

NPS Partners with Joint Improvised Explosive Device Defeat Organization

The Joint Improvised Explosive Device Defeat Organization (JIEDDO) and the Naval Postgraduate School (NPS) have partnered to leverage the advantages that academia offers for identifying and pursuing innovative approaches for addressing issues that involve the networks which produce improvised explosive devices (IEDs). As of August 2007, the NPS-JIEDDO study team has been applying a multidisciplinary, cross-organizational approach that includes, but is not limited to, social and political analyses, red teaming, modeling and simulation, operations research, systems engineering, and business analysis to define and study key nodes and arcs of underlying networks from which the use of IEDs emerge, thereby significantly reducing their tactical and operational impact and eventually eliminating their strategic influence.

The NPS Team is performing the following primary tasks for the JIEDDO:

1) As an initiative from the Rapid Reaction Technology Office, under the Director of Defense Research & Engineering, NPS is conducting a full spectrum systems analysis of the IED problem using a counterinsurgency framework. This effort will develop a comprehensive model of the systems involved in producing the violence and conditions that result in IEDs.

2) NPS supports wargaming, red teaming and modeling and simulation efforts that examine the impact of specific devices and counter IED systems in theater. NPS is working with the JIEDDO Technical Gaming Team Federation to conduct or support Red Team studies, meetings, wargames, seminars and workshops. These efforts are valuable to the overall network study as they pertain to impacts on new concepts within the network.



U.S. Air Force explosives ordnance disposal specialists living on and working out of Forward Operating Base Mehtarlam in Afghanistan's Laghman Province, conduct a controlled detonation, Sept. 1, 2007. Approximately 900 pounds of small-arms ammunition, rocket propelled grenades and mortars were turned in by provincial citizens under the small arms for rewards program.

3) NPS is using a multidisciplinary approach to develop techniques for integrating individual and group behaviors into a nodal network identification process. Focused studies and research are being conducted to leverage information obtained through Task 1 to optimally impact the systems and subsystems of the network that support the use of IEDs. These projects integrate social science fields.

Initially this effort is using Iraq and Afghanistan as a baseline, but provides opportunity for extending work into other regions and conditions in other operational environments that face the U.S. and its allies.

The NPS team has approximately thirty-five studies in progress, or in their initial phase. Some of these projects include the following:

- Sequential Pattern Model: Develops a sequential pattern detection model to explore commonly occurring or high-confidence sequences of events leading to an IED attack, and predicts events that are likely to occur given the sequence of observations.
- Containment of Support for Violence: Studies fragmentation and containment of passive support for, and tolerance of, extremist activity. Numerically investigates impact of policy revisions and doctrinal changes as a

means to minimize loss of life and treasure.

- Mapping IED Information Frames: Develops a means for identifying the process through which public support is garnered for the acceptability and encouragement of IED use.

- Impact of Coalition Force Activities on IED: Develops modeling tools to evaluate TTPs for Coalition Forces to mitigate IED threats. Develops modeling tools to evaluate intelligence and its impact upon insurgency operations.

- Economic Incentives of IEDs: Identifies and develops concepts to reduce the effectiveness of IED networks. Estimates the factors underlying the formation, sustainment and violence produced by these networks.

- Extraction of Social Network from the World Wide Web: Develops a web crawler that gathers information from the web and creates a network that links web pages or web-site owners who are providing training.

- Optimized Routing of UAS: Develops a routing tool for unmanned aerial vehicles searching for IEDs and related activities to maximize likelihood of detecting IEDs. Uses IED prediction models to quantify the value of searching different segments of roads.

- Tutorial for IED Research and Study: Introduces NPS faculty and thesis students to the IED problem set as it exists in Iraq. It gives access to current and historical IED data and an overview of completed and current analysis and research.

- Resource Allocation: Uses existing optimization theory to better allocate IED clearance resources, including UAVs, checkpoints, and patrols on a road network. Focuses on joint employment of these resources to prevent the emplacement of IEDs on road networks.

Graduates Urged to 'Be the Very Best Leaders'

The keynote speaker at the commencement exercises on Dec. 14, 2007 was introduced by President Daniel Oliver as "a clearly accomplished professional, a distinguished scholar and an outstanding public servant," a description that aptly suits Dr. Dolores Etter, former Assistant Secretary of the Navy for Research, Development and Acquisition. A former visiting professor at the Information Systems Laboratory at Stanford University and faculty member of the Electrical and

Computer Engineering Department at the University of Colorado Boulder, Etter recently rejoined her colleagues in electrical engineering - as a digital signal processing and communications specialist - at the U.S. Naval Academy, where Etter once taught. Prior to her service as the Navy's "acquisition czar," Etter was Deputy Under Secretary of Defense for Science and Technology, the principal U.S. representative to the NATO Research and Technology Board and Senior Executive for

the Joint Strike Fighter and Mine Resistant Ambush Protected Vehicle programs.

As this recipient of the Navy Distinguished Public Service Award, the Secretary of Defense Outstanding Public Service Medal and the Department of Defense Distinguished Public Service Medal spoke to the 384 graduates, Etter shared some guidelines for success as the "Navy's chief arms buyer," which included "listening a lot to the experts, making decisions promptly and talking to your partners, customers and suppliers." Acknowledging that each man and woman should be "justly proud of what you have accomplished," Etter also acknowledged the benefits of receiving an education from NPS. "The men and women who graduate from the Naval Postgraduate School go directly and immediately to apply what they've learned in the fleet," she said.

Somberly reminding the graduates that as NPS alumni much would be expected of them, Etter also said, "Your country needs you," and she urged each graduate, especially in these challenging times, to "be the very best leaders you can be."



Dr. Dolores Etter, until last month Assistant Secretary of the Navy for Research, Development and Acquisition, rallied one of the largest Naval Postgraduate School classes in recent memory in her keynote address at graduation ceremonies, Dec. 14.

IN BRIEF

- Three hundred and eight-eight degrees were earned by 384 students - 106 Navy, 26 Marine Corps, 116 Air Force, 64 international, 55 Army officers, one Coast Guard, Navy Reserve and NOAA officer, and 14 DoD civilians — at the commencement ceremony on December 14, 2007. To see a streaming video of the entire event, go to the link: <http://www.nps.edu/Technology/Video/Graduation.asp>.
- Chris Miller, Program Executive Officer Command, Control, Communications, Computers and Intelligence (PEO C4I), will speak on January 17, 2008 from 1515 to 1730 in the auditorium in IN-122. A specialist in acquisition and life cycle management for assigned C4I programs, the topic of Miller's presentation will be, "Issues and Challenges for the C4I Command and Community." Although all faculty and students in the Graduate School of Business and Public Policy are encouraged to attend, the lecture is open to all.
- In preparation for the NPS Centennial (1909-2009), the Dudley Knox Library is establishing a Special Collections Department that will be responsible for rare books, manuscripts and artifacts. The Department will also preserve historic scientific instruments that were important in the evolution of education and research at the university, as well as develop materials and programs for the institution's upcoming 100th anniversary.
- More than 30 students were recognized for their exemplary academic and military achievements at the Fall Quarter Awards Ceremony on Dec. 4, 2007, including Lt. Cmdr Thomas Donovan, who was given both the Pat Tillman Leadership Award and the Monterey Council Navy League Award for Highest Academic Achievement.
- The Information Operations Center hosts the NPS Chess Club every Wednesday at 1200 in Root 101A/B. All levels of skill are welcome.

Message From
Naval Postgraduate School Provost Leonard Ferrari



(from left) Chancellor of the University of California Santa Barbara Henry Yang, Representative Sam Farr (D-Calif. 17th District) and Naval Postgraduate School Provost Dr. Leonard Ferrari stand united during the National Security Institute's Inaugural Celebration in the Herrmann Hall Quarterdeck Dec. 10.

Lawrence Livermore National Laboratory (LLNL), the University of California at Santa Barbara (UCSB) and Naval Postgraduate School have formed an alliance that supports national security by enlisting their best graduate students in assisting in vital defense, homeland security, research and development, field experimentation and interdisciplinary projects. The alliance is called the National Security Institute (NSI), whose charter is to engage academics, labora-

tory researchers, political scientists and the private-sector in preparing the next generation of national-security experts, and to continue to expand national security efforts through joint research. By combining the resources of the partnered institutions — UCSB's eight national centers and institutes, a top-twenty engineering school, five Nobel laureates and substantial federal funding in critical research; LLNL's reputation as one of the foremost applied sciences and engineering laboratories; and the homeland defense and national security-related science, technologies, research and international studies capabilities of NPS — graduates in selected fields can pursue purposeful research related to urgent problems of national security while engaging in graduate, doctoral or post-doctoral studies.

NPS hosted the Inaugural Celebration of NSI on the Quarterdeck of Herrmann Hall on Dec. 10, 2007. Guests included Congressman Sam Farr, LLNL's Deputy Principal Associate Director for Strategy and Policy, T. R. Koncher, Chancellor Henry Yang of the University of California Santa Barbara, local government and higher education representatives as well as NPS leaders. Recognizing that resolving issues related to national security will require intellectual and financial capital, field experimentations, interdisciplinary projects and collaboration between federal organizations and civilian communities, the NSI provides a solid base on which to develop and to implement successful solutions to critical challenges that place our nation and our world in harm's way. I invite you to join me and our campus leaders in supporting this key alliance, the National Security Institute, which represents one more step NPS is taking to establish itself as a frontrunner

Announcements

Dr. Doug Moses has assumed the responsibility as the Associate Provost for Academic Affairs at NPS. Moses is a tenured member of the Graduate School of Business and Public Policy (GSBPP) faculty, and has had responsibility for academic program development and review for a number of years. Most recently, he has served as Senior Associate Dean of the GSBPP. In that role, Moses has overseen or provided coordination for re-accreditation, budgeting and resource allocation, curricular reviews, strategic planning and a variety of academic administration areas. Moses has also served on many university-wide committees, including the WASC Steering Committee. Representing GSBPP in various committees on campus, Moses has earned the reputation as a knowledgeable and valuable colleague.

Kevin Little has become the Executive Director for Business Affairs and Comptroller at NPS. Little has served as the Deputy Director and Deputy Comptroller of NPS for the past two years, overseeing the day-to-day operations of the Comptroller's office and serving on several University committees. As a Certified Defense

Financial Manager, Little brings more than thirty years of federal and military experience to the position, and is expected to be a key participant in the reshaping of NPS financial systems.

John Sanders began serving as NPS Special Collections Manager for the Dudley Knox Library on December 10, 2007. In this capacity, Sanders will closely with members of the Centennial Committee, Library staff and the NPS community at large (current, alumni and friends) to identify NPS-related materials of historical and scientific significance; develop policies and procedures for providing access to and preservation of these items and the Library's rare books collection; develop finding aids, programs and conduct oral histories that promote use of these resources, and increase awareness of the impact of NPS over the past 100 years. Sanders joined the NPS staff in 1984 and has served in several capacities, including Acting Director of Institutional Advancement and Public Affairs Officer. His awards include the Navy Meritorious Civilian Service Award and NPS Employee of the Year Award.

Faculty Notes

At the Fall Quarter Awards ceremony in King Hall on Dec. 4, 2007, the Carl E. and Jesse W. Menneken Annual Faculty Award for Excellence in Scientific Research was given to Associate Professor Francis Giraldo of the Mathematics department for his work on numerical methods for partial differential equations and parallel algorithms for solving complex fluid dynamic problems.

The Lieutenant Commander David L. Williams Outstanding Professor Award was given to Senior Lecturer

Thomas-Durrell Young, European Program Manager, Center for Civil-Military Relations.

The Louis D. Liskin Award for Teaching Excellence in GSBPP was awarded by resident students' votes to Assistant Professor Nicholas Dew.

The Meyer Award for Teaching Excellence in Systems Engineering (Integrated Projects) was given to Professor Jeff Kline and Professor Gene Paulo, retired Navy Captain and Army Lieutenant Colonel, respectively.

The Northrop Grumman Faculty Award for Excellence in Systems Engineering and Analysis was given to Systems Engineering Senior Lecturer Mark Stevens and Operations Research Senior Lecturer Ron Fricker.

The Military Officers Association of American Joint Service Warfare Award was given to Commander Troy Johnson and Air Force Colonel Brian Green-shields, who also won the First Command Military Leadership Award.

New Hires: Tenure-Track Faculty

Associate Professor Christopher Brophy of the Mechanical and Astronautical Engineering (MAE) Department received his BS and MS from Pennsylvania State University and his Ph.D. from the University of Alabama. With research interests in pulse detonation engines, liquid rocket engine phenomenology, optical diagnostics and underwater combustion, in 1998 Brophy joined the MAE Department as a Research Associate Professor. Brophy's teaching interests are in air breathing propulsion, rocket propulsion, fluid dynamics, thermodynamics and combustion. A member of the American Institute of Aeronautics and Astronautics and the American Society of Mechanical Engineers, Brophy has also been the recipient of the ONR Postdoctoral Fellowship and the 2002 NPS Outstanding Research award.

CALENDAR

Calendar Items - Events and Visitors Schedule, <http://www.nps.edu/Calendar/index.html>

January 7-8 - Mr. Terry Ebbert, Director of Homeland Security for New Orleans Superintendent's Guest Lecture and Guest Speaker at CHDS Watkins Hall Room 372. POC Kate Lamar Ext. 2356

January 14 - Mr. Pete Verga, Deputy Assistant Secretary of Defense for Homeland Defense Guest Speaker at CHDS. POC Glen Woodbury Ext. 3038

January 14-17 - NGA Geospatial Intelligence Users' Conference, NGA Users' Conference at King Hall. POC Jim Mueller Ext. 3549

January 17 - Mr. Chris Miller, Program Executive Officer Command, Control, Communications, Computers and Intelligence, GSBPP: Dean's Guest Lecture Series. POC Mary Lou Vossen Ext. 2471

January 21 - Martin Luther King (Holiday)

January 22 - Dr. Raffi Gregorian, Brcko Supervisor and Deputy High Representative to the OHR, Superintendent's Guest Lecture. POC Protocol Ext.2466

January 29 - Center for Homeland Defense and Security 5-year anniversary. POC Kate Lamar Ext. 2356

January 29 - General William W. Crouch, (Ret.), Director, FLIR Systems, Inc., LDESP Course. POC Bob Tomasovic Ext. 7678

February 5 - Brigadier General Michael M. Brogan, USMC, Commanding General, Marine Corps Systems Command, Superintendent's Guest Lecture. POC Protocol Ext. 2466

February 12 - Admiral B.R. Inman, USN, (Ret.), LBJ School of Public Affairs, Superintendent's Guest Lecture. POC Protocol Ext. 2466

February 19 or 26 - Mr. Mario Mancuso, Under Secretary for Commerce Industry and Security, Superintendent's Guest Lecture. POC Protocol Ext. 2466

January 29 - Center for Homeland Defense and Security 5-year anniversary, POC Kate Lamar Ext. 2356

HISTORICAL HIGHLIGHTS

Just three years after Pearl Harbor, and while the nation was still at war, Captain Herman Spanagel proposed Congressional legislation to give the Naval Postgraduate School degree-granting authority. Spanagel's letter to the Chief of Naval Personnel on January 13, 1945 stated, "It is recommended that the necessary legislative action be initiated with a view toward formal recognition of the Postgraduate School as an institution of higher learning, and the acquisition of authority to award appropriate Masters' and Doctors' degrees to its graduates." The Chief of Naval Personnel approved and the House and Senate subsequently passed H.R. 4412 and S. 1493, respectively, in November 1945. The landmark legislation was an important building block in the World War II transformation of NPS.