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## DEFENSE POLICY NEWSLETTER

July 1, 2019 | Lewis-Burke Associates LLC

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## ON THE FRONT LINES

### Lewis-Burke Hosts Army Futures Command Workshop

Lewis-Burke Associates recently hosted representatives from the Army Futures Command (AFC) to discuss AFC's goals and how universities can contribute to solving the challenges facing the Army. AFC representatives included Adam Jay Harrison, Command Innovation Officer of Army Futures Command, John Eicke of the Army Research Laboratory's Office of Strategy Management, and Christopher Zember, Vice President for Advanced Technology Operations at Alion Science and Technology, which supports the Army. A consistent theme during the workshop was the Army's desire to better facilitate communication between the military and academia, two communities with different interests and challenges, to help the research community better understand the challenges the Army is trying to solve. AFC also discussed its goals for the new command and solicited ideas for how it can work with the university community.

## VIEW FROM THE HILL

### Senate Passes FY 2020 Defense Authorization Bill; HASC Sends Its Version for Floor Consideration

Both the House and Senate Armed Services Committees (HASC, SASC) approved their versions of the fiscal year (FY) 2020 *National Defense Authorization Act* (NDAA) last month, setting in motion full consideration in their respective chambers with a goal of passage this summer. The Republican-controlled Senate handily passed its NDAA on June 27 by a vote of 86-8, setting up the bill for disagreements with the Democrat-controlled House over the total spending level, nuclear capabilities, and other policy issues. The House is accepting amendments to their bill in anticipation of considering it

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funding and provisions aimed at aligning technology development with policy formulation; increasing support for scientific research on artificial intelligence/machine learning, quantum information sciences, hypersonics, and biotechnology; strengthening efforts to develop the STEM workforce and promote diversity; and protecting the defense research enterprise from foreign influence.

The SASC NDAA would authorize Research, Development, Test, and Evaluation (RDT&E) at \$104 billion and the HASC NDAA would authorize RDT&E at \$100.7 billion, a 13.4 and 9.8 percent increase, respectively, above the FY 2019 NDAA-enacted level. The notable difference between the two versions is the Senate's continued support for the President's priorities and top-level funding number of \$750 billion, while the House bill would authorize funding at \$733 billion. The House bill demonstrates HASC Chairman Adam Smith's (D-WA) priorities, including limiting the proliferation of nuclear weapons and forbidding military construction funds to be used to construct a wall along the southern border. In a win for universities and the research community, the HASC NDAA would reject the Administration's proposed cuts to basic and applied research, and the SASC NDAA would provide increases to basic research (6.1) for the Army, Air Force, and Defense-wide accounts. The House and Senate bills continue to support many of the research priorities evangelized by Under Secretary of Defense for Research and Engineering (USD(R&E)) Mike Griffin. Both NDAA bills prioritize efforts in cybersecurity through varying provisions and show a concern for the future of the defense workforce and responding to emerging threats and technical capabilities.

The NDAA authorizes funding for DOD programs, but it is ultimately up to the House and Senate Appropriations Committees to allocate funds for FY 2020. The House Appropriations Committee has made quick work of its appropriations bills and approved the DOD spending bill on May 21. This bill included a 6.1 percent increase for RDT&E. The Senate has been slow to start its appropriations process due to a lack of a bipartisan budget deal and Senate Majority Leader Mitch McConnell (R-KY) has suggested he will not set his own spending limits without an agreement between the House and White House.

*Sources and Additional Information:*

- For full details of each chamber's NDAA, the House FY 2020 NDAA report is available [here](#).
- The House Armed Services Committee Subcommittee on Intelligence and Emerging Threats and Capabilities report for the FY 2020 NDAA is available [here](#).
- The Senate FY 2020 NDAA report is available [here](#).
- Lewis-Burke's full analysis written on June 13 can be found [here](#).

## NATIONAL SECURITY NEWS

### Key Defense Leadership Changes Breed Uncertainty for Research Initiatives

The Pentagon is starting to feel more like a hop-on, hop-off bus tour in the wake of a

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and prototyping. The changes, starting with the high-profile resignation of Acting Defense Secretary Patrick Shanahan and withdrawal of his nomination as Secretary of Defense, have created a slate of “acting” defense officials. There is also speculation about additional departures, including [reports](#) that Under Secretary of Defense for Research and Engineering (USD(R&E)) Mike Griffin may be on his way out.

Shanahan announced his resignation and withdrew from Cabinet consideration June 18 following the publication of reports of alleged domestic violence incidents within his family years earlier. Army Secretary Mark Esper, Raytheon's former vice president of government relations and graduate of the U.S. Military Academy at West Point, assumed the role of Acting Secretary of Defense on June 24. He issued a [memorandum](#) to all DOD employees that day outlining his priorities and reaffirming the objectives of the National Defense Strategy, as well as describing plans to expand its lines of effort.

The list of “acting” DOD leaders also includes:

- David Norquist, Pentagon comptroller who is performing the duties of the deputy defense secretary
- Ryan McCarthy, Army undersecretary who is acting Army secretary
- Jim McPherson, Army general counsel who is performing the duties of Army undersecretary
- Matthew Donovan, Air Force undersecretary who is acting Air Force secretary
- John Roth, Air Force comptroller who is performing the duties of the Air Force undersecretary

President Trump said June 21 he intends to nominate Esper, Norquist, and McCarthy for the posts in which they are acting but those nominations have not been sent to Congress at the time of this writing. The White House also intends to nominate Dana Deasy to the position of DOD Chief Information Officer, which is his current job, but now requires Senate confirmation per a provision in the fiscal year (FY) 2019 *National Defense Authorization Act* (NDAA).

Deeper in the DOD research and engineering organization, additional resignations came as a surprise and raised questions about their causes and the fate of nascent DOD prototyping and rapid fielding organizations. Chris Shank, Director of the Strategic Capabilities Office (SCO) – created by former Defense Secretary Ash Carter to rapidly mature capabilities for the warfighter– resigned [abruptly](#) after being told his office would be transferred to DARPA. Both the House and Senate Armed Services Committees included language in their respective versions of the FY 2020 NDAA restricting the move. David Honey, a special assistant to the DARPA director with roots in the Intelligence Community, is reported to be replacing Shank until a new SCO director is appointed.

Fred Kennedy, who left DARPA four months ago to lead the newly created Space Development Agency (SDA) within USD(R&E), also resigned abruptly in late June to return to DARPA, following reported disagreements with Under Secretary Griffin. The

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and opportunities being planned within SDA. At an Air Force Association Mitchell Institute event on June 14, Kennedy stressed the need to look at the value of mass production as it applies to space and said he believed bringing government funding to the commercial sector would reignite interest in the younger community to work in space again. Kennedy said his small staff, which had just brought on one other government employee, would deliver an architecture to the Secretary of Defense by the end of the summer, conduct space-based demonstrations in FY 2020, and deliver the first operational capability in FY 2022.

Derek Tournear, who most recently worked at Harris Corporation and is a former DARPA program manager, was recently appointed by Griffin as the Assistant Director for Space under USD(R&E) and will take on the additional responsibility as acting director of the Space Development Agency.

### **DARPA Hosts Discover DSO Day and Releases Office-wide BAA for Research and Technology**

The Defense Advanced Research Projects Agency (DARPA) hosted a Discover DSO Day (D3) on June 18 to outline the technical research areas for this year's Defense Sciences Office (DSO) office-wide broad agency announcement (BAA). Lewis-Burke Associates staff attended the D3 event, which provided a broad overview of DSO's mission and best practices for successful, expedited proposals. The D3 event also shared [presentations](#) on DSO's four technical areas of interest, outlined in the BAA below. The June Discover DSO newsletter can be found [here](#) and the contact list for the event can be found [here](#).

In conjunction with the D3 event, DSO released its annual office-wide BAA for research and technology development, emphasizing the creation of disruptive technologies to protect national security. DARPA DSO seeks innovative proposals in basic or applied research in one or more of its four technical domains: (1) Frontiers in Math, Computation and Design, (2) Limits of Sensing and Sensors, (3) Complex Social Systems, and (4) Anticipating Surprise. Executive summaries and abstracts are strongly encouraged prior to submitting a full proposal, and full proposals are accepted on a rolling basis through **June 12, 2020 at 4:00 pm ET**. The full solicitation can be found on [www.grants.gov](http://www.grants.gov) under solicitation number "HR001119S0071."

### **DARPA's Defense Sciences Office Adds New Deputy Director, Program Managers**

Lt. Col. Philip Root was named deputy director of the Defense Advanced Research Projects Agency (DARPA) Defense Sciences Office (DSO) this June, replacing Dr. Mark Rosker, who became Director of DARPA's Microsystems Technology Office (MTO) in April 2019. Lt. Col. Root was previously a program manager in DARPA's Tactical Technology Office (TTO), overseeing research that integrates automation and military operations. He will still oversee the Squad X and Urban Reconnaissance through Supervised Autonomy programs in his new role. Prior to his work at DARPA, Root was the director of the Center for Innovation and Engineering at the U.S. Military Academy at West Point and was responsible for cadet and faculty research to support Army operations. As an officer, Root

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Science from MIT and is a graduate of the U.S. Military Academy. Additional information about him is available [here](#).

DARPA DSO also added two program managers:

- **Dr. Bartlett Russell**, a former senior program manager and human systems and autonomy research lead at Lockheed Martin's Advanced Technology Laboratories, joined DSO as a program manager this April. Russell's work will focus on understanding human cognitive and social behavior to help decision making, analytics, and assist in the generation of autonomous and AI systems. Bartlett holds a doctorate in neuroscience and cognitive science from the University of Maryland, College Park, a master's degree in security studies from Georgetown University, and a bachelor's degree from Northwestern University. Additional info can be found [here](#).
- **Dr. Mark Wroebel**, a former lead program manager for the Department of Homeland Security's (DHS) Countering Weapons of Mass Destruction Office, recently joined DSO as a program manager. At DHS, Wroebel managed a research portfolio that included advanced nuclear and radiological detection technologies. At DARPA, his research interests include development of new capabilities for detecting and interdicting national security threats associated with all types of weapons of mass destruction, which include chemical, biological, radiological, and nuclear weapons. Wroebel is a retired U.S. Air Force officer, where his field of focus was with health physics and radiological engineering. He holds a Ph.D. in environmental health sciences from the University of Michigan and holds both a master's and bachelor's degree in nuclear engineering from Rensselaer Polytechnic Institute.

### **Air Force Research Laboratory Breaks Ground on New Laboratory**

The U.S. Air Force [broke ground](#) on a \$12.8 million facility on June 6 at Kirtland Air Force Base, NM. The facility will play a pivotal role as the Air Force Research Laboratory's (AFRL) Space Control Laboratory. Officials say that the new lab will consolidate existing efforts being conducted across the New Mexico base. The construction of this project falls in line with wider efforts in the administration's plan for a proposed space force.

Colonel Eric Felt, director of the Space Vehicles Directorate at the base, said that the new lab will focus its research efforts on space warfighting technology and contain specialized labs and equipment. The Space Control Lab will also help the Air Force address threats from other countries, such as anti-satellite weapons, and from space, such as asteroids. The facility plans to include office and lab space for 65 civilian and military contractors and spans across 26,000 square feet for labs, offices, and secure administrative spaces. Officials say the lab is scheduled to be completed in July of next year.

## **FUNDING AND ENGAGEMENT OPPORTUNITIES**

### **DOD Releases Annual Solicitation for Vannevar Bush Faculty Fellowship**

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is intended to attract and engage the best and brightest in academia to conduct a range of basic, unclassified research in areas of interest to DOD. DOD also utilizes the VBFF program to foster long-term relationships with outstanding academic researchers and increase the number of technical experts working on defense-related problems. Proposals are invited in the following DOD basic research areas:

- Engineering biology
- Quantum information science
- Cognitive neuroscience
- Novel engineering materials
- Applied mathematics
- Other fields of research with high potential (more information included below)

DOD is accepting white papers until **August 16, 2019 at 11:59 PM EDT** and full proposals will be by invitation only and are due **January 17, 2020 at 11:59 PM EST**. DOD anticipates that the maximum award will total \$3 million over five years. The full solicitation can be found at [www.grants.gov](http://www.grants.gov) under solicitation number "N00014-19-S-F010."

### **Military Health System Releases First Health Services Research Funding Opportunity**

The Department of Defense (DOD) Military Health System (MHS) released a new funding opportunity announcement (FOA) for Health Services Research (HSR) for fiscal year (FY) 2019. This is the first ever HSR opportunity and is focused on "how social factors, financing systems, organizational structures and processes, health technologies, and personal behaviors affect access to health care, the quality and cost of health care, and ultimately health and well-being." This funding opportunity follows the reorganization and consolidation of DOD's healthcare delivery services under a single management structure, as mandated by the FY 2017 *National Defense Authorization Act* (NDAA). Priority research topics include impact of health system mergers; healthcare cost and economics; variations in quality and outcomes of healthcare delivery; health readiness; and variations in outcomes associated with health risk factors or geography.

This is a unique FOA that responds to current needs of the Department. Subsequent FOAs on the same topic are not guaranteed. Faculty with expertise in the topic areas should strongly consider applying. Letters of intent (LOIs) are required and due by **July 12 at 12:00 PM ET**, and if invited to submit, full proposals are due by **August 23 at 12:00 PM ET**. Please note that there is a limit on submissions. Only two LOIs are permitted per PI and organization, and only one proposal application from a PI and organization will be considered. The FOA is available [here](#).

### **Registration Open for the Military Health System Research Symposium**

The [registration](#) for the Military Health System Research Symposium (MHSRS) is now open. The MHSRS is the Department of Defense's (DOD) annual meeting to discuss "military-unique research and development," focusing on military medicine. The Symposium will be **August 19-22, 2019**, at the Gaylord Palms Resort and Convention

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This year, MHSRS will feature breakout sessions on infectious disease, occupational and environmental exposures, hemorrhage control and blood/blood products, autonomous medical systems, human performance optimization, psychological health, and many others. In addition to DOD officials, the officials from the Department of Health and Human Services are often present. The Symposium offers an opportunity for academia to engage with program managers and DOD officials, who are often hard to reach, on military biomedical and health-related research topics. Details on the submission process, topic areas and descriptions, and information on the 2019 MHSRS are available [here](#).

### **ONR Releases FOA for Young Investigator Program**

On June 21, the Office of Naval Research (ONR) released its fiscal year (FY) 2020 funding opportunity announcement (FOA) for the Young Investigator Program (YIP). This popular program, which is also offered by other Department of Defense (DOD) agencies, including the Army Research Office (ARO) and the Air Force Office of Scientific Research (AFOSR), provides early career university faculty a path into the Navy's research enterprise through multi-year research grants. With this program, ONR identifies promising young tenure-track faculty who demonstrate the ability to deliver innovative research aligned with ONR's research priorities.

DOD will accept any proposals that address research areas outlined in ONR's broad research portfolio that are of interest to ONR program managers. A complete list of topics of interest to each of ONR's five departments – Information, Cyber and Spectrum Superiority (Code 31); Ocean Battlespace and Expeditionary Access (Code 32); Mission Capable, Persistent and Survivable Naval Platforms (Code 33); Warfighter Performance (Code 34); and Aviation, Force Projection and Integrated Defense (Code 35) – is available on ONR's science and technology homepage located at [here](#).

Proposals should be submitted through [www.grants.gov](http://www.grants.gov) no later than **August 16, 2019 at 11:59 EST** under solicitation number "N00014-19-S-F008." Applicants are strongly encouraged to contact the program manager in their technical area to discuss their research ideas before submitting a proposal. Proposers may also send brief, informal pre-proposals to their designated ONR program officer and copy [ONRYIP@navy.mil](mailto:ONRYIP@navy.mil).

### **ONR Releases Special Notice on AI/ML Enabled Capabilities**

On June 25, the Office of Naval Research (ONR) released a special notice for research to support artificial intelligence/machine learning (AI/ML) enabled capabilities for naval operations. The notice was released under ONR's long-range broad agency announcement (BAA). The Navy ultimately seeks to develop AI systems that can assist in decision making to support mission planning, re-planning and execution of naval missions, including AI-enabled capabilities for command & control, logistics, intelligence, and training. This special notice is only focused on applications of developed AI/ML methods. Research pertaining to new AI/ML techniques is not of interest to this special notice, though it may be supported under a future opportunity on the Science of AI.



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- Analysis of Factors Affecting Possible Courses of Action (COA)
- Enemy Course of Action (ECO) Development
- COA/ ECOA Assessment and Comparison
- Intelligence Estimation
- Logistics Estimation
- Communication/ Deception
- Planning and Tasking
- Provide for Coordination
- Underlying Support Services
- AI Enablers

White papers are strongly encouraged, but not required, and should be submitted via email to [Martin.Kruger1@navy.mil](mailto:Martin.Kruger1@navy.mil) no later than **July 15, 2019**. Full proposals should be submitted under the full Long-Range BAA through [www.grants.gov](http://www.grants.gov), under solicitation number "N00014-19-S-B001," no later than **September 6, 2019**. ONR anticipates funding five to 15 individual awards ranging from \$1 million to \$3 million per year, with a performance period of two to four years. The special notice is located [here](#) or at [www.grants.gov](http://www.grants.gov) under solicitation number "N00014-19-S-SN07."

### **ONR Releases Special Notice on the Science of Artificial Intelligence**

The Office of Naval Research (ONR) released a special notice on June 28 to solicit basic and applied research proposals for new artificial intelligence (AI)-based techniques to advance future naval applications. The overall science and technology (S&T) efforts will fall within the Technology Readiness Level (TRL) range of 1-5, which covers basic research to prototyping and experimentation.

ONR is specifically seeking AI research proposals in eight fundamental and/or applied research topics:

- AI for Predictive Maintenance
- Rapid Learning of Task Procedures
- Scalable Verification and Validation Tools for Artificial Intelligence in the Naval Domain
- Brain-Inspired Deep Learning with Spiking Neurons
- Brain-based computation
- Explainable AI Systems
- Mission-focused AI
- Predictive Adaptations to Support Human Performance and Injury Prevention

White papers are strongly encouraged, but not required, and are due on **August 15, 2019 no later than 2:00pm EST**. Full proposals are due on **October 15, 2019 no later than 2:00pm EST**. Decisions are anticipated to be made by **November 2, 2019** and awards are anticipated to begin on **March 1, 2020**. The full solicitation can be found at [www.grants.gov](http://www.grants.gov) under solicitation number "N00014-19-S-SN08."

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(DSO) recently [announced](#) its Gamma Ray Inspection Technology (GRIT) program which seeks “novel approaches to achieve high-intensity, tunable, and narrow-bandwidth sources of gamma ray radiation.” Approaches should enable a wide range of national security, industrial, and medical applications through advanced accelerator technology, high-energy laser systems, novel control systems, and new x-ray and gamma ray detector technology.

DARPA will hold a proposers day [webinar](#) on **July 8, 2019 at 2:00pm ET** for interested participants and will post slides the following day. The GRIT proposers day solicitation can be found on [www.fbo.gov](http://www.fbo.gov) under solicitation number “DARPA-SN-19-59.”

### **DARPA TTO Releases BAA for Disruptive Capabilities for Future Warfare**

The Defense Advanced Research Projects Agency (DARPA) Tactical Technology Office (TTO) released its BAA for disruptive capabilities for future warfare. DARPA TTO seeks technology proposals that challenge the architecture of combat, specifically in the areas of:

- Air systems (undeterrable air presence)
- Ground Systems (break the symmetry of ground combat)
- Maritime Systems (stand-in power projection and application from the sea)
- Space Systems (proliferated architecture of commodity spacecraft, sensors, and systems)

Executive summaries and abstracts are strongly encouraged prior to submitting a full proposal, and full proposals are due on **June 11, 2020 by 4:00 pm ET**. The full solicitation can be found on [www.grants.gov](http://www.grants.gov) under solicitation number “HR001119S0054.”

### **DARPA Announces Virtual Intelligence Processing (VIP) Opportunity for Artificial Intelligence**

The Defense Advanced Research Projects Agency (DARPA) has issued an Artificial Intelligence Exploration (AIE) opportunity for third wave AI basic and applied research. DARPA’s Virtual Intelligence Processing (VIP) program seeks to explore mathematical and computational approaches, including algorithms and models, that will contribute to next generation processors and the third wave of AI. The VIP program lasts 18 months and is expected to begin on September 17, 2019. Proposals are due on **July 15, 2019 at 4:00 pm ET**. The full solicitation can be found on [www.fbo.gov](http://www.fbo.gov) under solicitation number “DARPA-PA-18-02-08.”

### **IARPA Releases RFI for Data Sources for Technology Performance Prediction**

The Intelligence Advanced Research Projects Activity (IARPA) released on June 12 a request for information (RFI) on Seeking Data Sources for Technology Performance Prediction. The RFI seeks information on datasets that “document the historical performance of technologies.” IARPA is interested in all technology areas, but especially in AI, collection and sensing, communication, computing, cybersecurity, energy and power, human performance modification, materials, quantum sciences, and space

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19-07.”

### **IARPA Releases RFI for System-Level Application Modeling**

The Intelligence Advanced Research Projects Activity (IARPA) released on June 25 a request for information (RFI) on System-Level Application Modeling (SLAM). The RFI seeks information on future modeling and simulation (ModSim) research for large-scale computational and data-analytic applications. The RFI includes specific research disciplines, including high-fidelity techniques, AI and ML methods, unified modeling of performance, power, and resilience, and other types of modeling priorities. Responses to the RFI are due on **July 29, 2019 no later than 4:00pm EST**. The full solicitation can be found on [www.fbo.gov](http://www.fbo.gov) under solicitation number “IARPA-RFI-19-08.”

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## **WHAT WE'RE READING**

### **Critical Update: Inside DARPA's DARPA**

*NextGov* interviewed Valerie Browning, director of DARPA's Defense Sciences Office (DSO) to discuss future technology that will be shaping the direction of society and the military. Browning outlined her opinions on the future of quantum computing and artificial intelligence, while also expressing her belief that more government research funding does not necessarily mean more results. The full 20-minute interview can be accessed [here](#).

### **Beating the Americans at Their Own Game: An Offset Strategy with Chinese Characteristics**

The *Center for a New American Security* (CNAS) published an article authored by former Deputy Secretary of Defense Bob Work and Greg Grant, Work's former special assistant, comparing strategies used during the Cold War with the approaching arms race against Russia and China. Work is known as the architect of the Pentagon's Third Offset Strategy to maintain military dominance against adversaries through technological superiority and cost-imposing capabilities. They argue that the Chinese have rapidly invested for the past two decades to achieve technological parity with the U.S. and avoid a similar fate to the Soviet Union. The full article can be accessed [here](#).

### **A Federal Strategy to Ensure Secure and Reliable Supplies of Critical Minerals**

The Department of Commerce, in response to President Trump's December 2017 Executive Order, released the “Federal Strategy to Ensure Secure and Reliable Supplies of Critical Minerals.” The strategy warns that the U.S. over-relies on importing critical minerals that are vital to commercial products and military systems. Among other recommendations, the strategy has a call to action to advance transformational research and development pertaining to critical minerals, including:

- “Diversifying domestic critical mineral sources;
- More efficiently processing, manufacturing, and recycling critical minerals to minimize waste and increase supply; and
- Developing alternatives to critical minerals.”

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