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Weekly Media Reports - Feb. 1-7, 2022

Naval Postgraduate School (U.S.)

Weekly Media Report – February 1-7, 2022

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"HAI 2.0" – NPS Releases Updated Artificial Intelligence Course, Video Series

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(NPS.edu 2 Feb 22) … Mass Communication Specialist 2nd Class Lenny Weston
(Eureka Alert 4 Feb 22) … Mass Communication Specialist 2nd Class Lenny Weston

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Two Military Sealift Command Teammates Earn Data Science Certificate from Naval Postgraduate School

(DVIDS 3 Feb 22) … Bill Mesta

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RESEARCH:

Our Experts Top 14 Technology Picks for February 2022

(Tech Link 4 Feb 22)

TechLink helps industry partners access and evaluate technology commercialization opportunities developed in federal research laboratories… Scientists at the **Naval Postgraduate School** have experimented with an exciting method of sintering powered titanium within carbon molds in an ambient pressure gas containing a low concentration of active hydrogen at a relatively low temperature–650˚C–for only a few hours.

Asynchronous C2 and Multi-Device Capabilities in DON Networks

(CHIPS 1 Feb 22) … NPS students Chriss Britt, Andre Leon and Assistant Prof. Britta Hale

From singular devices to swarms, unmanned systems (UxS) are critical components within the Joint All-Domain C2 (JADC2) architecture. These heterogeneous devices bring much-needed diversity and affordability that will interconnect the future fleet of manned and unmanned platforms. Unsurprisingly, the Navy is looking to take advantage of the unique missions and opportunities across its portion of the Department of Defense Information Network (DoDIN-N). Navy success relies on seamless integration, synchronization and security of such devices.

STUDENTS:

Airborne Almighty: Examining the Role of Static Line Jumps in Army Special Operations

(Small Wars Journal 4 Feb 22) … Meg Tucker

I wish I could say an airborne operation is as exciting now as it was when I got my wings as a new Captain. Sadly, a familiar tedium has slowly replaced the thrill that once came with jump day. Today, my soldiers and I wait tentatively, crammed into the long benches that run the length of a dusty, oversized shoebox known as a jump shed. Jump masters are finalizing pre-jump checks. I have not seen my detachment sergeant, my right-hand man, in a few days. He has been performing jump master duties, and now darts around making final preparations. They ensure parachutes are properly packed, the harnesses tightly cinched to our bodies and static lines routed to avoid any unplanned midair amputations. It's a comforting thought, really. We have sat for over an hour in this rigged-up configuration, fighting the urge to use the facilities because doffing equipment is not an option… Major Meg Tucker has been in the Army for ten years, serving first as a Kiowa Warrior pilot in the 82nd Airborne Division, then as a Psychological Operations officer in 1st Special Forces Command (Airborne). She is Airborne, Air Assault and Accelerated Free-Fall qualified, and has commanded two PSYOP Detachments in SOUTHCOM and CENTCOM. She has been published in Special Warfare Magazine and CrossFit Journal and served as a panelist for the Special Warfare Center Commanding General's Distinguished Lecture Series in 2020. She is currently pursuing a Master of Science degree in Information and Political Warfare at the **Naval Postgraduate School**.

FACULTY:

Cybersecurity Experts Prepare for Russian Cyberattacks on Ukraine, as Tensions in Region Rise [Radio Segment]

(Wbur 3 Feb 22)

The United States and its allies continue to express concern about the buildup of Russian troops near the border with Ukraine — but less obvious and equally concerning is the prospect of cyberattacks… So how serious are these threats and is the U.S. adequately positioned to defend against them? Here & Now's Lisa Mullins talks to John Arquilla, a defense analyst at the U.S. **Naval Postgraduate School** and author of the recent book "Bitskrieg."

COMMUNITY:

Drills Underway at Monterey Naval Base

(Monterey Herald 1 Feb 22) … Dennis L. Taylor

Monterey Peninsula residents who are beginning to see more traffic and security measures around the Naval Support Activity Monterey base shouldn't be alarmed – it's only a drill.

Naval Support Activity Monterey, which is the base that houses the **Naval Postgraduate School**, is conducting annual drills to ensure on-base security is ready for any potential threat that takes place on the base.

ALUMNI:

Fogerson Graduates From Navy Leadership Class

(Record Courier 4 Feb 22)

Nevada Emergency Manager and former East Fork Deputy Chief Dave Fogerson completed the Executive Leaders Program at the **Naval Postgraduate School** Center for Homeland Defense and Security on Feb. 3.

UPCOMING NEWS & EVENTS:

Feb 21: President's Day **(Federal Holiday)**
Mar 7-9: Center for Executive Education LCSS Workshop
Feb 10,11 and 18: NWSI Strategic Deterrence Exploration Workshop

EDUCATION:

"HAI 2.0" – NPS Releases Updated Artificial Intelligence Course, Video Series

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These technologies have powerful impacts on Naval operations and warfighting as well. AI has the potential to revolutionize military technology, capability and operations. The possibilities have raised many speculations about what AI is capable of and whether it can be trusted.

The Naval Postgraduate School (NPS), looking to shed some light on this topic for the many newcomers to AI technology, developed a seminar course and accompanying video series called Harnessing Artificial Intelligence, or HAI. A popular course among NPS students on campus, the materials are also being used by the DOD's Joint Artificial Intelligence Center (JAIC) to support its own education programs.

The video series, upgraded for 2022, was developed by NPS Distinguished Professor Peter Denning, a leading name in the computing field. It features 22 lectures by 18 different NPS faculty experts on AI topics including automation, machine types, primary applications, strategy, ethics and futures.

"The AI field has traditionally claimed far more than it was able to achieve. This tendency to hype the technology is not safe for the national defense. It temps planners and developers to expect more than the technology can deliver," explained Denning.

"We designed this course to give a clear picture of what AI machines can actually do and the applications in which they have been successful," Denning continued. "We also discussed the role of AI in geopolitical power competition and the ethical principles our country and others are using when applying AI. We concluded with a look at the future of warfare when AI technologies are an integral part.

"We want to give people a solid foundation to enable them to understand what these machines are capable of, what kinds of mistakes they can make, and when they can be trusted," Denning stressed. "These lectures can dispel the hype."

"The biggest benefit of the series is to provide a basic understanding of concepts that are often overhyped by the news media," added NPS Computer Science Professor Neil Rowe. "Students discover that artificial intelligence does not solve all problems … but it does provide new tools valuable for addressing certain problems important to the military. We have considerable, unique expertise in artificial intelligence at the school, and the course takes advantage of it."

While the lectures were attended in-person by NPS students, the education and value they provide are reaching across the entire DOD through NPS' partnerships with the JAIC. NPS Computer Science Associate Professor Mathias Kölsch has established a connection between NPS and the DOD's AI hub.

"We realized that this cannot be the only effort to educate the DOD workforce, which means we need to make this a multi-institution effort," noted Kölsch. "NPS contributes with its own expertise, which is graduate-level education."

As the technology progresses within AI, NPS will look to continue moving forward with the series by updating the lectures and videos, which will focus on new trending topics. NPS will also partner with other institutions within the DOD and civilian sectors to make the best possible content for users, while distributing it to larger audiences.

"I can very well see this video series or the individual lectures becoming part of a customized learning program for many military and civilian members of the DOD as they go through their unique e-

learning journey," noted Kölsch. "On top of that, it should be part of certificates and other credits, continued education credits that are demanded across the DOD."

All lectures in both versions of Harnessing AI series are available to view for free, along with course materials, on the HAI course website and the NPS YouTube Channel.

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NPS Office of Teaching and Learning Pilots Distance Learning Quality Initiative

(NPS.edu 2 Feb 22) … Matthew Schehl

This Fall, the Naval Postgraduate School (NPS) successfully completed a two-year collaborative effort to take Distance Learning (DL) to the next level of quality in meeting students' emerging needs.

The Teaching and Learning Commons' (TLC) Distance Learning Quality Initiative (DLQI), led by the Office of Teaching and Learning (OTL), introduced modular standards of best practices for course development, instruction and the application of technologies to enhance DL programs throughout the NPS campus.

"What I like about these quality standards is that they enable those engaged in online instruction to better communicate, interact and engage with students," said Ali Rodgers, Director of Faculty Development and the Office of Teaching and Learning. "How do you monitor learning and instruction in terms of collaboration, communication and feedback in a web-based environment? Do you have the correct technological resources and funding? Do you have sufficient support staff?"

"DLQI provides that," Rodgers added.

NPS has a solid history of providing DL education stretching back more than two decades. Yet even the most experienced of educators often find it challenging and time-consuming to create effective and engaging learning experiences for their students.

"We're looking to expand our DL presence to offer more online, and that entails how we develop and design cohesive learning experiences across a set of courses," Rodgers observed. "Quality standards provide a really good framework to support quality learning experiences."

Supported by the Graduate Education Advancement Center, the OTL set out in September 2019 to begin formulating DLQI.

The project was conceived in two phases. The first phase would introduce best practices for course development, instruction and the application of presentation, communication and collaborative technologies to enhance DL programs. Phase two, designed for program managers and academic associates, would introduce a systematic needs assessment and program review process.

"The impetus for DLQI was really our desire for continuous improvement of the faculty here," noted Dennis Lester, Director of Graduate Education Advancement and Associate Provost for Graduate Education at NPS. "We recognized that this was an area the TLC could enhance and improve upon to meet the growing emphasis on DL and the anticipated future of NPS in a more flexible way."

Then COVID hit. Overnight, the project became an absolute exigency and the TLC swung into action.

"In response to the rapid switch from resident to DL, the TLC is supporting learning-focused communities of practice and is providing leadership and resources as NPS goes fully all-in and online," Ralucca Gera, then TLC director and Associate Provost for Graduate Education, commented at the time.

In consultation with NPS faculty and staff, the GEAC researched exemplary, research-based DL practices used at leading educational institutions throughout the world to meet standards for evaluation

and accreditation as well as legal requirements for accessibility. It grouped the most important elements into a quality standards checklist of eight categories faculty could reference.

This included course preparation, content organization, learning outcomes and assessment, student engagement, course website design and navigation, teaching and learning technology, use of media and accessibility. The group also compiled these in a DLQI handbook for reference.

“Our goal was to create a set of guidelines that would be comprehensive enough to include the features that most contribute to student success, but flexible enough to accommodate a wide variety of learner needs, program goals, technology tools and teaching styles,” Lester recalled. “We had to do an immediate transition, and I was particularly impressed that people just rolled up their sleeves to figure out how to make this happen.”

The group enlisted a nominated cadre of faculty to formally test the guidelines out for the first phase of the project.

From March through September of 2020, seven faculty members from a broad swath of academic disciplines utilized the checklist as they swung into mandatory DL instruction, designed, and taught their courses. They then provided frank feedback on what worked, and what didn’t.

“The pilot allowed faculty to assess their courses using quality standards and to identify next steps to enhance learning and instruction,” Rodgers said. “Everybody had a common experience using the standards, which was the intention of the program.”

“As I look back on the experience, I think we got some really good data from our faculty,” she continued. “I think the faculty recognized the value and felt good knowing that these quality standards exist and that they’re doable.”

Armed with this input, the OTL then implemented the second phase of the project.

From May through September 2021, phase two piloted a standards-based and systematic needs assessment and review of degree and certificate programs by select academic teams. In doing so, it looked at integrating and embedding educational technologies to achieve learner outcomes and leveraged some of the aggregate principles of adult learners to allow for choice and self-pacing as a student moves throughout a curriculum.

“This provided opportunities for people to talk about learner needs and to share ideas about what we could and should be doing with our students … Specifically, what our students are capable of doing on their own versus things that need a lot of guidance and informal coaching,” Rodgers said.

“When I think back, the standards introduced in DLQI represented different tiles in a course mosaic that we were able to apply to create a nice template and advance discussions about the effectiveness of our course design and the best use of instructional time,” she continued. “That’s definitely a silver lining of the storm cloud [of COVID] that we were operating under.”

As in-person classes resume, Rodgers and Lester hope to continue to roll out the DLQI program and expose more faculty to it, enabling them to consider how offering some or all of their coursework as a DL component might most benefit their students.

“I’ve got a feeling that with these standards and best practices we’ve come up with, real outcomes will show the merit in implementing them,” Lester said. “I think that’s where we’ll see the TLC moving soon.”

For more information about NPS’ Teaching and Learning Commons, and to review the 2021 TLC Annual Year in Review, visit the TLC website.

NPS Office of Teaching and Learning Pilots Distance Learning Quality Initiative - Naval Postgraduate School

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NPS Joins USCYBERCOM Academic Engagement Network

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(Eureka Alert 4 Feb 22) … NPS Office of University Communications

The U.S. Cyber Command (USCYBERCOM) has selected the Naval Postgraduate School (NPS) to join its Academic Engagement Network (AEN), a select partnership of more than 80 colleges and universities throughout the United States.

The AEN is an alliance of public and private academic institutions collaborating to support and enhance four USCYBERCOM lines of effort: future workforce, applied cyber research, applied analytics and strategic issues. USCYBERCOM announced its initial AEN partners on January 5, 2022.

"Selection of the Naval Postgraduate School to be an inaugural member of the USCYBERCOM Academic Engagement Network is a great honor," said Dr. Cynthia Irvine, NPS Distinguished Professor of Computer Science and director of the Center for Cybersecurity and Cyber Operations. "It serves as a wonderful acknowledgment of the high quality and ability of the people and programs at NPS to contribute materially to the cyber workforce through education and research."

NPS is one of 84 civilian and military academic partner institutions forming the network. Other AEN partners include the U.S. Naval Academy, National Defense University, the U.S. Army War College and the University of California, Santa Cruz.

By participating in the AEN, NPS faculty will help advance the Department of Defense's ongoing strategic dialogue by engaging with counterparts from USCYBERCOM, Fleet Cyber Command/U.S. Tenth Fleet and other DOD cyber commands.

For three decades, NPS has been a leader in military-focused cybersecurity and cyber operations education and research. It is one of a small group of universities holding three Center of Academic Excellence designations from the National Security Agency – cyber defense, cyber operations and cyber research. Cyber programs at NPS benefit from the expertise and military focus of its faculty in areas ranging from cyber strategy and policy, technical topics related to mathematics and cryptography, hardware and software, networking, and communications.

For more information about the USCYBERCOM Academic Engagement Network and its partners, visit the AEN website.

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Two Military Sealift Command Teammates Earn Data Science Certificate from Naval Postgraduate School

(DVIDS 3 Feb 22) … Bill Mesta

Two civilian teammates attached to Military Sealift Command recently advanced their professional development by earning an advanced certificate from the Naval Postgraduate School.

Carmen Iannello, Lead Engineer for MSC's Engineering Program and Logistics Specialist Vernon Ferrer of MSC's Logistics Program both earned their Data Science Certificate (DSC) by completing the 12 month academic program, which ran from January to December 2021.

"The Data Science Certificate program provides education in distributed computing infrastructure and the application of statistical and machine learning techniques to appropriately manage and gain insights from data of all sizes and types," according to Roslyn Williams, MSC Human Resource Specialist, Leadership & Developmental Programs Coordinator. "Data Science has emerged as an area critical to the mission of the Navy and the Department of Defense because of the central role it plays in intelligence, surveillance, and reconnaissance, talent management, cyber-security, and logistics functional areas. Upon

successful completion of the course work, students were awarded an academic certificate in keeping with standard practices of the Naval Postgraduate School."

The Data Science Certificate is a one year Master's degree level academic certificate consisting of four courses:

• CY3650 Cyber Data Management and Analytics (Q1)
• OS4106 Advanced Data Analysis (Q2)
• CS4315 Introduction to Machine Learning and Data Mining (Q3)
• OS4118 Statistical and Machine Learning (Q4)

"Self-Development is an integral part of the MSC Civilian Workforce Development Strategy," Williams said. "As taken from the Military Sealift Command Civilian Workforce Development Strategy, 'self-development is focused on the fundamental building blocks of personal experience, competency, and growth opportunities that begets higher level organizational success. Intrinsically, self-development requires both motivation on the part of the individual as well as organizational opportunity, and as such is a shared responsibility between employee seeking personal growth and supervisor facilitating participation. To provide for self-development, MSC invests in its employees through formal and informal learning and development related activities to close competency gaps and effect mission.'"

"Additionally, it is important to invest in oneself, and professional development is a way to realize that investment," she said. "Professional development is not just about professional growth but also about personal growth."

Vernon Ferrer, whose role as a logistics specialist focuses on the operation of logistics and data management systems, and in particular Ship Configuration Logistics Information Program (ShipCLIP) and Corrective Maintenance Logistics System (CMLS), offered some feedback about their experience at the Naval Postgraduate School.

"I wanted to expand my knowledge in the data science world to help with current logistics data metrics and future needs with MSC," Ferrer stated. "The program definitely helped me learn new data wrangling and other data handling processes to use in answering specific questions in future projects including metrics development."

"Do read the recommended reading prior the start of the program and adhere to the advice on brushing up on some programming languages, particularly 'Python' and 'R,'" Ferrer offered to prospective DSC students. "I think NPS has a great program fueled by really knowledgeable professors. A definite win for anyone wanting to expand their data science tool kit."

The Data Science Certificate program is open to GS 12-15, service members and Civil Service Mariners of equivalent status.

Pre-requisites for the DSC program include:

• Bachelor's Degree.
• Background in statistics and some experience with higher level programming language as evidenced by transcripts or work history is required for enrollment.
• Command endorsement.

"MSC is strongly committed to providing opportunities for excellence. MSC's external Leadership & Developmental program is a way to provide those opportunities," Williams concluded. "Eligibility for the various programs range from GS-4 all the way through Senior Executive Service. The Naval Postgraduate School Data Science Certificate program is just one example."

For those interested in applying, the tentative deadline for applications for Academic Year (AY) 2023-2024 is June 30, 2020," she added.

The 2021 Naval Postgraduate School Data Science Certificate program was conducted virtually to reduce the spread of COVID-19.

For more information about MSC's professional development opportunities, teammates can contact their Departmental Training Representatives or Roslyn Williams, roslyn.s.williams.civ@us.navy.mil.

DVIDS - News - Two Military Sealift Command Teammates Earn Data Science Certificate from Naval Post Graduate School (dvidshub.net)

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RESEARCH:

Our Experts Top 14 Technology Picks for February 2022

(Tech Link 4 Feb 22)

TechLink helps industry partners access and evaluate technology commercialization opportunities developed in federal research laboratories.

Start with this curated list of inventions our expert technology managers evaluated as worthy opportunities this month. If you find one of interest, click on the title or "View Technology Summary" to get the full details.

Handheld colorimetric chemical sensor

U.S. Army scientists have invented the VK3, a device that provides rapid, on-site identification of unknown chemicals using disposable colorimetric array cartridges.

Body armor cooling system with integrated hydration bladder

An officer in the 88th Security Forces Squadron at Wright-Patterson Air Force Base has invented a portable cooling system, worn beneath body armor, that uses a connected hydration bladder as its fluid (water) reservoir.

The device can be configured to be worn with a body armor ballistic plate carrier, a backpack, or as a standalone vest.

Robust, responsive shells for liquid metal encapsulates

Air Force researchers have developed graphene-based shells for liquid metal encapsulates that improve environmental robustness and response to varied mechanical, thermal, photonic, and electromagnetic stimuli.

Growth hormone-releasing hormone receptor antagonists for cancer treatment

In the battle against cancer, scientists at the Miami VA have identified growth hormone-releasing hormone (GHRH) receptor antagonists that can reduce lung inflammation, scarring, and the expression of T-cell receptor genes, and slow lung cancer growth.

Pressure discriminating cartridge chamber for enhanced safety during training exercises

Small arms engineers at the Naval Surface Warfare Center in Crane, Indiana, have invented a firearm firing chamber that features a novel relief, which allows high-pressure cartridges to expand and become trapped.

Helmet-compatible face shield

U.S. Navy engineers have invented a 3D-printed face shield for use with a helmet for use by emergency medical responders, soldiers deployed to field hospitals or disease areas, construction workers, and scientists in laboratories, or anyone else who finds wearing certain types of personal protective equipment difficult when they must also wear hard head coverings.

Hydrogen enhanced atomic transport titanium sintering

Scientists at the **Naval Postgraduate School** have experimented with an exciting method of sintering powered titanium within carbon molds in an ambient pressure gas containing a low concentration of active hydrogen at a relatively low temperature–650˚C–for only a few hours.

Physical layer authentication schemes for improved 5G network security

Scientists at the **Naval Postgraduate School** in California have analyzed and modeled two advancements in channel-based authentication for improved security for networks that are using novel technologies including the 5G spectrum and associated antennas, retransmission nodes, and other connected devices.

Feature localization algorithm for improved quality of broadband THz images

A Navy scientist has developed the concept of Effective Area of Reflection for an algorithm to improve feature localization and edge definition in digital images created with focused broadband terahertz (THz) pulses. The technology has the strong potential to improve the precision and value of non-destructive materials testing using THz gauging and imaging equipment.

Short-range training bullets with dynamic instability features

To enable safe training at smaller firearm practice ranges and facilities, U.S. Army engineers have designed two bullets with features that limit the maximum range.

Broadly tunable picosecond laser source for time-resolved spectroscopy

Scientists at the U.S. Air Force Research Laboratory's Propulsion Directorate have invented a picosecond laser system for time-resolved spectroscopy.

Improved flame-resistant fabrics

Unparalleled body burn protection has been achieved in flame-resistant blends of acrylonitrile and para-aramid fibers woven into fabrics that shield the warfighter from intense heat and flame.

Biomimetic propulsion for energy-efficient unmanned underwater vehicle

Navy researchers are exploring the creation of artificial muscles for use in robotic systems including unmanned underwater vehicles.

This technology may be capable of closely replicating the tail movements of pelagic fish (sharks) that enable high speeds. Such a propulsion system would not cause cavitation, making it difficult to identify as a non-biological.

Modular small arms weapon rack for cargo aircraft

The U.S. Air Force has designed and prototyped a modular weapon storage rack for the C-130 cargo aircraft.

In addition to using unused space, this new design allows the crew to visually account for the location of their personal weapons and focus on their primary tasks.

Our experts top 14 technology picks for February 2022 | TechLink (techlinkcenter.org)

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Asynchronous C2 and Multi-Device Capabilities in DON Networks

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Securing UxS Command and Control (C2) links is an authentic concern for the DoD. Yet, the development progression of UxS functionality and features from hobbyist to operational levels has been self-sabotaged by the application of communication link methods designed for stable office environments. In particular, classic internet-style point-to-point C2 link security protocols such as TLS, generally used for well-connected and reliable settings, have frequently been plugged into new autonomous system designs. These internet-style security C2 protocols are the current working paradigm in most systems across the Department of the Navy.

Such classical methods falter in denied, degraded, intermittent or limited (DDIL) environments. The waiting for connectivity scenario is familiar to many – frustrating lag time and reconnection delays are commonly subscribed to bandwidth or enigmatic technological issues. To further complicate the connectivity challenge, groups of UxS will become even heavier-laden if instantiated with a multitude of point-to-point connections.

The underlying challenge is that efficiency and connectivity requirements are not currently embedded with security requirements. The lack of interconnection of requirements has held back progression since each need is addressed in a silo. When a C2 option matching the security requirement is slotted in without consideration to the other aspects of the development-security-operations (DevSecOps) triad, it is the operator who bears the burden. Fortunately, a solution may be readily available for both reducing lost signal failures and addressing the autonomous group scenario looming in the not-too-distant future.

Industry organizations (such as Signal, Wire, Wickr and even Facebook Messenger) are already adopting asynchronous, continuous session communication links. Asynchronous C2 methods protect against communication channel tear-down common to classic, synchronous designs. Robustness against packet dropping and intermittent connectivity leads to more stable C2 links for DDIL environments. These new industry designs further offer security improvements over historical alternatives in contested environments that are under constant threat of a litany of cyberattacks. Continuous session security evolution implies that in the event of a cyberattack, data encrypted before the attack is protected; such C2 link designs even offer security recovery and automatic attacker lock-out immediately following the momentary success of the attacker. All of these features are built into the C2 link security selection itself.

Solving the challenge of C2 link security-with-efficiency not only implies better control for the operator, but it also increased reliability among UxS devices in groups and swarms. As the DoD and its competitors accelerate towards autonomy, alternatives for the multi-device scenario that are not point-to-point will come increasingly into the spotlight. The entity with the foresight to leverage modern alternatives to the archetypal selections will win with true command and control of the environment through secure, efficient and stable connections. Asynchronous, continuous group session C2 is the standard to pursue in order to achieve continuous operations in denied environments.

To address the unique needs and problems emerging from within the JADC2 space, the Navy must explore new means and methods. New technological developments in industry are uniquely capable of preventing the degradation of mission-critical information flows, unauthorized information release and denial-of-service. The Special Operations Forces have already trialed Wickr's version of the aforementioned design and deployed it in use. The Internet Engineering Task Force – which standardized the classic methods used for UxS development – is standardizing new technology for C2 security for groups of devices. The advantage of these developments is not by accident; it is strategic.

We must ensure they are incorporated into the Navy and Marine Corps' evolving network infrastructure. Within the end state of employing these new cryptologic developments, there is the

potential for any platform, weapon system, or sensor to securely, reliably and efficiently connect within not just the DoDIN-N, but the entire JADC2 architecture.

CHIPS Articles: Asynchronous C2 and Multi-Device Capabilities in DON Networks (navy.mil)

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STUDENTS:

Airborne Almighty: Examining the Role of Static Line Jumps in Army Special Operations

(Small Wars Journal 4 Feb 22) … Meg Tucker

I wish I could say an airborne operation is as exciting now as it was when I got my wings as a new Captain. Sadly, a familiar tedium has slowly replaced the thrill that once came with jump day. Today, my soldiers and I wait tentatively, crammed into the long benches that run the length of a dusty, oversized shoebox known as a jump shed. Jump masters are finalizing pre-jump checks. I have not seen my detachment sergeant, my right-hand man, in a few days. He has been performing jump master duties, and now darts around making final preparations. They ensure parachutes are properly packed, the harnesses tightly cinched to our bodies and static lines routed to avoid any unplanned midair amputations. It's a comforting thought, really. We have sat for over an hour in this rigged-up configuration, fighting the urge to use the facilities because doffing equipment is not an option.

I shudder imagining how many hours the 82nd Airborne soldiers, whose jump operations are much larger than ours, must spend practicing bladder Zen. We did pre-jump rehearsals in a gaggle on the Battalion lawn yesterday, awkwardly pantomimed the maneuver to escape power line entanglement, and got the don't-let-your-reserve-chute-rip-you-out-the-door brief for the umpteenth time. Stuck in the shed for now, I attempt to distract myself with a mental list of the million things I must do tomorrow, as today's a wash. When we're through, we will have jumped away a minimum of 400-man hours that could have been applied to training operational skills we actually use. Many times before, while sitting and waiting to jump, I've wondered if it was all worth it. After giving this question much thought, investigation and discussion with peers, my answer is a firm and confident "No."

It is time for U.S. Army special operations forces to redirect effort and resources away from airborne operations toward more urgent training needs in the 2021 battlespace. As an innovative organization, Army SOF is well-suited to lead in modernization, economizing assets and honing the most relevant capabilities. What better time than now to reexamine how SOF applies its resources, especially as the Department of Defense pivots to focus on Cold War 2.0?

The question of airborne relevance in the Army at large is nothing new. RAND Corporation gives it thorough and favorable treatment, arguing that the capability can be adapted for the future fight. Conversely, political scientist Dr. Marc Devore applies a robust critique on this topic in his 92-page report for The Army Press, likening airborne units to self-licking ice cream cones. Yet the brightest Army special ops minds have not meaningfully weighed in on the conversation despite the role of airborne operations as a gravitational force on all SOF training calendars. The legacy arguments to keep sustained airborne operations training across the formation do justice neither to the complexity of SOF mission sets, nor to the need for adaptability and combat relevance therein.

The Big Picture of Army Airborne

Perhaps the most commonly cited justification for keeping airborne in the Army at large is its deterrent effect in strategic competition. As such, airborne ops are regularly part of joint training exercises with U.S. allies. These exercises are often advertised as deterrent activities in American press releases, undoubtedly with the understanding that America's foes will study them. These exercises are designed, at least in part, to deter belligerent states or "encourage adversary restraint." The problem with the deterrence argument is that America's main adversaries already have this capability. For deterrence to work, a state's military power must pose a threat through more advanced capability or creating

a perception of this superiority. America and its adversaries maintain comparable airborne insertion and anti-air capabilities: there is not much upper hand to be found except in the former's arguably superior quick global air response.

In that vein, the air survivability aspect most strongly defeats any slim margin of deterrence the Department of Defense gains from maintaining airborne operations. Troop-filled aircraft are at extreme risk of being shot down by anti-air weapons while flying the low altitudes and slow airspeeds needed to safely drop their payload. The modern threat environment pits the most advanced anti air weapons ever known against a relatively unchanged airborne force. As Devore points out, "The spread of surface-to-air missiles and armored vehicles has rendered airborne operations extremely hazardous unless they are conducted against the least sophisticated opponents. For this reason, the only airborne operations conducted since the 1956 Suez Campaign have been against extremely weak enemies."

This hazard is likely the strongest reason commanders have not employed airborne in combat since the 173rd conducted a "mass tac" jump in 2003, under no enemy threat, into a drop zone Green Berets had already secured. There may be future situations where mass tac could be applicable, but not without extreme risk of casualties by anti-air. In those missions with minimal or no air-defense threat, other insertion options reduce risk of troop injury, separation, or disorientation, and mitigate weather impacts. The Army is maintaining a capability that its commanders wisely leave shelved.

Perhaps reminding the adversary that America maintains a particular capability justifies the deterrence argument. It is not outwardly threatening to maintain a matched asset, but at least it demonstrates zero capability degradation. This is probably why China and Russia maintain their own airborne capabilities. This point lends support to conventional Army forces keeping the airborne option in either the current or an adjusted form. Maybe it is "better to have it and not need it." Nonetheless, Airborne's mass applicability to Army special operations units, and maintaining this burgeoning task in an increasingly more irregular global battlespace, remains a target for intense scrutiny.

Airborne's Tenuous Place in Special Operations

While the topic of airborne is normally addressed in the bifurcated terms of "keep it or scrap it," considering it on a utility spectrum lends some nuance. On one end are units whose airborne ops are the core mission, rendering standard cost-benefit considerations moot. Imagine 1st Battalion, 507th Infantry Regiment on this end of the spectrum: it is the Army's paratrooper school, and therefore has no purpose without airborne. In the middle are units for which airborne enhances capabilities but also imposes significant tradeoff costs—consider all the Brigade Combat Teams in 82nd Airborne. Jump status maintains the designation and soldier currency, but these units mostly deliver troops to combat by other means, and soldiers primarily serve as infantrymen, or support to that effort. The far end of the spectrum is units whose airborne ops provide no mission enhancement while imposing negative impacts on training and readiness: U.S. Army SOF fall in the last category.

What makes airborne irrelevant for SOF? Foremost, much like in the broader Army, operators do not jump into combat via static line anymore. They are inserted into theater in conventional ways (e.g., air lift followed by ground transportation), and sometimes via unconventional ways, such as high-altitude low-opening or high-opening jumps. These jumps are most comparable to free-fall skydiving on the civilian side. In this configuration, the soldier deploys her own canopy.

Theoretically—and with proper training—military free-fall is safer and lower-impact because of more steerable parachutes, and due to the variance in insertion airspeed and altitude that mitigate air defense threats. MFF chutes also provide softer landings, without the requirement for an aircraft to pull the static line away from the soldier to deploy the chute. Unfortunately, the static-line method carries risk for brutal outcomes when things go wrong. While the tribes of Psychological Operations, Civil Affairs and Special Forces are all required to maintain airborne currency, only the Green Berets also maintain a military free-fall capability. The solution is simple: eliminate airborne to free up training time and funding for free-fall qualification in those units that may need it for upcoming combat deployments.

What makes airborne costly to special operations? It takes money, time, and key leaders away from vastly more important tasks. The airborne expense does not reflect responsible and mission-focused resource allocation. It is hard to imagine the price tag that comes with maintaining $150 a month in jump

pay per operator, parachute purchase and maintenance aircraft maintenance, fuel, and rigger pay and training.

The long-term medical costs are more incomprehensible. The U.S. Department of Veteran's Affairs must cover expenses for those operators that retire with disability claims from airborne injuries for the rest of the retirees' lives. Some are medically retired because they can no longer serve due to their injuries. Thus, the system pays to make an operator, wittingly breaks an operator, then pays for the fix indefinitely.

Lost training hours are a bit easier to figure. Per quarter, each unit dedicates about two hours for pre-jump refresher, five to twelve hours for jump operations, and anywhere from two to ten hours of duty per tasked jump master to prepare for a capability SOF has not used in nearly twenty years. Regular airborne operations re-direct a substantial amount of key leaders' finite time to support jump efforts, and when soldiers must convalesce from injury, also pose challenges to unit readiness. With thinning numbers to fill intense deployment cycles, operators are a rare and critical resource, yet they are regularly pulled off the real training mission to support airborne ritual.

What critical Army SOF missions are suffering because of airborne? The answer is all of them. It is no mystery that the American military is in a state of transition, moving mission focus away from "forever wars" in the Middle East and toward strategic, or great power, competition. It is past urgent time to focus on tradecraft. From personal perspective as a Psychological Operations leader, we have failed to win the narrative game in recent conflicts, and are falling woefully behind in competition with Chinese and Russian information operations. The Russian 2016 election meddling and Chinese narrative manipulation regarding Taiwan are just a few examples of these problems. Especially with the Psychological Operations Regiment building a new Information Warfare Center at 1st Special Forces Command, all resources need to be applied to the competition realm. Certainly, Special Forces and Civil Affairs also have more critical points of focus in the threat environment. The money, time, and key leader losses to ARSOF airborne training are unnecessary casualties.

A common but significant drain on unit resources is soldier injury. There is no question that jumping is inherently risky even in ideal conditions. Airborne landings cause significant musculoskeletal injuries, the primary reason soldiers are removed from deployment rotations. Though Army special operations use the steerable MC6, touted as a safer parachute than other versions, these chutes are still designed for expedient descent. This equates to a hard landing despite extensive parachute landing—or controlled fall—training. The community knows well that soldiers often do not report injuries to avoid losing jump status, pay, or deployment opportunities, so the numbers are likely higher than believed.

In the least severe injuries, soldiers may miss training to attend medical appointments and recover, detracting from deployment readiness. In some cases, a servicemember may be pulled off a team he has been training with for months. In the worst scenarios, commanders could force operators into medical retirement. While the Army typically does not release these statistics to the public, soldiers know said injuries are common. It is proper to acknowledge that injury and death can also occur during military free-fall training; but yet again, applying this more controllable and frequently-employed capability to fewer soldiers could significantly reduce risk across the SOF formation.

Airborne's Tenuous Role in Special Operations Culture

Some have defended airborne in SOF as a key part of the culture, claiming that it adds to the unit's "eliteness." The reality is that these units are remarkable irrespective of airborne operations. The concept of special ops "eliteness" conjures ideas of unique skills and training, high intellect, performance under pressure, and extreme courage, cognition, and endurance. While these characteristics apply to some paratroopers willing to jump from the proverbial "perfectly good airplane," they do not apply to everyone. In fact, the Army airborne school produces about 14,000 paratroopers annually: a key principle of Army SOF is that special operations forces "cannot be mass produced." What makes the organization elite primarily lies outside of airborne parameters.

Similarly, some airborne advocates argue that it builds esprit de corps. Yet one can find the real bonding agent in the nature of special operations missions. Frankly, quarterly jump operations hold no candle to the sense of community built in a SOF detachment. Operators train in extremely small, tight-

knit teams, leaving their families and the comforts of home to deploy to the most dangerous regions of the world and do the DoD's bidding. They live, work and fight as a family in extremely challenging conditions.

That airborne develops SOF leaders is another recurrent argument. While airborne leaders are critical to safe and effective jump operations, these skills extend little beyond technical and planning aspects. The principal leader development comes in executing one's core specialization. Special operations troops are not only technical experts in their roles and in planning, but they also manage extreme responsibility and travel in high-ranking circles of both American and allied forces when deployed. It is common for mid-grade SOF noncommissioned officers to work with diplomats and military leaders several echelons above them in rank. They develop and manage subordinates, communicate effectively, navigate tense situations, and endure immense stress, all in politically sensitive environments where a simple mistake can have catastrophic strategic impact. Simply put, SOF develops extraordinary leaders with or without airborne operations.

Waving Off the Jump

In the year 2022, the U.S. Army will not have started the next chapter in its story: it will have picked up a whole new book. Gone are the days of protracted counterinsurgency in the purgatorial Middle East. The resources and planning emphasis already being reallocated to strategic competition are sobering. It is time for Army SOF leaders to take a hard look at the organization, and recognize we are wasting time, money, and human capitol on an irrelevant capability that commanders will likely never used again.

The sunk cost constituency would disagree. They would say it is a waste of a massive investment, an argument that has undoubtedly echoed for years across conference rooms to influence key decision-makers. Yet recent failures in Afghanistan have taught us to abandon this fallacy. It would be a mistake to sit idly by while America's greatest adversaries adapt to the environment and develop relevant capabilities. Recent history could repeat if Army SOF does not reallocate investments that build competitive capacity on the global scale.

What about airborne's role in the broader Army? Though that question is beyond the scope of this piece, points herein could contribute to the conversation. Sooner or later, the Army at large must conduct the cost-benefit analysis. It may be most sensible to keep initial airborne qualification as a capability-in-reserve, for leader development or soldier incentive, while dissolving sustained training requirements. There are, after all, thousands of air-assault qualified soldiers who have not rappelled from a helicopter since just before they pinned their wings. They wear the badge, nonetheless. Pathfinder qualified soldiers continue to sport their badges as well, despite the Army eliminating the school.

No remedy is strong enough to heal the airborne love spell. However, if critical thinking is not dead, it's worthwhile to entertain a change that is radical in theory but logical in practice. The affection some have for airborne is undeniable, and for good reason. It is genuinely an institution, rife with history and honor—but so was the U.S. horse-mounted Calvary. After all, the Army kept the Stetsons and got rid of the horses. Army SOF can keep the heraldry and still hang up the static line.

Major Meg Tucker has been in the Army for ten years, serving first as a Kiowa Warrior pilot in the 82nd Airborne Division, then as a Psychological Operations officer in 1st Special Forces Command (Airborne). She is Airborne, Air Assault and Accelerated Free-Fall qualified, and has commanded two PSYOP Detachments in SOUTHCOM and CENTCOM. She has been published in Special Warfare Magazine and CrossFit Journal and served as a panelist for the Special Warfare Center Commanding General's Distinguished Lecture Series in 2020. She is currently pursuing a Master of Science degree in Information and Political Warfare at the **Naval Postgraduate School**.

Airborne Almighty: Examining the Role of Static Line Jumps in Army Special Operations | Small Wars Journal

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FACULTY:

Cybersecurity Experts Prepare for Russian Cyberattacks on Ukraine, as Tensions in Region Rise [Radio Segment]

(Wbur 3 Feb 22)

The United States and its allies continue to express concern about the buildup of Russian troops near the border with Ukraine — but less obvious and equally concerning is the prospect of cyberattacks.

Earlier this week, the U.S. sent its top cybersecurity official to NATO in a joint mission to prevent and thwart cyberattacks on Ukraine. There's also concern that sanctions on Moscow could spark retaliatory cyberattacks in the U.S.

So how serious are these threats and is the U.S. adequately positioned to defend against them? Here & Now's Lisa Mullins talks to John Arquilla, a defense analyst at the U.S. **Naval Postgraduate School** and author of the recent book "Bitskrieg."

Cybersecurity experts prepare for Russian cyberattacks on Ukraine, as tensions in region rise | Here & Now (wbur.org)

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COMMUNITY:

Drills Underway at Monterey Naval Base

(Monterey Herald 1 Feb 22) … Dennis L. Taylor

Monterey Peninsula residents who are beginning to see more traffic and security measures around the Naval Support Activity Monterey base shouldn't be alarmed – it's only a drill.

Naval Support Activity Monterey, which is the base that houses the **Naval Postgraduate School**, is conducting annual drills to ensure on-base security is ready for any potential threat that takes place on the base.

"This comprehensive training exercise affords our team an opportunity to generate readiness in light of potential hazards," said Capt. Paul Dale, Naval Support Activity Monterey's commanding officer, in a press release.

Base public affairs officer John Hoellwarth said the exercises began Monday and will run through Feb. 11.

Exercise Citadel Shield-Solid Curtain 2022 is conducted annually by the commanders of U.S. Fleet Forces Command and Navy Installations Command on all Navy installations in the continental U.S. It is not being conducted in response to any specific threat.

The "hazards" Capt. Dale referred to can be any number of things, from an active shooter to a scenario like a vehicle crashing through one of the base's two gates. The exercises will be conducted on base, but may result with either the gate on Sloat Avenue or on Del Monte Avenue being shut down for extended periods of time, potentially creating heavy traffic along those streets.

There will be no beach or ocean exercises conducted.

The Navy takes these exercises seriously. Any sailor or Marine remembers well the December 2019 terrorist attack on Naval Air Station Pensacola in Florida. Mohammed Saeed Alshamrani, an aviation student from Saudi Arabia, shot and killed three service members and injured eight others before he was shot and killed by local law enforcement personnel.

Al-Qaeda in the Arabian Peninsula claimed responsibility.

Motorists entering the base will experience new security protocols and equipment, such as inspections of the undercarriage of vehicles. Employees could experience base lockdowns as well.

Citadel Shield, which is currently being conducted, focuses on scenarios that could play out locally. Solid Curtain, which begins next week, is an exercise led by the Naval Fleet Forces Command that focuses on integrated responses between commands and security forces across the country.

The base will be posting updates on the impacts of the exercise on its Facebook page at Naval Support Activity Monterey | Facebook.

Drills underway at Monterey naval base – Monterey Herald

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ALUMNI:

Fogerson Graduates From Navy Leadership Class

(Record Courier 4 Feb 22)

Nevada Emergency Manager and former East Fork Deputy Chief Dave Fogerson completed the Executive Leaders Program at the **Naval Postgraduate School** Center for Homeland Defense and Security on Feb. 3.

Fogerson has been the state's emergency manager since October 2020 when he came from the East Fork Fire Protection District.

He is a public safety professional with 30 years of experience and is certified as an emergency manager both nationally and in Nevada.

As the state's emergency manager and Homeland Security chief, Fogerson oversees Nevada's resilience toward disasters and terrorist incidents with a dedicated team of state and local emergency managers

He holds a masters of public administration, with an emphasis in emergency management.

The Nevada Division of Emergency Management and Homeland Security is an agency of the Nevada Office of the Military under Major Gen. Ondra Berry.

During the 12-month program, Fogerson collaborated with homeland security officials from across the nation on current policy, strategy, and organizational design challenges.

The **NPS**-CHDS students represent a snapshot of the homeland security enterprise, including professionals from the fields of emergency management, education, law enforcement, fire service, homeland security, public health, and city/county government.

Located at the **Naval Postgraduate School**, CHDS is the nation's homeland security educator. ELP develop critical thinking, leadership, and policy skills during a rigorous 12-month program. CHDS is sponsored by the U.S. Department of Homeland Security, National Preparedness Directorate, within the Federal Emergency Management Agency.

For information, visit www.chds.us.

Fogerson graduates from Navy leadership class | Serving Minden-Gardnerville and Carson Valley (recordcourier.com)

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