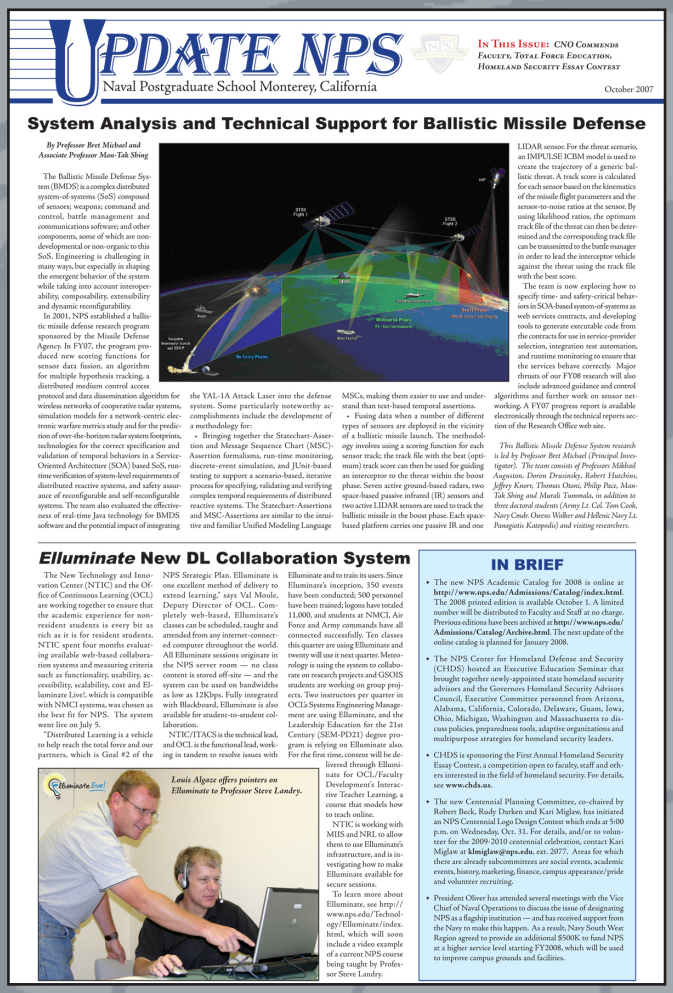
Reports on Campus Activities

In Brief

Announcements

Calendar

Historical Highlights



UPDATE NPS
Naval Postgraduate School Monterey, California
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In This Issue: CNO Commends Faculty, Total Force Education, Homeland Security Essay Contest

System Analysis and Technical Support for Ballistic Missile Defense

By Professor Bret Michael and Associate Professor Man-Tak Shing

The Ballistic Missile Defense System (BMDS) is a complex distributed system-of-systems (SoS) composed of sensors; weapons; command and control, battle management and communications software; and other components, some of which are non-developmental or non-organic to this SoS. Engineering is challenging in many ways, but especially in shaping the emergent behavior of the system while taking into account interoperability, composability, extensibility and dynamic reconfigurability.

In 2001, NPS established a ballistic missile defense research program sponsored by the Missile Defense Agency. In FY07, the program produced new scoring functions for sensor data fusion, an algorithm for multiple hypothesis tracking, a distributed medium control access protocol and data dissemination algorithm for wireless networks of cooperative radar systems, simulation models for a network-centric electronic warfare metrics study and for the prediction of over-the-horizon radar system footprints, technologies for the correct specification and validation of temporal behaviors in a Service-Oriented Architecture (SOA) based SoS, run-time verification of system-level requirements of distributed reactive systems, and safety assurance of reconfigurable and self-reconfigurable systems. The team also evaluated the effectiveness of real-time Java technology for BMDS software and the potential impact of integrating the YAL-1A Attack Laser into the defense system. Some particularly noteworthy accomplishments include the development of a methodology for:

- Bringing together the Statechart-Assertion and Message Sequence Chart (MSC)-Assertion formalisms, run-time monitoring, discrete-event simulation, and JUnit-based testing to support a scenario-based, iterative process for specifying, validating and verifying complex temporal requirements of distributed reactive systems. The Statechart-Assertions and MSC-Assertions are similar to the intuitive and familiar Unified Modeling Language MSCs, making them easier to use and understand than text-based temporal assertions.
- Fusing data when a number of different types of sensors are deployed in the vicinity of a ballistic missile launch. The methodology involves using a scoring function for each sensor track; the track file with the best (optimum) track score can then be used for guiding an interceptor to the threat within the boost phase. Seven active ground-based radars, two space-based passive infrared (IR) sensors and two active LIDAR sensors are used to track the ballistic missile in the boost phase. Each space-based passive infrared (IR) sensor and LIDAR sensor. For the threat scenario, an IMPULSE ICBM model is used to create the trajectory of a generic ballistic threat. A track score is calculated for each sensor based on the kinematics of the missile flight parameters and the sensor-to-noise ratios at the sensor. By using likelihood ratios, the optimum track file of the threat can then be determined and the corresponding track file can be transmitted to the battle manager in order to lead the interceptor vehicle against the threat using the track file with the best score.

The team is now exploring how to specify time- and safety-critical behaviors in SOA-based system-of-systems as web services contracts, and developing tools to generate executable code from the contracts for use in service-provider selection, integration test automation, and runtime monitoring to ensure that the services behave correctly. Major thrusts of our FY08 research will also include advanced guidance and control algorithms and further work on sensor networking. A FY07 progress report is available electronically through the technical reports section of the Research Office web site.

This Ballistic Missile Defense System research is led by Professor Bret Michael (Principal Investigator). The team consists of Professors Mikhail Auguston, Doron Drusinsky, Robert Hutchins, Jeffrey Knuer, Thomas Otani, Philip Pace, Man-Tak Shing and Murali Tummala, in addition to three doctoral students (Army Lt. Col. Tom Cook, Navy Cmdr. Owens Walker and Hellenic Navy Lt. Panagiotis Katopodis) and visiting researchers.

Elluminate New DL Collaboration System

The New Technology and Innovation Center (NTIC) and the Office of Continuous Learning (OCL) are working together to ensure that the academic experience for non-resident students is every bit as rich as it is for resident students. NTIC spent four months evaluating available web-based collaboration systems and measuring criteria such as functionality, usability, accessibility, scalability, cost and Elluminate Live!, which is compatible with NMCI systems, was chosen as the best fit for NPS. The system went live on July 5.

"Distributed Learning is a vehicle to help reach the total force and our partners, which is Goal #2 of the NPS Strategic Plan. Elluminate is one excellent method of delivery to extend learning," says Val Moule, Deputy Director of OCL. Completely web-based, Elluminate's classes can be scheduled, taught and attended from any internet-connected computer throughout the world. All Elluminate sessions originate in the NPS server room — no class content is stored off-site — and the system can be used on bandwidths as low as 128Kbps. Fully integrated with Blackboard, Elluminate is also available for student-to-student collaboration.

NTIC/TTACS is the technical lead, and OCL is the functional lead, working in tandem to resolve issues with Elluminate and to train its users. Since Elluminate's inception, 350 events have been conducted; 500 personnel have been trained; logons have totaled 11,000, and students at NMCI, Air Force and Army commands have all connected successfully. Ten classes this quarter are using Elluminate and twenty will use it next quarter. Meteorology is using the system to collaborate on research projects and GSOIS students are working on group projects. Two instructors per quarter in OCL's Systems Engineering Management are using Elluminate, and the Leadership Education for the 21st Century (SEM-PD21) degree program is relying on Elluminate also. For the first time, content will be delivered through Elluminate for OCL/Faculty Development's Interactive Teacher Learning, a course that models how to teach online.

NTIC is working with MIIS and NRL to allow them to use Elluminate's infrastructure, and is investigating how to make Elluminate available for secure sessions.

To learn more about Elluminate, see http://www.nps.edu/Technology/Elluminate/index.html, which will soon include a video example of a current NPS course being taught by Professor Steve Landry.

Louis Alvarez offers pointers on Elluminate to Professor Steve Landry.

IN BRIEF

- The new NPS Academic Catalog for 2008 is online at **http://www.nps.edu/Admissions/Catalog/index.html**. The 2008 printed edition is available October 1. A limited number will be distributed to Faculty and Staff at no charge. Previous editions have been archived at **http://www.nps.edu/Admissions/Catalog/Archive.html**. The next update of the online catalog is planned for January 2008.
- The NPS Center for Homeland Defense and Security (CHDS) hosted an Executive Education Seminar that brought together newly-appointed state homeland security advisors and the Governors Homeland Security Advisors Council, Executive Committee personnel from Arizona, Alabama, California, Colorado, Delaware, Guam, Iowa, Ohio, Michigan, Washington and Massachusetts to discuss policies, preparedness tools, adaptive organizations and multipurpose strategies for homeland security leaders.
- CHDS is sponsoring the First Annual Homeland Security Essay Contest, a competition open to faculty, staff and others interested in the field of homeland security. For details, see **www.chds.us**.
- The new Centennial Planning Committee, co-chaired by Robert Beck, Rudy Darken and Kari Miglaw, has initiated an NPS Centennial Logo Design Contest which ends at 5:00 p.m. on Wednesday, Oct. 31. For details, and/or to volunteer for the 2009-2010 centennial celebration, contact Kari Miglaw at **klmiglaw@nps.edu**, ext. 2077. Areas for which there are already subcommittees are social events, academic events, history, marketing, finance, campus appearance/pride and volunteer recruiting.
- President Oliver has attended several meetings with the Vice Chief of Naval Operations to discuss the issue of designating NPS as a flagship institution — and has received support from the Navy to make this happen. As a result, Navy South West Region agreed to provide an additional $500K to fund NPS at a higher service level starting FY2008, which will be used to improve campus grounds and facilities.

Look for your copy on newsstands placed throughout the campus on the first of each month, so you can increase your awareness and knowledge of NPS programs, news and events!

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1 University Circle Monterey, California 93943 831.656.3164