International Day Returns to NPS

by MC3 Michael Ehrlich

An estimated 4,000-plus guests attended NPS’ International Day celebration, April 25. Organized by the university’s International Executive Committee (IEC), NPS opened its doors to the local community to showcase the more than 40 countries that are represented within its student body.

Hula-Yamamoto, pictured above, was just one of several cultural presentations that were put on by members of the local community in an effort to share the rich cultural traditions that make NPS and the Monterey Peninsula home.

“International Day provides the countries represented at NPS the ability to showcase their pride for their homeland, and the cultural diversity in terms of food, music, art, history and experience that each student brings to the NPS community,” said IEC Co-Chair Lt. David Andre.

“In addition, it brings together the local civilian communities, all branches of the military services, and the international community to mingle and develop personal relationships that will last a lifetime,” he added.

“I am convinced that one of the biggest benefits of studying at NPS is the opportunity to connect with students not only from the U.S., but from many other different countries.” —German Army Lt. Col. Michael Harnisch

National Security Affairs student German Army Lt. Col. Michael Hanisch feels there is much to learn at NPS outside of the classroom.

“Studying at NPS has so many benefits,” said Hanisch. “Workwise, it gives me the unique opportunity to work at a prestigious educational institution on topics and issues that move and influence current thinking and politics.

“Above that, I am convinced one of the biggest benefits of studying at NPS is the opportunity to connect with students not only from the U.S., but from many other countries, all around the globe. This helps us to better understand each other and to link our nations,” Hanisch added.

According to Kim Andersen from the International Graduate Programs Office, this year’s event was an unprecedented success, with ticket sales exceeding $25,000. Proceeds from International Day fund several events for visiting officers and their families throughout the year.
A diverse group of law enforcement officials recently converged on NPS to learn about and collaborate within the burgeoning field of Social Network Analysis (SNA).

SNA is a methodology used by analysts to explore relationships between individuals and groups using graphs and other metrics. The visual representations of networks that are produced through the SNA process also offer analysts a means whereby they can look at complex data sets and the relationships that they share in a manner that is easily discernible.

SNA at NPS is championed by the faculty and students that man the Common Operational Research Environment (CORE) Lab. The lab has pioneered defense-focused SNA, especially within the Special Forces community. U.S. Army Special Forces Lt. Col. Glenn Johnson is the lab’s co-director.

“Right now we are exposing [law enforcement] to SNA’s capabilities … we have met with police departments throughout the country in places like New York, Kansas City and Las Vegas,” said Johnson.

Associate Faculty for Instruction Daniel Cunningham is the project manager for the Advanced SNA for Law Enforcement project at the CORE Lab.

“I want to see SNA institutionalized and used effectively and appropriately throughout both law enforcement and the DOD,” said Cunningham.

To that end, the CORE Lab is partnering with the Office of the Secretary of Defense’s (OSD) Domestic Preparedness Support Initiative - a support institution within the OSD, which offers a venue for SOF and the DOD to offer analytical tools and methods to law enforcement agencies.

Cunningham has a likely ally in this effort in retired Assistant Police Chief Mike Aspland, a contractor with Digital Consulting Solutions that works with Cunningham at the CORE Lab.

“Right now we are trying to create the framework for applying SNA in a U.S. law enforcement environment,” said Aspland. “We are trying to expose these groups to what we are doing on the Special Forces side.

“If a police department can get to a gang network and can map out who the brokers of information are within that network, maybe they can influence the network without having to arrest anyone,” he continued.

Mark Chase is the 1st Assistant Prosecutor for Camden County, New Jersey. His department has been using SNA to identify criminals and their networks. As an attorney, Chase is familiar with the legal implications of SNA.

“Through using [SNA] as a tool to target, we are going to be able to get the information needed for a successful prosecution,” said Chase.

Despite SNA’s ability to reveal important, even intimate, details about human networks, Chase insists that it is on sound legal ground.

“SNA is a means of evaluating legally obtained information,” said Chase. “We are just taking link analysis to another level and augmenting it with algorithms that give us greater clarity.”

Benjamin Singleton, is an intelligence analyst with the New York Police Department (NYPD). He has found SNA valuable when dealing with cases consisting of multiple actors and large volumes of data.

“We used SNA on a fraud case that involved 80 phones and we had to subpoena some 300,000 phone calls,” said Singleton. “SNA helped us to answer the questions, who are the main players, and who do we need to subpoena next? In a case of that magnitude, the old way of using colored markers and sticky notes was not going to work.”

SNA for law enforcement is still in its infancy. But, if Cunningham, Johnson and the law enforcement professionals that they work with have their way, it will become an important tool for police departments throughout the country.
Student Examines Software, UAVs

By MC2 Shawn J. Stewart

NPS systems engineering student U.S. Navy Lt. David J. Cummings is studying the viability of open source software for use across the Department of Defense (DOD) with unmanned aerial systems.

He presented his efforts to students, faculty and staff during the Consortium for Robotics and Unmanned Systems Education and Research’s (CRUSER) 4th annual Technical Continuum (TechCon) on the university campus, April 8.

Cummings was one of 29 presenters tasked with explaining their thesis or project to the NPS community. His thesis, “Viability of Open Source Software in Department of Defense Unmanned Aerial Systems,” details his analysis on the risks and advantages of open source software (OSS) to advance current UAV technologies.

“The cool thing about working in the Advanced Robotic Systems Engineering Laboratory (ARSENL) is that they have selected almost exclusively open source software to run the ‘Swarm’ project,” said Cummings. “Which is pretty cool and serves as a testament to the capabilities of OSS.”

CRUSERS’ Swarm Unmanned Aerial Systems (UAS) project was developed to create a low cost countermeasure system of drones that can be used to detect, disrupt, disable and neutralize enemy UASs in a swarming scenario.

“All of the developmental software behind that program can be and is OSS,” said Cummings. “The scope of my thesis is to show that open source software is a viable alternative.”

While Cummings is an advocate for OSS, he is not blinded to the fact that many in the DOD are still hesitant to adopt the development platform.

“The term ‘open source’ is generally understood as free, but not always,” he explains. “Open source just means that the source code can be seen.

[The perception is] if you can view the source code, then what’s stopping our enemies from copying it and designing it exactly like our design … using it against us,” Cummings continued.

“The creative potential of OSS is typically really high because you have a wide range of developers working on the same project, sharing the code,” he added. “And development speed goes hand-in-hand with that because having many eyes on the code means there is less of a chance for bugs and vulnerabilities entering into the system.

Upfront cost is usually really low for these types of projects,” Cummings continued. “OSS projects are also adjustable, because if the project isn’t coming along like it should then the resources can be reallocated into something else.”

Disadvantages of OSS fall into categories such as stability, developer support, and the integrity of the UAV control software.

“Say the flight control software on the UAV is open source, the enemy discovers it’s open source and tries to attack the software by obtaining the development software [code],” said Cummings. “He then puts a guy into the enemy drone, That guy then writes code with the end goal of bringing down said UAV.”

The real world analogy of Cummings’ research occurred in 2011, when control of an RQ-170 Sentinel UAV was taken over by an Iranian armed forces cyber warfare team, and landed in Kashmar, Iran. “[But] the RQ-170 is not an open source drone,” Cummings noted.

NPS Professor Thomas Albright’s article, “The Balanced Scorecard and Twenty-First Century Thoughts on Motivation,” was recently recognized as one of the top ten all-time best articles published in the “Journal of Corporate Accounting and Finance.”

The Balanced Scorecard concept was developed for use by corporations when management realized that they were getting undesirable behavior by focusing on short-term metrics, such as quarterly earnings targets. Albright added to the concept by incorporating defense-related material suited to the DOD and his unique student body.

NPS Research Professor David Alderson addressed students and faculty during a Defense Energy Seminar, April 17. Alderson is an expert in the field of critical infrastructure defense, a focal point of his research here on campus.

“We cannot stop every possible attack and we cannot stop Mother Nature either, so what can we do?” asked Alderson. “We can focus on the resilience of the system as a whole.”

Alderson is head of NPS’ Center for Infrastructure Defense where he leads a group dedicated to improving the operational resilience of critical energy infrastructure in order to protect them from deliberate or non-deliberate threats.

Have a story to share? Public Affairs is constantly seeking interesting news and stories for Update NPS. Send your tips to pao@nps.edu.
Students, Faculty Discuss Ethics of Unmanned Systems

By Kenneth A. Stewart

NPS students, faculty and staff recently joined members of the U.S. Naval Academy (USNA) and came together with teams of junior officers from U.S. Navy Third Fleet to discuss the ethics of unmanned systems for the 2015 iteration of the Robo-Ethics Continuing Education Series. This year’s event was led via video teleconference by NPS Associate Professor Ray Buettner.

“We are interested in exploring the ethical boundaries of robotic systems ... preparing tools to figure out what the future will be like,” said Buettner.

Buettner leads the Secretary of the Navy’s Consortium for Robotics and Unmanned Systems Education and Research (CRUSER) at NPS, an interdisciplinary working group that seeks to further research in robotic systems. But as student and faculty researchers wade into the at-times turbulent waters of unmanned systems, they are also exploring the many ethical considerations that autonomous combat systems present.

“Should a machine be able to decide to kill, and if so, what does ‘decide’ mean?” Buettner asked assembled students and others joining via video teleconference from USNA and elsewhere.

“The key concept to consider may be, ‘where is the human relative to the selection of the target and the decision to engage,’” said Buettner. “Do we want discrimination authority granted to the human loop?”

Another area of concern being debated is the question of punishment and accountability. Researchers, ethicists and policy makers are asking questions like, “Who do we hold accountable when a lethal autonomous system engages the wrong target?”

While it may seem counterintuitive to debate whether or not a human should be “in the decision loop,” Buettner points to serious debates among ethicists as to whether or not humans or machines are more likely to make errors that cost human life.

Coincidentally, while Buettner and his group debated the ethics of unmanned systems, the United Nation’s Convention on Certain Conventional Weapons (CCW) was meeting in Geneva to debate a proposed ban and moratorium on Lethal Autonomous Weapons Systems (LAWS).

Buettner believes that there is currently no need for a prohibition against lethal autonomous systems, noting that current law already adequately provides necessary safeguards in this area. He is referring in part to Directive 3000.09, which the DOD published in 2012 to provide guidance on the development of autonomous systems. The directive places a series of regulatory safeguards on autonomous systems development while simultaneously encouraging innovative thinking and development in the autonomous systems arena.

“So far, no country has declared an intent to deploy a totally autonomous lethal system that decides who to kill and when,” said Buettner.

Buettner also noted NPS Professor Wayne Hughes’ views on the rapidly changing nature of autonomous systems.

“The fundamental error in a debate over robotic development is to think that we have choice,” quoted Buettner. “This world is coming, rapidly coming.”

Space Systems Team Prepares CubeSats for Next Launch

By MC1 Lewis Hunsaker

Students and faculty with NPS Space Systems Academic Group (SSAG) have begun final shake down tests in anticipation of the launch of NPS’ latest batch of cube satellites (CubeSats).

SSAG has been instrumental in the development and application of several experimental CubeSat systems with Navy and DOD applications.

“This is the fourth [batch of] CubeSats to be launched within the last six years,” said former NASA astronaut and Space Systems Academic Group Professor James Newman. “These small, less expensive satellites leverage continuously changing technology to provide for future needs and new capabilities in space.”

SSAG graduates must be prepared to manage the technical aspects of a space system’s life cycle, Newman says, including among other things, their requirements definition and analysis, design, development, installation, maintenance and operations.

“The Navy needs well-educated officers that can speak about their needs in space, especially since the Air Force is the primary agent in this domain,” said Newman. “This program keeps NPS and the Navy at the forefront of emerging space technologies.”

NPS’ next group of CubeSats are scheduled for launch in August of 2015.
Leading Defense Finance Expert Addresses Senior Leader Symposium

By Kenneth A. Stewart

Retired Vice. Adm. Stanley R. Szemborski recently addressed participants at the NPS Center for Executive Education’s (CEE) Navy Senior Leader Symposium.

Szemborski, the former director of the Navy’s Financial Management and Budget office, offered a candid presentation exploring current fiscal realities and their effects on strategic planning.

Szemborski discussed current and past national security strategies and the budgetary decisions that supported them. He also discussed the challenges presented by current regulatory and oversight mechanisms, and the resulting effects they have on the acquisitions process, noting the innovation-killing effects of bureaucratic red tape, particularly in areas that require government and private sector partnerships.

“I firmly believe that if we can get through some of the regulations, and foster cooperation between industry and government, that we can really accomplish something,” said Szemborski.

Before retiring, Szemborski had direct financial responsibility for the Navy’s operations, maintenance and military personnel appropriations. He is a 1972 graduate of NPS’ electrical engineering program.

Students Break-In New Battle Lab

By Kenneth A. Stewart

NPS’ Cyber Academic Group broke in its new million-dollar Cyber Battle Lab with an international cyber capture the flag competition that pitted 60 teams from around the world against each other on a virtual battlefield, April 13.

“The lab cost under a million dollars to set-up but the school had already made a significant investment in the servers that make it work. We can run up to 100 virtual machines simultaneously,” Irvine added.

Irvine also noted that the lab will allow NPS students and faculty to make important contributions toward advancing the DOD’s cyber missions through its presence on the Joint Information Operations range.
LOC Conducts 2nd Annual Wargame Conference

By MC1 Lewis Hunsaker, NPS Public Affairs

NPS’ Littoral Operations Center (LOC) hosted the 2nd Annual Wargame Planning Session at Ingersoll Hall, April 23-24.

“This discussion is timely, as the U.S. Navy surface fleet is at a crossroads,” said Deputy Commander, Naval Surface Force, U.S. Pacific Fleet, Rear Adm. Chris Paul. “At the beginning of this century, the Navy planned a new approach to surface warfare supported by a family of new ships: missile defense cruiser, land attack destroyer and Littoral Combat Ship (LCS).”

Littoral warfare refers to naval campaigns that take place in shallow coastal areas characterized by heavy traffic, varying depth and nearby population centers. The littorals have been a longtime focal point of 21st century naval strategy, culminating with the development of a new class of ship, the LCS, designed for these unique environments.

“The LOC at NPS is designed to enhance the U.S. Navy’s integration of land, air, sea and undersea operations along the world’s coastlines, through interdisciplinary research and development involving all the departments and schools at NPS,” said LOC Director, NPS Department of Defense Analysis Senior Lecturer Dr. Kalev Sepp.

During the first day of events, speakers from Sweden, Norway, Netherlands, Indonesia and Nigeria used planning sessions in: Accessing the Littorals; Operating and Fighting in the Littoral Clutter; Lethality and Survivability in the Littorals; Applied Technology in the Littorals and NPS Wargaming and Research in Littoral Scenarios, to talk about different aspects of littoral areas.

Students working groups guided by NPS faculty examined various areas to include: “Implementing New Technologies and Materials for the LCS and LCS-Next; Improving LCS and LCS-Next Logistical Capabilities; Optimizing the Surface Warfare Officer Career Path; and Deploying Special Forces aboard LCS and LCS-Next.

“What emerged from working groups throughout the day, and particularly from the international students and visitors, was that they saw wargaming as an extremely valuable and cost effective tool for testing concepts, requirements and operational planning,” said Sepp.

Earlier this year, Deputy Secretary of Defense Robert O. Work issued a memo to Pentagon leadership on the importance of wargaming in the military community stating he was concerned that the department’s ability to test new concepts, capabilities and plans using simulation or other techniques, otherwise known as wargaming, has atrophied.

The LOC is working to correct this assessment by investing in the wargaming process and by drawing upon the expertise and experience of its unique student body.

Focus On … Speed
A Monthly Look at Names and Faces on Campus

When Student Services Officer Lt. Jesse Iwuji isn’t working with NPS students, you can find him behind the wheel of the Performance P1 Motorsports stock car that he is slated to race early this summer.

Iwuji credits the Navy for giving him the support and training he needs to pursue his personal and professional goals.

“Being out on the track can be stressful depending on what’s going on … a lot of what I have learned in the military is helping me pursue my racing career,” he said. “One of the big things that the Navy helped me out with is time management.”

At NPS, Iwuji assists students with checking in and out, daily muster pages for accountability, award ceremonies and coordinating special guest lecturers.

But on his free time, he is gearing up to race for Performance P1 Motorsports at the NASCAR Whelen-All-American Series at Irwindale, Calif., Aug. 1.

“This is the minor leagues for NASCAR,” said Iwuji. “I’m hoping to jump up to NASCAR K &N Pro Series West and then professional racing in NASCAR one day.”

Iwuji was the fifth person to surpass 200 mph during a standing mile in a Dodge Challenger. He has been racing for five years.
Lt. Aaron Steward is the Chairman of the President's Student Council.

“Armed Forces Day, Saturday, May 20, 1950, marks the first combined demonstration by America’s defense team of its progress, under the National Security Act, towards the goal of readiness for any eventuality. It is the first parade of preparedness by the unified forces of our land, sea, and air defense.” —President Harry S Truman.

On August 31, 1949, Secretary of Defense Louis Johnson announced the creation of an Armed Forces Day to replace separate Army, Navy and Air Force Days. The single-day celebration stemmed from the unification of the Armed Forces under one department — the Department of Defense. Each of the military leagues was asked to drop sponsorship of its specific service day in order to celebrate the newly announced Armed Forces Day. The Army, Navy and Air Force leagues adopted the newly formed holiday. The Marine Corps League declined to drop support for Marine Corps Day but supports Armed Forces Day, too.

Armed Forces Day was a type of educational program for civilians, one in which there would be an increased awareness of the Armed Forces. It was designed to expand public understanding of what type of job is performed and the role of the military in civilian life. It was a day for the military to show state-of-the-art equipment to the civilian population they were protecting. And it was a day to honor and acknowledge the people of the Armed Forces of the United States. Join the NPS volunteers at this month’s Armed Forces Day at the Del Monte Center, May 16.
The mission of the Naval Postgraduate School is to provide relevant and unique advanced education and research programs to increase the combat effectiveness of commissioned officers of the Naval Service to enhance the security of the United States. In support of the foregoing, and to sustain academic excellence, foster and encourage a program of relevant and meritorious research which both supports the needs of Navy and Department of Defense while building the intellectual capital of Naval Postgraduate School faculty.

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**Historical Highlights**

Herrmann Hall, once the historic Hotel Del Monte, underwent a dramatic transformation 90 years ago when an intense fire destroyed the main building in 1924. Plans for the Spanish Revival architectural style rose from the ashes of that blaze and more than 3,000 guests attended the May 8, 1926 celebration party for the new Del Monte, including young celebrities Bing Crosby and Bob Hope.

Sam Morse, president of Del Monte Properties Company (forerunner of today’s Pebble Beach Company), and Carl Stanley, Del Monte’s noted manager, wrote: “In planning the new Hotel Del Monte, our paramount thought was to maintain the traditions of the old hotel, to embody something of the romantic associations of the locality and to assure our guests of the utmost safety and comfort.”

Morse and Stanley succeeded in this endeavor and today’s welcome center in Herrmann Hall offers displays, videos and a mobile tour guide for those interested in exploring the hotel’s legacy.

Historical Highlights are provided by the Dudley Knox Library.