SYSTEMS ENGINEERING DEPARTMENT
NAVAL POSTGRADUATE SCHOOL

SYSTEMS ENGINEERING NEWSLETTER January 2022

In This Issue:

Letter from the Chairman

Systems Engineering Chairman
Dr. Oleg Yakimenko

Welcome to the Systems Engineering Newsletter for the fall quarter of the 2022 Academic Year! The SE Department graduated 80 students in December: 28 Master of Science in Systems Engineering, 4 Master of Science in Engineering Systems, and 48 Master of Science in Systems Engineering Management.

Four students graduated with distinction and one thesis and one capstone project were recognized as outstanding. LT Edward Anuat, USN, won the Naval Sea Systems Command Award for Excellence in Systems Engineering.

For the first time since Spring of 2020 (when we switched to a 100% distance learning modality due to COVID-19), we returned to in-person instruction for resident students. The next SE challenge: Vacating our offices and lab spaces in Bullard Hall by the end of the fall quarter so that renovation could begin on Bullard Hall, which has been the SE Department home for the past 20 years.

As the Systems Engineering department Chair, I would like to thank all resident members of the department for the timely move to their temporary offices, offices which were generously offered for use by various departments across campus. I would also like to thank Col. Shawn McCamish for allowing PO1 Andy Reagan, PO1 Christopher Nerem, and the rest of their team to help the Systems Engineering faculty and staff move furniture and other heavy items to our temporary locations. We could not have done it without you!

A special thank you goes to Albert Jordan for organizing and executing the move of our lab equipment. Thanks to Albert, we already have an operational instructional lab and a lab available for capstone/thesis projects, and our student computer lab is almost operational! We also have room dividers in King Hall basement that we can deploy to set up capstone study spaces.

It took us more than a decade and a lot of efforts to put together our superb labs, and I look forward to recreating them when the building is given back to us.

Lastly, I want to reassure everyone that even though the Systems Engineering department will be spread across campus for the next 18 months, we will continue doing what we like and know how to do best – delivering the best DoD and DoN related education in Systems Engineering to our students.

Happy 2022!

Return to Main Page

Systems Engineering Student Wins David Packard Excellence in Acquisition Award

NPS student Joseph Novick

The David Packard Excellence in Acquisition Award recognizes Department of Defense (DoD) acquisition programs and their teams that have demonstrated exemplary acquisition excellence, innovation and reform.

The Packard Award Selection Board is comprised of a chair appointed by the Under Secretary of Defense for Acquisition and Sustainment (USD(A&S)), with membership composed of up to ten Senior Executive Service members. The board evaluates nominations and provides recommended winners to the USD(A&S) for review and approval. Multiple teams may be selected to receive the award based on merit.

The 2021 David Packard Excellence in Acquisition Award was awarded to the U.S. Air Force, **COVID-19 USTRANSCOM JUON TC-0003 Response Team**, of which Joseph Novick, a current NPS student in the Systems Engineering Distance Learning PD-21 program, was the Deputy Program Manager.

On March 28, 2020, the United States Transportation Command (USTRANSCOM) issued a Joint Urgent Operational Need (JUON) for solutions capable of safely transporting large numbers of COVID patients to various locations around the world for medical treatment.

Although some legacy and commercial isolation systems already existed, none met the operational or capacity requirements needed by USTRANSCOM. Once it was apparent that a new requirement needed to be created and executed, several teams were put together to make it happen.

Joseph Novick assembled his team in less than a week. As Deputy Program manager of his team, he was responsible for implementing the acquisition and contract strategies for the JUON. He was also responsible for general management and leadership of the team.

He quickly determined that the nature of the requirement allowed him and his team to use the Other Transaction Authority (OTA) type contracting. Because this authority is not subject to the Federal Acquisition Regulation (FAR) it allowed for iterative, agile prototyping in order meet the critical timelines.

Using the iterative process under the OTA, The entire requirements development process was compressed from 45 days to 7 days.

The original JUON was issued in March 2020 , the prototype was fully certified for use in June 2020, and the first operational mission was completed on July 1, 2020.

The acquisition resulted in the creation of a 40-foot Negatively Pressurized Conex (NPC), which can hold almost 30 passengers and fit inside a C-17, and the creation of a 28-foot Negatively Pressurized Conex "Lite," which can fit inside a C-130 Hercules military aircraft. Both containers were designed to be capable of carrying patients who need in-flight medical care, or carrying passengers being quarantined due to exposure to COVID.

So far, these containers have already protected aircrew across 60 missions and saved more than 300 lives.

More details can be found in the Airmans Magazine Article "Negative for COVID" , the Marine Corps Systems Command website, the July 2020 issue of NCMA's Contract Management, and the HCI website.

Joe Novick is from the Naval Surface Warfare Center Indian Head. He supports the Joint Project Manager for Protection as a product manager for several contamination mitigation programs. He has over 15 years of experience in defense acquisition on a variety of chemical and biological defense programs. He is currently pursuing a master's degree in Systems Engineering Management (SEM-PD21) at the Naval Postgraduate School. Mr. Novick resides in Fredericksburg, Virginia with his wife, three children, and two dogs.

Pictured left to right: Capt. Todaro; Chip Warder, lead engineer on the NPC project, and Joe Novick pose in front of the NPC prototype. (Photo courtesy of U.S. Air Force)

Pictured above: U.S. Air Force, COVID-19 USTRANSCOM JUON TC-0003 Response Team stands in front of the Negatively Pressurized Conex and Negatively Pressurized Conex Lite at Joint Base Charleston.

Alumni Update

MAJ Stephen Gillespie, U.S. Army, (Pictured Left) has been selected as an Academy Professor for the West Point Department of Systems Engineering. Being selected for this permanent military faculty position is quite an achievement. Congratulations, MAJ Gillespie!

MAJ Gillespie attributes this accomplishment to the PhD work he did at the Naval Postgraduate school with the Systems Engineering Department.

Major Gillespie earned in PhD in 2016. His dissertation was titled The System of Systems Architecture Feasibility Assessment Model. He was advised by Professor Eugene Paulo.

Faculty News

Systems Engineering Faculty Member Retires

Senior Lecturer Matthew Boensel

Senior Lecturer Matthew G. Boensel retired from the Systems Engineering Department at the Naval Postgraduate School on 31 Dec 2021.

Commander Boensel, USN, joined the NPS Operations Research department faculty in June 1999, serving as military faculty and the Chair of Applied Systems Analysis and in July 2001, the Operations Research and Applied Mathematics Program Officer.

Matt retired from active duty in 2003 and was hired into the Systems Engineering department as a Lecturer. He was promoted to Senior Lecturer in 2007 and was tasked as the Associate Chair for Operations of the SE department. He also served on the Faculty Council and was an interim acting Chair for the SE department. Matt held the OPNAV N9I Chair for Systems Engineering Analysis for two years. He was the primary instructor for Systems Analysis in the Systems Engineering Analysis (SEA) and MSSE DL curricula and he was the primary instructor and course coordinator for SE3250 (Engineering Capabilities) in the MSSE curricula for fifteen years.

Matt was commissioned in 1980 upon graduation from the U.S. Naval Academy and was designated a Naval Flight Officer in December of 1981. Operational tours included Patrol Squadron Nine (VP-9), USS Independence (CV-62), and Patrol Squadron Forty-Seven (VP-47). Staff tours included Patrol

Wing Ten (CPW-10), OPNAV N-81, and Office of the Deputy Chief of Staff, Logistics, U.S. Army, Europe (USAREUR). He earned his Master of Science Degree in Operations Research from the Naval Postgraduate School in 1988.

Asked about his time at NPS, this is what Matt had to say.

I was extremely fortunate to be mentored by Rick Rosenthal, both as his thesis student and then as the senior MilFac in the Operations Research department while Rick was the Chair. He was a shining example of intellectual generosity and academic leadership. Other early influences were provided by Dave Schrady, Jim Eagle, Jeff Kline and Wayne Hughes (all of whom worked closely with or directly supported the nascent SE and SEA programs). I did not approach their levels of scholarship, insight, or expertise, but I did know what I should be striving to achieve – they have my sincere thanks and appreciation for their patience and guidance.

Contemplation of retirement opened up reflections upon how the Systems Engineering department began. From my perspective, it was started by a relatively small group of practitioners who saw an opportunity to provide graduate level education in the oft demanded but seldom well implemented arts of systems engineering.

When I say a small group – I mean there were about a dozen individuals who took on the challenge of creating a department and several curricula from concept to reality. Notable among those and key members of the department's founding were Chuck Calvano, Bob Harney, Mike Green, Raymond "Chip" Franck, Jim Kays, Dave Olwell and Gene Paulo – all had extensive experience and expertise across relevant fields and sources of practice, but they also had a vision about what could be achieved at NPS. Early hires and appointments of key contributors like Wally Owen, Mark Stevens and Kathie Cain helped establish both competencies and culture for a new department that was developed with a purposely flat hierarchy.

We knew we would have to carve out our space within deeply entrenched organizational structures – the only way to survive and succeed was to provide excellent programs and to distribute the effort across the entire department.

The leadership provided by the department Chairs – Chip Franck, Dave Olwell, Cliff Whitcomb, Ron Giachetti, and Oleg Yakimenko – was, and continues to be, a particular strength in this difficult process of growing and sustaining a department that graduates hundreds of students per year. Those who participated in the early days know it's not an exaggeration to say the SE department was in an existential crisis for the first five years (maybe more).

Perseverance paid off - that initial vision of creating a focal point, within the Navy, for systems engineering education came to fruition. We have seen the Systems Engineering department grow from small cohorts of resident and non-resident students taking several relevant courses to the department we know today. We regularly have scores of resident and hundreds of non-resident students enrolled in multiple, fully integrated and accredited curricula.

The faculty numbers went from that early dozen to over fifty at its peak. The total number of faculty and staff who have spent time in the department (including joint appointments) since its founding is well over 100 – in every case, they contributed to the growth and reputation that we enjoy today. The SE department currently has over forty outstanding faculty and staff providing service from both Monterey and across the country. We were early proponents of distributed learning – it works for students, faculty, and staff – and we've been leaders for the NPS community in developing best practice methods and techniques in that arena. The relatively easy transition to remote education that SE enjoyed while implementing COVID protocols built upon the lessons learned in the previous years.

The educational and research efforts have been modified and refocused to consistently provide high value to the Navy, the Army, DoD, and our international partners. Recent development of new curricula and certificate products are hallmarks of the department's flexibility and agility to meet sponsors' needs. Energetic and highly talented faculty hold the promise of continued relevance and significance for the Systems Engineering Department. It has been a certainly been a pleasure to be a part of this enduring legacy.

Like many of our faculty, I took a pragmatic approach to the courses I taught – the focus was always on enhancing the understanding of systems in real world applications. To that end, I often used spreadsheet modeling to quickly capture the essence of analysis – and found that students were drawn to having practical skills in the ubiquitous spreadsheet environment. Hopefully the lasting lessons for the students was that the models were not the end-state, but just tools to use while developing knowledge and insight regarding the systems under investigation.

When I consider the value we deliver to our students, the most important thing is that they learn to learn. That is, they should develop skills and abilities to be life-long learners. The fundamentals of many of our courses have a relative permanence, but the technical aspects are subject to change – at times, very rapid change. Those who can refresh and renew their knowledge within relevant subject areas are likely to make the greatest contributions to their organizations as well as finding the greatest satisfaction in those intellectual pursuits. Critical thinking is the result of correct (or correctable) concentrated effort – it doesn't appear to be a common trait among the general population – even more reason to make it a characteristic of our graduates.

Many people have asked me, "What comes next?" The future likely holds numerous cross-country excursions to visit our (Matt and Heather's) children and grandchildren – at this writing, they are located (almost literally) at the four corners of the continental U.S. so there are already plans for extensive road trips on the near and far horizons. Woodworking – a hobby that simultaneously enriches and humbles the practitioner - will fill some hours and undoubtedly there will be some work developing new analytic tools in spreadsheets. I look forward to keeping up with future growth and successes of both the Systems Engineering department and all those associated with it. It's been an honor, a privilege, and a joy – all the best to my colleagues, students, and friends.

The Many Roles of a Faculty Associate

By Faculty Associate-Research Lois Hazard

Faculty Associate Lois Hazard

Faculty Associates have varied roles in the way that we serve our departments. Some stay "close to home" supporting one or two professors and their respective research in a given department, while others work in multiple programs across campus at the same time.

My experience has been the latter, and this formula for serving NPS has given me a unique opportunity to highlight the breadth and depth of the capability that resides in the Systems Engineering Department. Let me explain how.

As Faculty Associate for Research since FY14, I have been involved with the Naval Research Program - since its inception - as the program's Integration Lead. Along with other responsibilities, I provide direct support for the annual Naval Research Working Group; which provides a single, standard mechanism that allows the Navy and Marine Corps to interface and leverage a cost-efficient, organic research asset.

Per available records going back to FY16, 19 SE faculty have received funding for 73 projects totaling over $8M dollars in sponsored research projects for the DoN.

As support for Dr. Andy Hernandez, I have had the pleasure of assisting him with two important multidisciplinary research programs – one for the Expeditionary Energy Office (E2O), and another for the Marine Forces Reserve (MFR).

Though the E2O study program is no longer active, more than 14 SE faculty and 22 SE students completed sponsored research projects for the DoN between 2013 and 2019.

The MFR study program gains strength each year and has also produced many completed projects and deliverables involving SE faculty and students.

This fiscal year Dr. Hernandez has succeeded in creating another opportunity for research funded by the DASN in the area of Operational Energy. Work will begin on nine projects involving six SE faculty. Student participation in still in progress.

Additionally, I have been linked with the Energy Academic Group since FY14, and more recently have served as Editor-in-Chief for its newsletter, *Surge*. Whenever possible, I reach out to SE faculty who are doing research in the energy space. Many have contributed articles for Surge, which has given me - and them - another meaningful way to highlight SE faculty and student work.

These roles have helped me avoid falling into the silos that all too often plague academia, or any large institution for that matter. At NPS and with SE, I have been able to work across campus in support of research relevant to the DoN. It has been a unique opportunity to spread the "good word' about the Systems Engineering Department.

Senior Lecturer Bonnie Johnson Participates in Technology Workshops

Senior Lecturer Bonnie Johnson

Systems Engineering Senior Lecturer Dr. Bonnie Johnson gave a talk titled "Human-Machine Teaming, Trust, and Decision Risk for Future AI-enabled Tactical Decision Aids" during the DoD Measuring Human-Machine (AI) Interactions Technical Exchange Meeting (TEM), which took place from 3-4 November 2021.

Her presentation discussed NPS's study of AI-enabled BMAs including the framework for achieving effective human-machine trust relationships, an evaluation of human-machine decision risk, and work towards mapping AI methods to the kill chain.

Dr. Johnson also attended The Technology and Future Fleet Architectures - 2021 U.S. Naval War College Hopper & Leidos Chair's Workshop, a virtual workshop which took place from November 3-5, 2021 and examined the dispersion of emerging new technologies throughout (potentially opposing) naval forces and how these emerging technologies may change fleet architectures.

The workshop was part of the overarching "Technology and National Security" series which aims to systemically discuss the effects of emerging technologies on national defense with a special focus on the maritime national security challenge, a changing less-westernized global environment for US and allies, and differing strategic approaches to all three topics.

Dr. Johnson participated in the panel "How Three Related Emerging Technologies Have Strong Potential to Change Fleets in the Medium Term" by giving a presentation titled "AI Disruption Potential from a Scientist Point of View"

Senior Lecturer Mark Rhoades Receives Meyer Award

Senior Lecturer Mark Rhoades

Senior Lecturer Mark Rhoades was the recipient of the Meyer award for the 2022 Fall Quarter. This is the sixth time Mark has received this honor.

Mark Rhoades joined the Naval Postgraduate School staff as the Program Officer for Aerospace Engineering, Space Systems, and Systems Engineering curricula in 2001 and began teaching in 2004.

Following retirement from the U.S. Navy as a Commander in 2005, Mark joined the Information Systems department. In 2006, he completed his second master's degree, earning a Master of Science degree in Systems Engineering Management via the NPS Product Development curriculum (Curriculum 721).

Later that year, he joined the Systems Engineering department as a lecturer and was promoted to Senior lecturer in 2013.

Mark really enjoys teaching, saying, "I have the best job in the world!" Mark applies lessons learned from his own distance learning student experience to his courses, which are designed to allow his students to flex assignment due dates to work around life events.

He uses the flipped classroom technique, where the lectures are pre-recorded and reserves classroom time for more personal interactions with the students.

He also allows his students to contact him any day in case they have questions. Mark updates his classes to enhance the students' learning and experience.

In addition to being a member of the SE department, he is also a member of the NPS Space Systems Academic Group and served as the program manager and academic associate for the Master of Science in Space Systems Operations Distance Learning program (Curriculum 316) from 2006 through 2012.

Mark manages the Systems Engineering Modeling and Simulation laboratory, which was originally built in 2005 and includes a remote operating capability. He continually upgrades the laboratory with the latest capabilities and is currently working to upgrade the laboratory to include a full suite of digital engineering capabilities based on Dassault System's Cameo Enterprise Architecture software, Ansys' ModelCenter software, and a host of engineering analysis software.

Mark also provides oversight for the systems engineering software on the NPS computing systems, i.e., the Cloudlab and Apporto service, and coaches other faculty members on the use of these computing facilities and software.

Student Stories

Systems Engineering Student is Awarded PhD

By Dean Ronald Giachetti

NPS PhD student Cuong Ton successfully defended his dissertation and was awarded a PhD in Systems Engineering in December 2021.

Cuong is an Electronics Engineer with the Naval Air Warfare Center, Weapons Division (NAWCWD) in Point Magu, CA. He has been an employee of the Navy for 32 years.

His dissertation developed a method to better measure the complexity of system development projects. Specifically, his work identified practical means to measure multiple aspects of program complexity so that managers could use the information to better manage program risk.

He demonstrated the complexity measurement method using a few case studies from Navy projects conducted at his command.

The thesis work and PhD will help him in his job duties because, as an Electronics Engineer, he supports software development for the EA-18G mission planning environment.

Cuong had to overcome a few obstacles during his PhD work at NPS. He was originally working with Dr. Robert Harney as his advisor. Unfortunately, Dr. Harney left on extended sick leave and then passed away before reviewing Cuong's dissertation.

Cuong then switched advisors to Dr. Ronald Giachetti, who was a member of his original committee. He continued the research work for another year, but then faced some of the delays imposed by COVID-19.

His defense was held virtually via Zoom, which had the unanticipated benefit of allowing many more people outside of Monterey to attend.

Congratulations, Dr. Cuong Ton, on this great achievement!

Distance Learning Students Receives Meyer Award

The Wayne E. Meyer Award for excellence in systems engineering is presented for superior academic achievement and leadership to an outstanding NPS graduate from the distance learning systems engineering degree program. Recipients are nominated by fellow classmates and the NPS Systems Engineering faculty. It is a very competitive process and a significant honor.

CDR Zachary Capacete and Ms. Lauren Reichert were each selected for the Meyer Award for the 2022 Fall quarter.

CDR Zachary Capacete with wife Jaclyn Capacete and their three year old Camden Capacete

Commander Capaceti, who is a native of Nacogdoches, Texas, graduated from the United States Naval Academy in 2006, earning a Bachelor of Science degree in Systems Engineering. While a midshipman, he competed for four years as a member of the Naval Academy Soccer Team.

After commissioning, he reported to Naval Air Station (NAS) Pensacola, FL for basic and intermediate flight training at VT-10. He completed advanced flight training at VT-86, earning his Naval Flight Officer wings in July 2008.

In September 2008, CDR Capacete reported to the VFA-106 "Gladiators" in NAS Oceana, VA for initial fleet training in the F/A-18F Super Hornet as a Weapon Systems Officer (WSO).

After completion of his fleet replacement squadron training, he reported to the "Swordsmen" of VFA-32 in July 2009. While attached to the "Swordsmen," he deployed in 2010 with CVW-3 on board USS HARRY S. TRUMAN (CVN-75) in support of Operations ENDURING FREEDOM and NEW DAWN.

CDR Capacete was selected to attend the prestigious Navy Fighter Weapons School (TOPGUN) in April 2012 with follow on orders as a VFA-106 Strike Fighter Tactics Instructor (SFTI).

He returned to the "Gladiators" in July 2012, serving as SFTI, Air-to-Air Representative, Standardization Officer, and Strike Representative.

He volunteered to augment VFA-103 during a surge deployment on board USS DWIGHT D. EISENHOWER (CVN-69). Attached on temporary duty to the VFA-103 "Jolly Rogers" from February to May 2013, he deployed in support of Operation ENDURING FREEDOM. Additionally, he attended Expeditionary Warfare Training Group, Atlantic (EWTGLANT) and graduated as a Joint Terminal Attack Controller (JTAC) in November 2013.

From June 2015 to April 2017, Commander Capacete served as the Training Officer for the familiar VFA-32 "Swordsmen" where he deployed with CVW-3 on board CVN-69 in support of Operation INHERENT RESOLVE and earned his Forward Air Controller (Airborne) (FAC(A)) qualification under the Strike Fighter Weapon School, Atlantic (SFWSL).

Following his Training Officer tour, he reported to the "Diamondbacks" of VFA-102 for his Department Head tour. He deployed three times with CVW-5 on board USS RONALD REAGAN in support of Seventh Fleet Operations and representing Forward Deployed Naval Forces in multi-national exercises. While assigned to VFA-102, he was designated as a Strike Lead and Rescue Mission Commander (RMC). Additionally, he served as the Administrative, Operations, and Maintenance Officer.

CDR Capacete is currently the Operational Test Coordinator for the F/A-18 E/F Super Hornet Software Configuration Set (SCS), Air-to-Air Missiles, Infrared Search and Track (IRST), and Cyber Survivability at Commander, Operational Test and Evaluation Force (COMOPTEVFOR) in Norfolk, VA.

He is responsible for the acquisition process and overall test and evaluation of eight programs, maximizing efficient and effective delivery of operational capability to the Fleet.

CDR Capacete has 2800 flight hours and 600 carrier arrestments, including 67 combat sorties. He was awarded the Strike/Flight Air Medal (four awards), Navy Commendation Medal (two awards), Navy Achievement Medal (two awards), and numerous campaign and unit medal citations. He is also the recipient of the 2012 Commander, Strike Fighter Wing Atlantic (CSFWL) Weapon Systems Officer of the Year.

CDR Capacetis graduated with a Master's of Science in Systems Engineering degree in the 2022 Fall quarter.

He was also a member of the 311-202S cohort "Team Gemini" Capstone team, which was recognized as Outstanding Capstone Team for the Fall 2022 quarter.

Lauren Reichert (pictured left) is a project manager and systems engineer for the Evolved SeaSparrow Missile at NSWC Indian Head Division (IHD) in Indian Head, Maryland.

She started at IHD in 2016 after graduating from the University of Virginia with a B.S. in Chemical Engineering.

Her technical background includes aircrew escape systems focusing on rotary aircraft for the USN and USMC, as well as logistical support for special operations.

Ms. Reichart graduated with a Master's of Science in Systems Engineering degree in the 2022 Fall quarter and received a recommendation for graduation with distinction.

Systems Engineering Students Present at DEPS Conference

By Senior Lecturer Bonnie Johnson

Pictured left to right: Maj Meg Vermillion, US Army, Cpt Andre Polk, US Army, Dr. Bonnie Johnson, NPS SE Department, Maj Angela Burton, US Army, Cpt Jonathan Shelton, US Army, and Maj Kit Miaga, US Army.

Systems Engineering students from two Capstone teams traveled from Monterey, CA to Washington, DC for the Annual Directed Energy Professional Society's (DEPS) Systems Symposium from 25-29 October 2021.

The students gave presentations on their capstone research topics to a large audience of premier directed energy experts and practitioners from government, industry, and academia.

Maj Meg Vermillion and Cpt Jonathan Shelton presented "Highway to HEL: USMC Expeditionary Employment of a High Energy Laser to Counter Drone Threats." Their three additional teammates were: LTC Mark Scott, US Army; Cpt Brian Clayton, US Army; and Cpt James Williamson, US Army.

Maj Angela Burton, Maj Kit Miaga, and Cpt Andre Polk presented "Counter Directed Energy Weapons: Protection of Dismounted Soldiers and Equipment." Their two additional teammates were: Maj Brittney Jackson, US Army; and Cpt Bryan Weiss, US Army.

The projects were sponsored by Peter Morrison at ONR and Dr. Francisco Jose Aranda, US Army CCDC-Soldier Center. Their NPS advisors were Dr. Bonnie Johnson, Systems Engineering; Dr. Joseph Blau, Physics; and Mr. John M. Green, Systems Engineering.

The students were part of the 522 resident Systems Engineering program. They graduated in December 2021 with Master's degrees in Systems Engineering Management.

NPS Student Research is Published in Journal

By Assistant Professor Douglas Van Bossuyt

LT Edward Anuat graduated in December 2021 from the SE Department Masters of Science in Systems Engineering 580 program and was the recipient of the Naval Sea Systems Command Award for Excellence in Systems Engineering.

As part of his master's thesis research with Dr. Van Bossuyt and Dr. Pollman, LT Anuat conducted novel research on the impact that supply chain network disruption has on the resilience of Naval base microgrids. LT Anuat's research was recently published in the journal *Infrastructures* as a feature paper titled Energy Resilience Impact of Supply Chain Network Disruption to Military Microgrids. The paper was co-authored by LT Anuat's co-advisors Dr. Douglas Van Bossuyt and Dr. Anthony Pollman, both of whom are Assistant Professors in the NPS Systems Engineering Department.

LT Anuat spent the first four years of his naval career as a Surface Warfare Officer onboard the USS McFAUL (DDG 74) and USS CARTER HALL (LSD 50) before laterally transferring to the Engineering Duty Officer (EDO) community in 2016.

His first assignment as an EDO was as a project officer for the USS RHODE ISLAND (SSBN 740) Engineering Refueling Overhaul from undocking to Sea Trials.

Subsequently, he served as the Deputy Project Superintendent for the USS LA JOLLA (SSN 701) Moored Training Ship conversion and was responsible for all aspects of nuclear and non-nuclear work and testing to successfully deliver the platform to the Nuclear Power Training Unit in Charleston, South Carolina.

Following NPS, LT Anuat will report to Commander, Naval Air Force Atlantic to support the construction, maintenance, and modernization of the fleet's aircraft carriers.

Abstract follows:

The ability to provide uninterrupted power to military installations is paramount in executing a country's national defense strategy. Microgrid architectures increase installation energy resilience through redundant local generation sources and the capability for grid independence. However, deliberate attacks from near-peer competitors can disrupt the associated supply chain network, thereby affecting mission critical loads. Utilizing an integrated discrete-time Markov chain and dynamic Bayesian network approach, we investigate disruption propagation throughout a supply chain network and quantify its mission impact on an islanded microgrid. We propose a novel methodology and an associated metric we term "energy resilience impact" to identify and address supply chain disruption risks to energy security. The proposed methodology addresses a gap in the literature and practice where it is assumed supply chains will not be disrupted during incidents involving microgrids. A case study of a fictional military installation is presented to demonstrate how installation energy managers can adopt this methodology for the design and improvement of military microgrids. The fictional case study shows how supply chain disruptions can impact the ability of a microgrid to successfully supply electricity to critical loads throughout an islanding event.

LT Edward Anuat (2nd from the right) poses with members of his 580 cohort

Systems Engineering Graduate is Published in Defense Acquisition Research Journal

By Assistant Professor Douglas Van Bossuyt and Dean Ronald Giachetti

In its January 2022 issue, the Defense Acquisition Research Journal (ARJ) published the work of LT Andrew W. Miller, a December 2020 graduate of the Naval Postgraduate School's Master of Science in Systems Engineering program. The authors of the paper also included Dr. Ronald Giachetti, Dean of the Graduate School of Engineering and Applied Sciences; and Dr. Douglas Van Bossuyt, Assistant Professor within the Systems Engineering Department.

The ARJ is a peer-reviewed journal focusing on acquisition within the Department of Defense (DoD) and produced by the Defense Acquisition University (DAU).

LT Miller knew he was going to be at the Naval Information Warfare Center Atlantic in Charleston, SC following his graduation from NPS. He wanted to do a thesis relevant to this assignment and he was interested in DevOps, which integrates software development (the "Dev") and operations (the "Ops") in order to continuously update the software based on feedback from the operators.

DevOps is common practice in industry, and LT Miller's thesis sought to investigate the challenges the Navy must address to also implement DevOps.

LT Miller's work entitled "Challenges of Adopting DevOps for the Combat Systems Development Environment," builds upon his thesis research analyzing the obstacles and potential solutions to Navy's and DoD's attempts to adopt DevOps and Agile Methodologies from private industry.

The end goal of this work was to identify and categorize impediments to the Navy's need to increase speed of development and delivery of combat systems within the new era of Great Power Competition. This was accomplished by drawing upon a thorough literature review, case studies, and interviews with subject matter experts across the DoD.

LT Miller hails from Charlotte, NC, and is a 2010 graduate of the Virginia Military Institute with a Bachelor of Science in Mechanical Engineering.

He is a qualified Surface Warfare Officer, having served as the Anti-Submarine Warfare Officer aboard USS Simpson (FFG 56) and the Executive and Weapons Officer on USS Zephyr (PC 8).

After completing his sea tours, LT Miller served as a Future Operations Planner at US Sixth Fleet in Naples, Italy, from which he redesignated as an Engineering Duty Officer.

He currently serves the Enterprise Network Management System (ENMS) Product Owner and NetOps Lead at Naval Information Warfare Center Atlantic in Charleston, SC. In his current role he supports PMW 790 in the acquisition and Agile Development of network management software for Navy shore tactical networks.

The abstract for LT Miller's article is as follows:

The article describes a research project in which 11 subject matter experts in software development were interviewed to identify any challenges to the Navy's adoption of DevOps. The results of the interviews were analyzed and categorized into obstacle types with descriptions of those obstacles so that the Navy can develop a plan on how to adopt DevOps.

LT Miller (left) with colleagues while underway off the coast of Gibraltar.

TDSI graduate publishes research on Counter-Unmanned Aerial System Kill Chain Analysis

By Assistant Professor Douglas Van Bossuyt

MAJ Choon Seng Tan, of the Singapore Army, published a peer-reviewed journal article titled System Analysis of Counter-Unmanned Aerial Systems Kill Chain in an Operational Environment, in the journal *Systems.* The article is based on his master's thesis research on counter-unmanned aerial system (C-UAS) kill chain systems engineering analysis and was co-authored by his co-advisors Dr. Douglas Van Bossuyt and Dr. Britta Hale. Dr Van Bossuyt is an Assistant Professor with the NPS Systems Engineering Department, and Dr. Britta Hale is an Assistant Professor with the NPS Computer Science Department.

MAJ Tan worked with his co-advisors to develop an analysis method that can be used by civilian and military installations to understand the likelihood that the C-UAS kill chain installed at a facility will successfully interdict UAS.

The analysis method allowed MAJ Tan to conduct trade-off studies to understand potential vulnerabilities in current C-UAS systems, plan C-UAS upgrades, and investigate potential confounding issues (jamming, crashed adversarial UAS, etc.) that could impact adjacent civilian and allied force facilities.

The research MAJ Tan conducted helped to support a Naval Research Program project that Dr. Hale led during FY21. The project evaluated current and future C-UAS technologies, and made recommendations on potential areas of improvement to increase C-UAS defensive capabilities for the US Navy and Department of Defense.

Drs. Hale and Van Bossuyt are building on MAJ Tan's research as part of a new project investigating C-UAS systems that have low energy requirements and spectrum footprints.

Potential immediate users of MAJ Tan's research include the Singapore Armed Forces, the US Navy, and major civilian airports.

Major Tan is a Recent graduate of the Temasek Defense Systems Institute (TDSI), which is a strategic alliance between the National University of Singapore (NUS) and the Naval Postgraduate School (NPS).

An Abstract of the article follows:

The proliferation of Unmanned Aerial System (UAS) capabilities in the commercial sector is posing potentially significant threats to the traditional perimeter defense of civilian and military facilities.

Commercial Off-The-Shelf (COTS) UAS are small, cheap, and come with multiple types of functions which have growing interest among hobbyists. This has prompted the need for facility commanders to have a methodology to conduct quick evaluation and analysis of the facility and the existing Counter-Unmanned Aerial System (CUAS)'s effectiveness.

This research proposes a methodology that follows a systems engineering perspective to provide a step-by-step process in conducting evaluation and analysis by employing Model-Based Systems Engineering (MBSE) tools to understand the CUAS's effectiveness and limitations.

The methodology analyzes the CUAS's operating environment and effects of the dominant factors and impacts that CUAS may pose to other stakeholders (e.g., adjacent allied forces, civilians, etc.) within the area of operation. We then identify configuration candidates for optimizing the CUAS's performance to meet the requirements of the stakeholders.

A case study of a hypothetical airport with existing CUAS is presented to demonstrate the usability of the methodology, explore the candidates, and justify the implementation of a candidate that fits the facility and the stakeholders' requirements.

Pictured Left to Right: Asst Professor Douglas Van Bossuyt, Asst Professor Britta Hale, and MAJ Choon Seng Tan

Research On Model-Based Systems Engineering and Digital Twin Published by TDSI Graduate

By Assistant Professor Douglas Van Bossuyt

Eugene Boon Kien Lee has published an article titled Digital Twin-Enabled Decision Support in Mission Engineering and Route Planning in the peer-reviewed journal *Systems*. The article was based on his master's thesis work and was co-written by Dr. Douglas Van Bossuyt and Mr. Jason Bickford, who were also Eugene's thesis advisors. Dr. Van Bossuyt is an Assistant Professor with the NPS Systems Engineering department and Mr. Bickford is a PhD student with the department and works for NSWC Port Hueneme Division.

Although the COVID-19 pandemic disrupted and delayed the travel plans of Mr. Lee and his TDSI cohort, who had expected to be in Monterey for the entirety of their studies, he still diligently worked with his advisors to develop his novel research.

After graduating and returning to Singapore, Mr. Lee continued to work with Dr. Van Bossuyt and Mr. Bickford on manuscript revisions to see his work published in the literature. The dedication Mr. Lee showed reflects the quality and caliber of students who participate in TDSI.

Mr. Lee's publication marks the first time in recent years that a PhD student has co-advised a master's student in the Systems Engineering program where the research has resulted in a peer-reviewed publication.

The research Mr. Lee conducted advanced model-based systems engineering (MBSE) and digital twin (DT) methodologies for conducing mission engineering (ME) and route planning for unmanned aerial systems (UAS). A journal article published by Mr. Bickford in late 2019 was integral to Mr. Lee's work and helped advance the concept of merging MBSE, DT, and ME for UAS and other autonomous systems. This in turn continues to help advance Mr. Bickford's doctoral research agenda and to help inform NSWC Port Hueneme Division on these matters for the Navy. In other words, a virtuous cycle was created to advance the state of the art for the US Navy and for the Singapore Armed Forces.

Eugene is a Recent graduate of the Temasek Defense Systems Institute (TDSI), which is a strategic alliance between the National University of Singapore (NUS) and the Naval Postgraduate School (NPS).

An abstract of the article follows:

This article presents a Model-Based Systems Engineering (MBSE) methodology for the development of a Digital Twin (DT) for an Unmanned Aerial System (UAS) with the ability to demonstrate route selection capability with a Mission Engineering (ME) focus. It reviews the concept of ME and integrates ME with a MBSE framework for the development of the DT. The methodology is demonstrated through a case study where the UAS is deployed for a Last Mile Delivery (LMD) mission in a military context where adversaries are present, and a route optimization module recommends an optimal route to the user based on a variety of inputs including potential damage or destruction of the UAS by adversary action. The optimization module is based on Multiple Attribute Utility Theory (MAUT) which analyzes predefined criteria which the user assessed would enable the successful conduct of the UAS mission. The article demonstrates that the methodology can execute a ME analysis for route selection to support a user's decision-making process. The discussion section highlights the key MBSE artifacts and also highlights the benefits of the methodology which standardizes the decision-making process thereby reducing the negative impact of human factors which may deviate from the predefined criteria.

Pictured Left to Right: Asst Professor Douglas Van Bossuyt and Eugene Boon Kien Lee

Awards and Graduations

Awards

Naval Sea Systems Command Award for Excellence in Systems Engineering

LT Edward A. Anuat, USN

Meyer Award for Outstanding DL Student in Systems

CDR Zachary N. Capacete, USN

Ms. Lauren L. Reichert, Naval Surface Warfare Center Indian Head Division

Meyer Award in Systems Engineering for DL Teaching

Mark M. Rhoades

Systems Engineering Management Capstone Competition

522-204 Team HEL-Raisers

Capstone Title: HIGHWAY TO HEL: USMC EXPEDITIONARY EMPLOYMENT OF A HIGH ENERGY LASER TO COUNTER DRONE THREATS

Members: Brian Clayton, Mark Scott, Jonathan Shelton, Marguerite Vermillion, and James Williamson

Advisors: Bonnie Johnson, Joseph Blau, and Mike Green

Outstanding Thesis

SUMMER QUARTER AY21

MAJ Ming Hui Peh, Singapore Army

Thesis Title: STRATEGY TO IMPROVE THE TRUST BETWEEN HUMANS AND ARTIFICIAL INTELLIGENCE ENABLED AIR AND MISSILE DEFENSE (AMD) SYSTEMS

Advisor: Bonnie Johnson and **Second Readers:** John M. Green and Walter A. Kendall

FALL QUARTER AY22

LT Edward A. Anuat, USN

Thesis Title: ENERGY RESILIENCE IMPACT OF SUPPLY CHAIN NETWORK DISRUPTION TO MILITARY MICROGRIDS

Advisor: Douglas Van Bossuyt and **Co-Advisor:** Anthony Pollman

Outstanding Capstone

311-202S Team Gemini

Title: ARCHITECTURE FOR A CBM+ AND PHM CENTRIC DIGITAL TWIN FOR WARFARE SYSTEMS

Members: Ray Ashworth, Zachary Capacete, Matthew Casim, Garrett Dong, Joshua Gutterman Carlos Riosmora, Jeffrey Smith, and July Thomson

Advisors: Douglas Van Bossuyt and Mark Rhoades

Recommendation for Graduation with Distinction

LT Gladys Vanessa Anuat, USN

LT Austin Bernell Taylor, USN

Ms. Lauren L. Reichert, Naval Surface Warfare Center Indian Head Division

Mr. Jeffrey Smith, Naval Surface Warfare Center, Port Hueneme Division

Theses

LT Edward A. Anuat, USN
Thesis Title: ENERGY RESILIENCE IMPACT OF SUPPLY CHAIN NETWORK DISRUPTION TO MILITARY MICROGRIDS
Advisor: Douglas Van Bossuyt and **Co-Advisor:** Anthony Pollman

LT Gladys Vanessa Anuat, USN
Thesis Title: INVESTIGATING INTERACTIONS BETWEEN A BOX-SHAPED UNMANNED UNDERWATER VEHICLE AND MARINE VEGETATION
Advisors: Joseph Klamo and Anthony Pollman

LT Kyle Diatte, USN
Thesis Title: THE INTEGRATION OF RELIABILITY, AVAILABILITY, AND MAINTAINABILITY (RAM) INTO MODEL-BASED SYSTEMS ENGINEERING (MBSE)
Advisor: Bryan O'Halloran and **Co-Advisor:** Douglas Van Bossuyt

LCDR John C. Hannah, Jr., USN
Thesis Title: A SYSTEMS ENGINEERING BASED ANALYSIS OF THE MH-60R FLEET REPLACEMENT SQUADRON CATEGORY I SYLLABUS AS A SCHEDULE
Advisor: Charles Pickar and **Second Reader**: Wally Owen

LT Janice Lindsey Mallery, USN
Thesis Title: DEFENSE INSTALLATION ENERGY RESILIENCE FOR CHANGING OPERATIONAL REQUIREMENTS
Advisor: Douglas Van Bossuyt and **Co-Advisor:** Anthony Pollman

LT William Aaron Melton, USN
Thesis Title: ANALYSIS OF ALTERNATIVE ELECTROLYZER TECHNOLOGIES TO SUPPORT NEXT GENERATION UAV
Advisor: Anthony Pollman, **Co-Advisors:** Anthony Gannon and Walter Smith, and **Second Reader:** Gene Paulo

LT Austin Bernell Taylor, USN
Thesis Title: COUNTER-UNMANNED AERIAL VEHICLES STUDY: SHIPBOARD LASER WEAPON SYSTEM ENGAGEMENT STRATEGIES FOR COUNTERING DRONE SWARM THREATS IN THE MARITIME ENVIRONMENT
Advisor: Bonnie Johnson and **Co-Advisor**: Mike Green

CDR Jeff A. Gardner, USN and Mr. Steve L. Oakley Joint Thesis
Thesis Title: APPLICATIONS AND SUITABILITY OF RENEWABLE POWER SYSTEMS IN REMOTE SPECIAL OPERATIONS FORCES (SOF) EXPEDITIONARY ENVIRONMENTS
Advisor: Anthony Pollman and **Co-Advisor:** Andy Hernandez

Mr. Jonathan Burnette
Thesis Title: FEASIBLITY OF APPLYING ULTRAVIOLET (UVC) DISINFECTION TO SHIPBOARD VENTILATION SYSTEMS
Advisor: Donald Brutzman and **Co-Advisor**: Gregory Miller

Capstone Teams

311-202O Team AI6
Capstone Title: EVALUATING ARTIFICIAL INTELLIGENCE (AI) METHODS FOR USE IN KILL CHAIN FUNCTIONS
Members: Gregory Burns, Ryan Collier, Richard Cornish, Kyle Curley, Allan Freeman, and Jared Spears
Advisors: Bonnie Johnson and Mike Green

311-202O Team FVL
Title: CONCEPTUAL DESIGN OF THE USMC FUTURE VERTICAL LIFT (FVL) LIVING LAB
Members: Irene Cho, Craig Earls, Mary Mesa, Josue Ramos-Calvario, Lauren Reichert, and Savannah Wood
Advisors: Bonnie Johnson and Scot Miller

311-202S Team Gemini
Title: ARCHITECTURE FOR A CBM+ AND PHM CENTRIC DIGITAL TWIN FOR WARFARE SYSTEMS
Members: Ray Ashworth, Zachary Capacete, Matthew Casim, Garrett Dong, Joshua Gutterman Carlos Riosmora, Jeffrey Smith, and July Thomson
Advisors: Douglas Van Bossuyt and Mark Rhoades

311-202S Team Icarus
Capstone Title: A DIGITAL ENGINERING CASE STUDY OF AN UNMANNED UNDERWATER VEHICLE
Members: Gregory Barr, Nolan Bunker, Oscar Cedillos, Tylong Chheung, William Flores, and Adam Ortega
Advisors: Mark Rhoades and Douglas Van Bossuyt

522-204 Team Augmented AAR
Capstone Title: LEND ME YOUR EAAR: ENHANCING THE AFTER ACTION REVIEW TO INCREASE TACTICAL LEARNING
Members: Dominic Adams, Jason Bulson, Zachary Feterl, William Salisbury, and William Warren
Advisor: Rob Semmens

522-204 Common Commercial Contracting Opportunity Team
Capstone Title: DEFICIENCIES IN THE REQUIREMENT GENERATION PHASE THAT DELAY THE LEAD TIME OF ARMY CONTRACT ACTIONS
Members: Ena Baran, Randy Bookwalter, Larry Kemp, Nicolas Villegas, and Paul Wolfe
Advisors: William Hatch, Kelley Poree, and Andy Hernandez

522-204 HSI Team 3
Capstone Title: HEY LARRY! INVESTIGATING INTERRUPTIONS IN FUTURE VERTICAL LIFT PLATFORMS
Members: James Berry, Joshua Cook, Caleb Ely, Christopher Nelson, and Porter Riley
Advisors: Larry Shattuck and Rob Semmens

522-204 Team Hot Potato
Capstone Title: TASK HANDOFF BETWEEN HUMANS AND AUTOMATION
Members: Andrew Brown, John Folger, Jonathan Hardin, Jean'Shay Moore, and Quentin Sica
Advisors: Larry Shattuck and Rob Semmens

522-204 Team CDEW
Capstone Title: COUNTER DIRECTED ENERGY WEAPONS (CDEW) ANALYSIS: PROTECTION OF DISMOUNTED SOLDIERS AND EQUIPMENT
Members: Angela Burton, Brittney Jackson, Patriciaclaire Miaga, Rodrick Polk, and Bryan Weiss
Advisors: Bonnie Johnson and Mike Green

522-204 Team FVL Task Automation
Capstone Title: WHAT TASKS TO AUTOMATE? AN INVESTIGATION OF WHAT TASKS MAKE SENSE TO AUTOMATE FOR FUTURE AVIATION PLATFORMS
Members: Matthew Carter, Gregory Griffith, Peter Hamill, and Jacen Lanclos
Advisors: Larry Shattuck and Rob Semmens

522-204 Team Hel-Raisers
Capstone Title: HIGHWAY TO HEL: USMC EXPEDITIONARY EMPLOYMENT OF A HIGH ENERGY LASER TO COUNTER DRONE THREATS
Members: Brian Clayton, Mark Scott, Jonathan Shelton, Marguerite Vermillion, and James Williamson
Advisors: Bonnie Johnson, Joseph Blau, and Mike Green

522-204 Team RAAD
Capstone Title: AN ANALYSIS OF SIZE, WEIGHT AND POWER (SWAP) FOR EMP SHIELDING OF THE RAAD SYSTEM
Members: Troy Davison, Jeff Klobucar, Khalid Salim, David Vance, and Joseph Wiley
Advisors: Tony Pollman and Andy Hernandez

522-204 Emergency Diesel Generators Team
Capstone Title: TRADEOFF ANALYSIS OF BACKUP POWER GENERATION SOLUTIONS FOR MILITARY BASES
Members: Kirk Porter, Christian Ray, Eric Scholl, David Terhune, and Andrew Umstead
Advisors: Ron Giachetti and Douglas Van Bossuyt

Graduations

Doctor of Philosophy in Systems Engineering

Mr. Cuong Ton, Naval Air Warfare Center, Weapons Division

Master of Science in Systems Engineering

Capt Kyle J. Curley, USMC
LT Edward A. Anuat, USN
LT Gladys Vanessa Anuat, USN
CDR Zachary N. Capacete, USN
LT Kyle Diatte, USN
LT Janice Lindsey Mallery, USN
LT William Aaron Melton, USN
LT Austin Bernell Taylor, USN
Mr. Ray Anthony Ashworth, Naval Surface Warfare Center Port Hueneme Division
Mr. Gregory Barr, Naval Information Warfare Center Pacific
Mr. Nolan James Bunker, Naval Surface Warfare Center, Port Hueneme Division, White Sands Detachment
Mr. Matthew Casim, Naval Surface Warfare Center, Port Hueneme Division
Mr. Oscar Ismael Cedillos, Naval Surface Warfare Center Detachment White Sands Missile Range
Mr. Tylong Chheung, Naval Surface Warfare Center, Port Hueneme Division
Ms. Irene Cho, Naval Surface Warfare Center, Corona Division
Mr. Ryan Todd Collier, Naval Information Warfare Center Atlantic
Mr. Richard Cornish, Naval Surface Warfare Center Dahlgren Division, Dam Neck Activity
Mr. Garrett D. Dong, Naval Surface Warfare Center, Port Hueneme Division
Mr. Craig Earls , Naval Surface Warfare Center, Dahlgren Division
Mr. William Flores, Naval Surface Warfare Center, Division Port Hueneme
Mr. Allan Freeman, Naval Surface Warfare Center, Port Hueneme Division
Mr. Joshua Gutterman, Naval Surface Warfare Center, Port Hueneme Division
Mr. Adam Christopher Ortega, Naval Surface Warfare Center, Port Hueneme Division
Mr. Josué L. Ramos-Calvario, Naval Information Warfare Center Pacific
Ms. Lauren L. Reichert, Naval Surface Warfare Center Indian Head Division
Mr. Carlos Rios Mora, Naval Surface Warfare Center Port Hueneme
Mr. Jeffrey Smith, Naval Surface Warfare Center, Port Hueneme Division
Ms. July Thomson, Naval Surface Warfare Center Port Hueneme Division

Master of Science in Engineering Systems

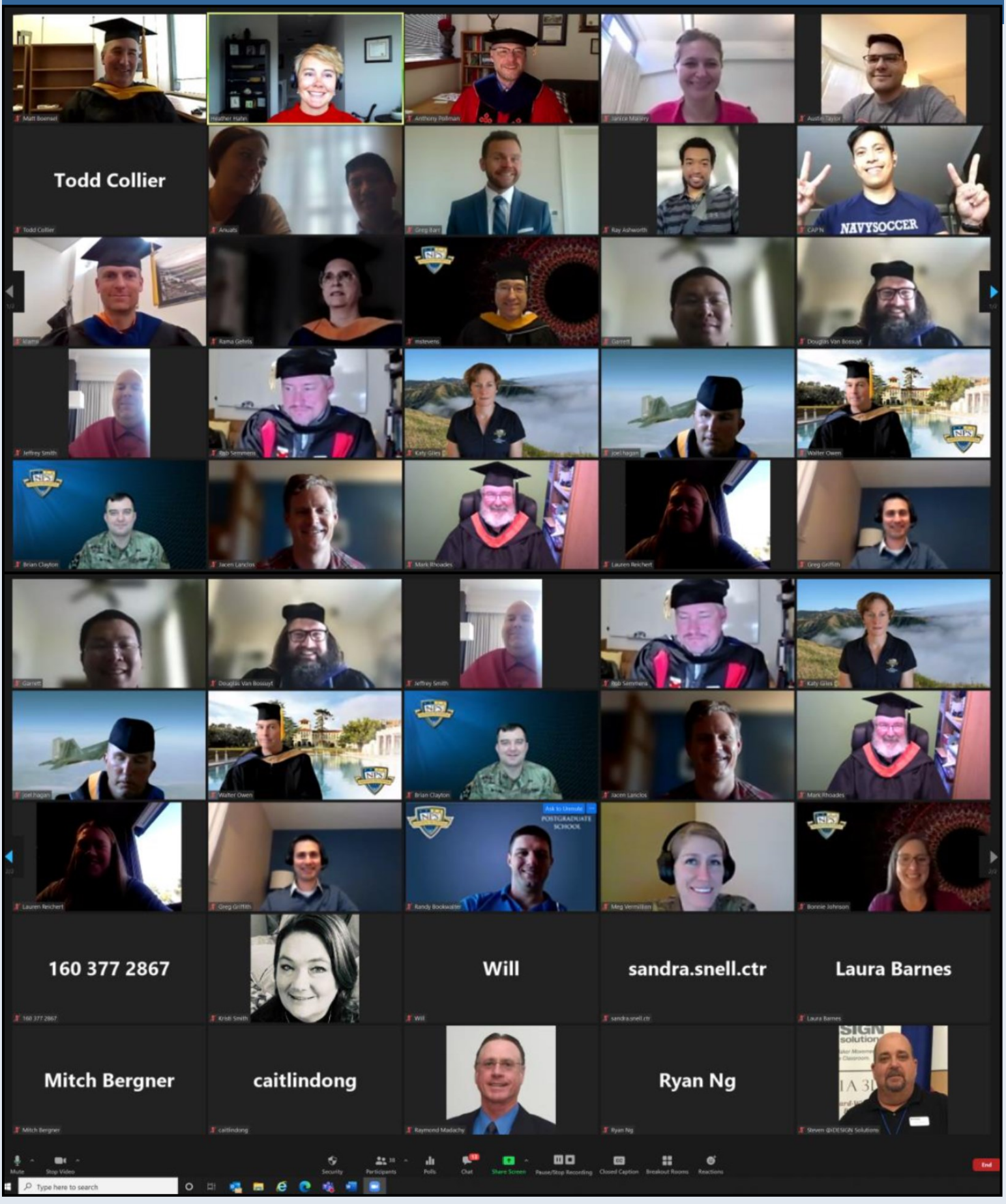
Mr. Gregory R. Burns, NAVSEA Warfare Center, Dahlgren Damneck Activity
Ms. Mary D. Mesa, Naval Information Warfare Center Pacific
Mrs. Savannah Wood Self, Naval Surface Warfare Center, Dahlgren Division
Mr. Jared B. Spears, Farragut Technical Analysis Center, Office of Naval Intelligence

Master of Science in Systems Engineering Management

LCDR John C. Hannah, Jr., USN
CDR Jeff A. Gardner, USN
MAJ Dominic Francis Adams, USA
MAJ Ena G. Baran, USA

MAJ James N. Berry III, USA
MAJ Randy W. Bookwalter, USA
MAJ Andrew Joseph Brown, USA
MAJ Jason Mark Bulson, USA
MAJ Angela Denise Burton, USA
CPT Matthew W. Carter, USA
MAJ Brian J. Clayton, USA
MAJ Joshua L. Cook, USA
MAJ Troy Davidson, USA
CPT Caleb Ely, USA
CPT Zach Feterl, USA
CPT John Folger, USA
MAJ Gregory S. Griffith, USA
CPT Pete Hamill, USA
CPT Johnathan W. Hardin, USA
MAJ Larry V. Kemp, USA
MAJ Jeff Klobucar, USA
MAJ Jacen P. Lanclos, USA
MAJ Brittney Leigh Jackson, USA
MAJ Patriciaclaire Miaga, USA
MAJ Jean'Shay Delight Moore, USA
CPT Christopher J. Nelson, USA
CPT Rodrick Andre Polk, USA
CPT Kirk Porter, USA
MAJ Christian Ray, USA
CPT Porter W. Riley, USA
CPT Khalid T. Salim, USA
MAJ William C. Salisbury II, USA
MAJ Eric C. Scholl, USA
LTC Mark Lloyd Scott, USA
CPT Jonathan C. Shelton, USA
CPT Quentin Sica, USA
MAJ David Terhune, USA
CPT Andrew K. Umstead, USA
MAJ David T. Vance, USA
MAJ Marguerite (Meg) Vermillion, USA
MAJ Nicolas Villegas, USA
MAJ Will Warren, USA
MAJ Bryan E. Weiss, USA
MAJ Joseph B. Wiley, USA
MAJ James Phillip Williamson , USA
MAJ Paul Wolfe, USA
Mr. Jonathan Burnette, Naval Information Warfare Center Pacific
Mr. Steve L. Oakley, Marine Corps Tactical System Support Activity

Systems Engineering Distance Learning Graduation Photos



Summer Quarter Systems Engineering Distance Learning Graduation via Zoom—December 16, 2021

Please direct questions or comments to the SE Newsletter Editor, Lorene Barnes, at Lorene.Barnes@nps.edu

Request for Alumni News!

The SE Department is interesting in hearing how our alumni are doing.
Please feel free to send the editor news items for inclusion in future newsletters.

If you would like to subscribe to the Systems Engineering Newsletter, please click here.

Oleg Yakmenko, Department Chair - oayakime@nps.edu

Tony Pollman, Associate Chair for Operations - agpollma@nps.edu

Wally Owen, Associate Chair for Distributed Learning & Outreach - wowen@nps.edu

Warren Vaneman; Deputy Associate Chair for Marketing, Outreach and Engagement - wvaneman@nps.edu

Gene Paulo, Associate Chair for Instruction - eppaulo@nps.edu

Heather Hahn, Ed Tech Systems Engineering (DL) - hlhahn@nps.edu

Wally Owen, Program Officer 282 Systems Engineering– wowen@nps.edu

Mark Stevens, Academic Associate 308 Systems Engineering Analysis - mstevens@nps.edu

LCDR Christopher Shutt , USN, Program Officer 308 Systems Engineering Analysis - cmshutt@nps.edu

Ray Madachy, Academic Associate 311 Systems Engineering (DL) - rjmadach@nps.edu

Joseph Sweeney, Program Officer 311 Systems Engineering (DL) - jwsweene@nps.edu

Ron Carlson, Program Officer 232 and 311 Systems Engineering (DL) - rrcarlso@nps.edu

Mark Stevens, Academic Associate 580 Systems Engineering - mstevens@nps.edu

CDR Richard Arledge , Program Officer 580 Systems Engineering - rkarledg@nps.edu

COL Joyce Stewart, Program Officer 522 Systems Engineering Management—joyce.stewart@nps.edu

Douglas Van Bossuyt, Academic Associate 581, 582 Systems Engineering -douglas.vanbossuyt@nps.edu

Kristin Giammarco, Academic Associate 721 Systems Engineering Management - kmgiamma@nps.edu

Wally Owen, Program Officer 721 Systems Engineering Management - wowen@nps.edu

Visit Our Systems Engineering Website!