Workshop Speaker Bios (Click to follow):

Dr. Raymond O'Toole

Dr. O'Toole is the Acting Director, Operational Test and Evaluation as of January 20, 2021. Dr. O'Toole was appointed as the Principal Deputy Director, Operational Test and Evaluation in February 2020. In this capacity he is the principal staff assistant for all functional areas assigned to the office. He participates in the formulation, development, advocacy, and oversight of policies of the Secretary of Defense and in the development and implementation of test and test resource programs. He supports the Director in the planning, conduct, evaluation and reporting of operational and live fire testing. He serves as the Appropriation Director and Comptroller for the Operational Test and Evaluation, Defense Appropriation and the principal advisor to the Director on all Planning, Programming, and Budgeting System matters.

Dr. O'Toole is the former Deputy Director for Naval Warfare within DOT&E. He oversaw the operational and live-fire testing of ships and submarines and their associated sensors; combat and communications systems, and weapons. He was also responsible for overseeing the adequacy of the test infrastructure and resources to support operational and live-fire testing for all acquisition programs across the Defense Department.

Dr. O'Toole was previously an employee of the Naval Sea Systems Command as the Deputy Group Director of Aircraft Carrier Design and Systems Engineering. Prior to that, he was the Director of Systems Engineering Division (Submarines and Undersea Systems) where he led a diverse team of engineers who supported all Submarine Program Managers. His other assignments include being a Ship Design Manager/Navy's Technical Authority for the USS VIRGINIA Class submarines during design and new construction and for Amphibious Ships, Auxiliary Ships, and Command & Control Ships during inservice operations.

Dr. O'Toole has also held other positions within the Department of Defense such as Deputy Program Executive Officer (Maritime and Rotary Wing) at the United States Special Operations Acquisition Command, Staff to the Deputy Assistant Secretary of the Navy for Research, Development & Acquisition (Ship Programs), and Deputy Director of Regional Maintenance for COMPACFLT (N43).

In addition, Dr. O'Toole has over 30 years of experience as a Naval Officer (Active and Reserve) retiring at the rank of CAPTAIN. His significant tours include 5 Commanding Officer tours.

Dr. Raymond D. O'Toole, Jr. is a native of Long Island NY and a graduate of the State University of New York - Maritime College earning a Bachelor of Engineering in Marine Engineering. He also holds a Master of Engineering Degree in Systems Engineering from Virginia Polytechnic Institute and State University, a Master of Science Degree in National Resource Strategy from the Industrial College of the Armed Forces, and a Doctorate in Engineering in the field of Engineering Management from the George Washington University, where he is now a Professional Lecturer of Engineering Management and Systems Engineering. He has received the SECDEF Meritorious Civilian Service Award and the USN Meritorious and Superior Civilian Service Awards.

Dr. Dana “Keoki” Jackson (NAE), Chair

Keoki Jackson (NAE), is the Chief Technology Officer at Lockheed Martin, where he is responsible for the corporation’s advanced technology strategy. As the primary liaison to the United States and international science and technology community, he manages strategic relationships with government, industry and academia to ensure the maturation and deployment of cutting-edge technologies. Prior to this role, Dr. Jackson served as the vice president for Program Excellence, where he was responsible for the cross-functional integration of five corporate councils for engineering and technology, production, program management, supply chain and sustainment. Dr. Jackson’s previous roles include vice president for Navigation Systems and program manager for Global Positioning System (GPS) III at Lockheed Martin’s Space Systems Company, and technical and leadership positions in space-based communications, navigation and missile warning. Dr. Jackson was also a NASA research fellow at the Massachusetts Institute of Technology (MIT) in the field of human adaptation to the space environment. He received bachelors, masters and doctoral degrees in Aeronautics and Astronautics from MIT, and completed the Stanford Executive Program at the Stanford Graduate School of Business.

Mr. William "Bruno" Millonig

William “Bruno” Millonig currently serves as a scholar and Board Director at the National Academy of Sciences. Prior to this role, Mr. Millonig served as the acting Director of National Intelligence for Science and Technology in the Office of the Assistant Director for Acquisition, Technology and Facilities at the Office of the Director of National Intelligence. Appointed in November 2017, Mr. Millonig was responsible for guiding the Intelligence Community’s (IC’s) scientific and technological integration through effective strategies, policies, and programs that ultimately allow the IC to close intelligence gaps. Prior to this position, he oversaw the Defense Intelligence Agency headquarters’ research and development, technical collection, and analytic responsibilities in support of the nation’s space and counterspace situational awareness. He also served as chief, National Measurement and Signature Intelligence (MASINT) Office, and chairman, National MASINT Committee. A command pilot with more than 4,800 flight hours, he retired from the U.S. Air Force in 2009 as director of strategic planning for homeland defense and counterterrorism issues. He is a Distinguished Flying Cross recipient, was commander of the U.S. Air Force’s training squadron of the year (2004), and holds numerous team and individual awards. He graduated from the U.S. Air Force Academy with a B.S. in engineering and earned master’s degrees in aviation operations and management from Embry Riddle University and in strategic studies from the U.S. Army War College.

Dr. Andre "Dre" Abadie

Colonel Andre' (Dre') Abadie is co-lead / Technical Director for the AFC Project Convergence Operational Planning Team. His support to modernization centers on Networks, Artificial Intelligence, and Cyber.

Dre' is a native of Lafayette, Louisiana; a 1996 graduate of the United States Military Academy and career Army Signal Officer. His education includes a Bachelor of Science degree in Computer Engineering; Master of Science degrees in: Information Assurance, Government Information Leadership (Cyber Security), Military Art and Science (MMAS), Strategic Studies (MSS); and a Doctorate in Information Technology Management, Security, and Assurance. His resident doctoral and postdoctoral research theorized on security architectures for AI-enabled software defined radios.

His most recent assignments include G3 (COO), 311th Theater Signal Command; G6 (CIO), 1st Cavalry Division - which included a 12-month tour as the J63 of US Forces Afghanistan; and Senior Watch Officer, USCYBERCOM.

Married and father of two teenage boys, COL Abadie and his family reside just North of Austin in Cedar Park, Texas.

Mr. James Amato

Mr. James Amato was appointed as the U.S. Army Test and Evaluation Command (ATEC) Executive Technical Director/Deputy to the Commander position in October 2020. In this capacity, he oversees the technical execution of all ATEC test plans and reports, as well as the command's evaluation strategy and analyses. He is also responsible for integrating the command's instrumentation, policy, modeling and simulation, and continuous business improvement projects. He ensures that Army and Office of the Secretary of Defense senior leaders have the essential information required before weapons and equipment are placed into the hands of Soldiers and throughout the lifecycle of those systems.

Mr. Amato formerly served as the Director of the U.S. Army Materiel Systems Analysis Activity (AMSAA) as a direct report unit to the Army Materiel Command from August 2013-February 2019. He later became the Director of the Combat Capabilities Development Command (CCDC) Data and Analysis Center (DAC) when AMSAA transitioned into the U.S. Army Futures Command and CCDC. He served in this role from February 2019 until October 2020.

As Director of CCDC DAC, Mr. Amato led a diverse organization of 650 Civilians and Soldiers who delivered objective analysis, experimentation, and data across the entire life cycle of weapon systems -- enhancing Readiness and enabling Modernization. These world-class engineers, data scientists, mathematicians, and operations research analysts informed critical decisions on requirements trades, technology investments, acquisition strategies and risk, test and evaluation, cyber resiliency, soldier performance, sustainment alternatives, and lifecycle cost.

Mr. Amato was appointed to the Senior Executive Service in September 2008 and served as the Executive Director of the U.S. Army Operational Test Command at Fort Hood, Texas – a position he held until July 2013. He led operational testing of Army and Joint weapons to determine effectiveness, suitability, and survivability. Mr. Amato also served as ATEC's Executive Agent for the first five Network Integration Evaluations. In addition, he was responsible for the Forward Operational Assessment teams, who deployed into Iraq and Afghanistan to collect Soldier feedback on weapons systems and equipment.

Mr. Amato's educational achievements include a Master of Science degree in National Security Strategy from the U.S. Army War College in 2000; a Master of Science degree in Electrical Engineering from Johns Hopkins University in 1992; and a Bachelor of Science degree in Engineering from Loyola College in Baltimore, MD in 1987.

Mr. Amato has Level III Certification in test and evaluation, and he is a Lean Six Sigma Black Belt. He entered federal service in May 1987.

Dr. Marc D. Bernstein

Dr. Bernstein was selected for an Intergovernmental Personnel Act (IPA) assignment on 1 July 2019 as the Chief Scientist under the Assistant Secretary of the Air Force for Acquisition, Technology and Logistics and works in the Office of the Chief Architect of the Department of the Air Force. He provides technical leadership and advice for Department of the Air Force efforts such as the Advanced Battle Management System (ABMS).

Previously, Dr. Bernstein was the Associate Director of Lincoln Laboratory from July 2009 until July 2019. In this role Dr. Bernstein oversaw the execution of the Laboratory's technical programs; helped develop the Laboratory Strategic Plan; chaired the Laboratory's Mission Assurance Board; developed overarching Laboratory policies and procedures; and supported the day to day operation of an advanced research and development facility with 4000 personnel and over 2 million square feet of laboratory and program development space.

He has been an active researcher in ballistic missile defense (BMD) since 1987, when he joined Lincoln Laboratory as part of the Strategic Defense Initiative. His research areas have encompassed radar and optical sensor algorithm development and testing, as well as integrated system performance. Beginning in 1995, he served as a group leader in the National Missile Defense Group. Later, he was the lead for all BMD element programs at the Laboratory. In 2003, Dr. Bernstein was selected for an IPA assignment with the Missile Defense Agency. His initial assignment was with the Ground-Based Midcourse Defense (GMD) Joint Program Office as the Director of Future Block Plans and Integration. Under his direction, a Ground-based Midcourse Program Strategy was developed to guide future Block development. In 2004, he was promoted to the position of Deputy of Technology and Development for the Ground-Based Midcourse Defense Joint Program Office. In this role, he served as the program's senior technical advisor and oversaw all GMD development. From 2005 to June 2007, he served in Huntsville, Alabama; Washington, DC; and Hanscom Air Force Base as the Chief Scientist for the Ground-Based Midcourse Defense Program. After this

IPA assignment, he was appointed in 2007 Head of the Air and Missile Defense Technology Division at Lincoln Laboratory.

Upon completion of his previous IPA assignment, Dr. Bernstein received an Exceptional Public Service Medal from the Office of the Secretary of Defense. He holds a PhD in theoretical physics from the University of Washington. He is an Associate Fellow of the American Institute of Aeronautics and Astronautics (AIAA).

Mr. Devin Cate

Mr. Cate is Director of Test and Evaluation, U.S. Air Force. He is responsible for policy, resources and oversight of developmental and operational testing. He oversees a $6 billion Air Force test infrastructure and the programming and execution of the Air Force test portfolio, with an annual budget of over $1.5 billion.

Mr. Cate earned a bachelor's in Physics at the U.S. Air Force Academy and graduated with a master's degree in Aeronautics and Astronautics from the University of Washington. After a laboratory tour, he attended the U.S. Air Force Test Pilot School as a flight test engineer. Following two flight test tours, he served in various staff positions and later served as a program director at the Aeronautical Systems Center, directing several classified programs and serving as the developmental system manager for the C-5 modernization program. Mr. Cate retired from the Air Force after 26 years of active duty and was appointed to the Senior Executive Service in 2010. Prior to his assignment as Director of Air Force Test & Evaluation, he was Deputy Director of Air Force Test & Evaluation, and before that, Deputy Director, Air Force Rapid Capabilities Office.

Mr. Christopher Collins

Mr. Christopher C. Collins is the Director, Developmental Test and Evaluation, and Assessments (D,DTE&A) within the Office of the Undersecretary of Defense (Research and Engineering). DTE&A provides support to DoD acquisition programs in the use of innovative and efficient DT&E strategies to ensure production readiness and fielded systems meet Warfighter/User needs; improve the Defense Acquisition T&E workforce "practice of the profession;" and advance T&E policy and guidance. DTE&A also conducts Independent Technical Review Assessments (ITRA) and Milestone Assessments for major acquisition programs.

Mr. Collins was appointed to the Senior Executive Service in April 2020. Prior to his appointment, he was the COMNAVSEASYSCOM Deputy for Test and Evaluation. He has also served within various engineering and test leadership positions in the Aegis Ballistic Missile Defense Program within the Missile Defense Agency, and also completed a one-year experiential assignment with the U.S. Air Force on the Headquarters Staff.

Mr. Collins career began in 1984 with a commission from the U.S. Naval Academy. Mr. Collins completed an combined Active Component and Reserve Component career and retired after

30 years at the rank of Navy Captain. Mr. Collins completed several deployments as a Navy helicopter pilot while on active duty, and supported Navy technology transition initiatives and assessments at the Office of Naval Research while on reserve duty. During his reserve tenure, Mr. Collins held command of two Reserve Component Commands.

Mr. Collins has a Bachelor's of Science in Electrical Engineering from the U.S. Naval Academy and a Master's of Science in Aeronautical Engineering from the Naval Postgraduate School. Mr. Collins also graduated with distinction from both the Navy Command and Staff College (distance education) and the Air War College (in-resident). Mr. Collins is a graduate of the 2016 cohort of the Defense Senior Leader Development Program. Mr. Collins is a member of the Defense Acquisition Corps, and has achieved Level III Certification in Program Management, Engineering, and Test and Evaluation.

Colonel Ryan Conner

Colonel Ryan Conner is the Chief, Electronic Warfare Division, Operational Capability Requirements, Deputy Chief of Staff for Strategy Integration and Requirements, Headquarters U.S. Air Force, Washington, D.C. He is responsible for oversight and development of all U.S. Air Force electronic warfare operational capabilities and is the principal advisor to the Chief of Staff on electronic warfare policy, doctrine, training, acquisition and investment strategies, force structure, operational support and sustainment. He leads a team that integrates warfighter needs with program and resource allocation for 52 major weapon systems and a $72 billion portfolio in electronic warfare programs, support, manpower, operations and budget initiatives. He also assists the Service, Combatant Command, Joint, Allied and Office of the Secretary of Defense staffs in developing current and future electronic warfare and directed energy capabilities and doctrine.

Colonel Conner received his commission from the Air Force Reserve Officer Training Corps, California State University Sacramento, Detachment 88, and graduated from Undergraduate Navigator Training and Joint Aviation Electronic Warfare School. He has deployed numerous times in support of Operations Southern Watch, Northern Watch, Allied Force, Enduring Freedom, Iraqi Freedom as well as Strategic Operations. He has held various squadron positions in Mission Support, Plans, Training, Tactics, and Standardization and Evaluation Flights as well as Flight Commander, Assistant Director of Operations and Director of Operations. Colonel Conner served as the 479th Flying Training Group Deputy Commander, 29th Student Squadron Commander, 81st Wing Chief of Safety, Wing Electronic Warfare Officer for the 552d Air Control Wing and as the Chief of Nuclear Surety for the North Atlantic Treating Organization (NATO) Air Component Command Headquarters Izmir, Turkey. Colonel Conner is a Command Combat Systems Officer with more than 2900 hours in the T-34C, RC-135V/W, E-3B/C, T-6A, T-1A.

Prior to this assignment Colonel Conner served as the 29th Student Squadron Commander, Maxwell AFB, AL. He is married with four children.

EDUCATION

1996 Bachelor of Science in Criminal Justice, California State University Sacramento
2001 Squadron Officer School, Maxwell Air Force Base, Ala.
2008 Air Command and Staff College
2008 Master's Degree in Leadership and Management, Webster University, Missouri
2013 Air War College

Mr. James Cooke

Mr. Cooke serves as the Director of Test and Evaluation for the U.S. Army.

Professor Mary "Missy" Cummings

Professor Mary (Missy) Cummings received her B.S. in Mathematics from the US Naval Academy in 1988, her M.S. in Space Systems Engineering from the Naval Postgraduate School in 1994, and her Ph.D. in Systems Engineering from the University of Virginia in 2004. A naval officer and military pilot from 1988-1999, she was one of the U.S. Navy's first female fighter pilots. She is currently a Professor in the Duke University Electrical and Computer Engineering Department, and the Director of the Humans and Autonomy Laboratory. She is an American Institute of Aeronautics and Astronautics (AIAA) Fellow, and a member of the Defense Innovation Board. Her research interests include human supervisory control, explainable artificial intelligence, human-autonomous system collaboration, human-robot interaction, human-systems engineering, and the ethical and social impact of technology.

Mr. Fred Drummond

Mr. Drummond served as the Deputy Assistant Secretary of Defense for Force Education and Training in the Office of the Assistant Secretary of Defense for Readiness from 2017 until January 2021. He oversaw the development of policies and plans for military training and education. His responsibilities include Service and joint training policy, cyber training policy, joint professional military education, training capability modernization, and enabling access to the land, air, and sea live training domains.

Prior to joining OSD, Mr. Drummond was responsible for Navy's strategy, policy, resource allocation, and execution oversight for all officer, graduate, and voluntary education programs on behalf of the Deputy Chief of Naval Operations. A career Naval Officer, Mr. Drummond served in a variety of operational and staff billets. As a Naval Flight Officer flying in the EA-6B and in the USAF EF-111A, Mr. Drummond deployed across the globe conducting combat and peacetime operations. Non-operational tours included assignments in education, training, and manpower.

Mr. Drummond's military awards include the Defense Superior Service Medal, the Legion of Merit, the Distinguished Flying Cross, the Air Medal, and numerous other awards. He is a graduate of Virginia Tech and received a Master's of Political Science from Auburn University of Montgomery.

Colonel Jason Eckberg

Colonel Jason Eckberg is the Deputy Director, Air Force Electromagnetic Warfare Requirements. Previously, he was the Commander, Operations Group, at a Data Masked Organization, responsible for coordinating operational activities at the Nevada Test and Training Range for the Air Force Test Center. Previous to this assignment, Colonel Eckberg was the Concept Development Branch Chief, at the Joint Staff in Suffolk, Virginia. The branch was responsible for developing, evaluating, and assessing Joint Concepts, in support of the Chairman of the Joint Chiefs of Staff's Title 10 responsibility to provide best military advice to the Secretary of Defense and the President on future force development.

Colonel Eckberg received his commission from the Reserve Officer Training Corps detachment at Carnegie Mellon University in May 1997. He served as a RC-135 electronic warfare officer, instructor/evaluator electronic warfare officer and combat crew commander. During this time, Colonel Eckberg gained operational experience in the Pacific and European Theaters as well as operational tours in the United States Central Command Area of Operations. In addition to aircrew and operational experience, Colonel Eckberg has served in flight and electronic warfare test and evaluation positions, and as the commander of Big Safari's 645th Aeronautical Systems Squadron in Greenville, TX, executing flight, engineering, product assurance, contract monitoring, security, and logistics operations for the Big Safari Program Office. Staff experience includes two years at Headquarters Air Force, Operational Requirements Directorate, Electronic Warfare Division, and two years at the Joint Staff in Hampton Roads, Virginia. These assignments included time in the Joint Forces Coordinator Division as the Intelligence, Surveillance, and Reconnaissance Joint Working Group Lead for Joint Staff Operations Directorate at Norfolk, Virginia, and in the Joint Concept Division of the J7 at Suffolk, Virginia.

Colonel Eckberg is a Master Navigator with over 2,000 flying hours in over 20 unique aircraft. He is married to the former Mary Ann Bruns of Central City, Nebraska. They have no children, but are passionate about canines and travel!

Col. Eckberg received his B.S. in Chemistry from Carnegie Mellon University, his M.S. in Administration from Central Michigan University, an M.S. in Cyber Warfare from the U.S. Air Force Institute of Technology, and a Certificate in Air Power from the Air War College. He also received a Certificate in Security Studies from MIT and was at the USAF Test Pilot School where he was an learned Experimental Flight Test Navigation and Flight Test Engineering.

Colonel Eric Felt

Colonel Eric Felt is the Commander of the Phillips Research Site and Director of the Air Force Research Laboratory Space Vehicles Directorate at Kirtland Air Force Base, New Mexico. He leads a team of 1,080 military, civilian and on-site contractors who comprise the nation's center of excellence for military space science and technology, research and development, as

well as advanced technologies integration and demonstration. His organization focuses on enduring Air Force space missions: communications; position navigation and timing, missile warning, space situational awareness, and defensive counter space. Colonel Felt received his commission in 1991 from Duke University Air Force Reserve Officer Training Corps. He entered active duty in 1996 after completing a master's in science and doctorate degrees in electrical engineering. He is a graduate of the U.S. Air Force Test Pilot School and has served as a developmental engineer and program manager in lab, test, program office, and staff assignments. Prior to his current position, Colonel Felt served as the Senior Materiel Leader, Joint Mission Division, Intercontinental Ballistic Missile Systems Directorate, Hill Air Force Base, Utah.

Colonel Felt received B.S. degrees in electrical engineering, computer science, and history, an M.S. in electrical engineering and computer sciences from UC Berkeley. He has received numerous awards including the Meritorious Service Medal with four oak leaf clusters, Aerial Achievement Medal, Joint Service Commendation Medal with oak leaf cluster, Air Force Commendation Medal, Joint Service Achievement Medal, Air Force Achievement Medal.

Mr. John Fiore

Mr. Fiore is the Technical Director for the Naval Surface Warfare Center, Dahlgren Division, Dahlgren, Va. He was appointed to the position in July 2016 and has been in the SES since September 2014. In his current role, he is responsible for Dahlgren's technical excellence in executing research, development, test and evaluation, analysis, systems engineering, integration, and certification of complex naval combat, sensor, weapon, and strategic systems associated with surface warfare as well as homeland defense and force protection.

Mr. Fiore was previously the Director for Above Water Sensors in the Program Executive Office for Integrated Warfare Systems (PEO IWS). In this capacity he oversaw the planning, development, acquisition, testing, and sustaining of cost-effective warfare systems for U.S. Navy surface ships and submarines. Additionally, Mr. Fiore was the Chief Technology Officer for PEO IWS. He spearheaded the constantly-evolving transition of new naval capabilities and technologies into more than 150 Programs of Record.

Mr. Fiore began his career at the Naval Surface Warfare Center Philadelphia Division (NSWCPD) in Philadelphia, Pa., where he held a series of progressively challenging positions culminating in his assignment as the first Deputy Program Manager for Smartship in 1998. After leaving NSWCPD, Mr. Fiore held key leadership positions at the National Geospatial Intelligence Agency (NGA) as Deputy Program Manager for Imagery Continuity of Operations (ICOOP), the U.S. Navy's Office of Technology Development Support as the Chief Engineer for an advanced airborne intelligence, surveillance, reconnaissance, and targeting sensor, and as the acting Deputy Program Executive at the Aegis Ballistic Missile Defense (BMD) organization where he shared responsibility with the Program Executive for oversight of all Aegis BMD programs.

Mr. Fiore graduated from Drexel University in Philadelphia, Pa., with both Bachelor and Master of Science degrees in Electrical Engineering. He attended the Program for Management Development at Harvard Business School and graduated with a Master of Science degree in Science and Technology Studies from Virginia Polytechnic Institute and State University. He is also a graduate of the Defense Systems Management College where he received level III certification in Program Management and Systems Engineering.

Mr. John Garstka

Mr. Garstka, SES, is the Director for Cyber at OCISO(A&S) and OUSD(A&S). Previously, he was the Special Assistant, Force Transformation & Analysis, DASD Forces Transformation and Resources, Office of the Under Secretary of Defense (Policy). In this capacity, he was responsible for contributing to the development and oversight of policy relating to the transformation of U.S. conventional force capabilities. Mr. Garstka is a recognized thought leader in the area of Network Centric Warfare (NCW) and a respected international speaker.

While assigned to the Office of Force Transformation, Mr. Garstka was the Assistant Director, Concepts and Operations. In this capacity he developed an evidence base for the operational impact of networked forces, led Transformation engagements with U.S. Allies, and oversaw the creation of the Transformation Chairs Network at DoD educational institutions. Prior to joining the Office of Force Transformation, Mr. Garstka was the Chief Technology Officer in the Joint Staff. Directorate for Command, Control, Computer and Communications (C4) Systems. In this capacity he played a key role in the development and conceptualization of network-centric warfare and was the Joint Staff lead for the Department of Defense's Report to Congress on Network Centric Warfare. Prior to joining the Joint Staff, Mr. Garstka was a Senior Systems Engineer with Cambridge Research Associates, where he had responsibility for leading consulting engagements with commercial and government customers. Before joining Cambridge, Mr. Garstka served as an officer in the United States Air Force (USAF) for ten years, with assignments on the Air Staff and at USAF Space and Missile Center

Mr. Garstka is a Distinguished Graduate of the United States Air Force Academy, where he earned a Bachelor of Science degree in Mathematics in 1983. He also holds a Master of Science Degree in Engineering-Economic Systems from Stanford University, where he studied as a Hertz Fellow. His book, Network Centric Warfare: Developing and Leveraging Information Superiority, by Alberts, Garstka, and Stein, CCRP Press, 1999 has been reprinted by leading IT companies and translated into three languages.

Mr. Conrad Grant

Mr. Grant became the inaugural Chief Engineer of the Johns Hopkins University Applied Physics Laboratory on August 22, 2016. As the Chief Engineer, Mr. Grant works with engineers and scientists across APL and throughout the nation's R&D community to explore innovative approaches and technical concepts that will better position APL's contributions with future challenges. As the nation's largest University Affiliated Research Center, APL performs research and development on behalf of the Department of Defense, the intelligence community, the National Aeronautics and Space Administration, and other federal agencies. The Laboratory has more than 8,000 staff members who are making critical contributions to a wide variety of nationally and globally significant technical and scientific challenges.

Prior to this appointment, he served as the Head of the Air and Missile Defense Sector at APL since 2005. Mr. Grant has extensive experience in the application of systems engineering to the design, development, test and evaluation, and fielding of complex systems involving multi-sensor integration, command and control, human-machine interfaces, and guidance and control systems. Mr. Grant's engineering leadership in APL prototype systems for the Navy is now evidenced by capabilities on board over 100 cruisers, destroyers, and aircraft carriers of the U.S. Navy and its Allies.

Mr. Grant began his career with APL developing human-machine interactive systems for Navy command and control and served as the technical lead for the analysis, design, rapid prototyping and testing of network based command and control systems in large-scale at-sea tests that proved out advanced capabilities, leading to rapid fielding in operational systems. He has since led development efforts in almost all aspects of Navy and Missile Defense Agency combat and weapon systems.

He has served on national committees including as a technical advisor on studies for the Naval Studies Board (NSB) of the National Academies as well as membership on the U.S. Strategic Command Senior Advisory Group (SAG). He is a member of the program committees for the Department of Electrical and Computer Engineering (ECE) and the Engineering for Professionals Systems Engineering Program of the Johns Hopkins University Whiting School of Engineering.

Mr. Grant earned a Bachelor of Science in physics from the University of Maryland, College Park, a Master of Science in applied physics and a Master of Science in computer science from Johns Hopkins University.

Mr. Ed Greer

Mr. Greer is the President of Greer Consulting, LLC. Greer Consulting, LLC facilitates executive consulting services between Department of Defense organizations and Prime Contractors/Vendors. This includes providing executive consulting services in a variety of specialty areas. Greer Consulting provides program management, engineering, DoD acquisition consulting services to organizations within and outside of DoD.

Mr. Greer was the Chief Operating Officer for The MIL Corporation from February 2013 through October 2015 and reported directly to the CEO. In his capacity as COO, Mr. Greer was responsible for the company's day-to-day operating activities of six business sector consisting of 12 VP's, including in excess of $100M in revenue; expense, cost and margin control; and monthly, quarterly and annual financial goal management. He directed the company operations to meet budget and over 600 personnel. Mr. Greer was responsible for the short-term and long-range planning and budget development to support strategic business goals. He established the performance goals, allocate resources, and assess policies for senior management. He demonstrated successful execution of business strategies for company products and services.

Mr. Greer is the former Deputy Assistant Secretary of Defense for Developmental Test and Evaluation. He served as the principal advisor on developmental test and evaluation (DT&E) to the Secretary of Defense (SECDEF) and the Under Secretary of Defense for Acquisition, Technology and Logistics (USD (AT&L)). Mr. Greer was responsible for DT&E policy and guidance in support of the acquisition of major Department of Defense (DoD) weapon systems. Mr. Greer also served concurrently as Director, Test Resource Management Center (TRMC). In this role, he advised the USD (AT&L) on matters pertaining to strategic planning and oversight of the DOD's Major Range and Test Facility Base, the nation's critical range infrastructure for conducting effective test and evaluation (T&E) of major weapon systems. Other significant duties include reviewing and improving the organization and capabilities of the military departments with respect to DT&E and providing advocacy, oversight, and guidance to elements of the acquisition workforce responsible for DT&E. Mr. Greer served on the Defense Acquisition Board. Additionally, the Director, TRMC reviewed and certified proposed T&E budgets of Military Departments and Defense Agencies, administered the Central Test and Evaluation Investment Program (CTEIP), and had oversight responsibilities of the DoD program for T&E Science and Technology.

Prior to this, Mr. Greer served as the Deputy Assistant Commander for Test and Evaluation, Naval Air Systems Command, and Executive Director, Naval Air Warfare Center Aircraft Division (NAWCAD) (SES Tier III), Patuxent River, MD. As the senior civilian for Naval Aviation Test and Evaluation, he was responsible for planning, executing, analyzing, and reporting of all Naval Aviation test and evaluation. As Executive Director, NAWCAD, he ensured that BIOGRAPHY Ed Greer NAWCAD technical, business, and financial objectives were met across a workforce of 14,400 and a total operating budget of over $4 billion. As Executive Director for NAWCAD, Mr. Greer is responsible for ensuring that NAWCAD technical, business and

financial objectives were met. In his role as Deputy Assistant Commander for Test and Evaluation, Mr. Greer was responsible for the appropriate implementation of policy and guidance on test and evaluation matters emanating from the Office of the NAVAIR Commander and Assistant Commanders.

In 1998, Mr. Greer joined the Senior Executive Service as Director of the Atlantic Ranges and Facilities, NAWCAD, responsible for all facets relating to the development, maintenance, and operation of the open-air range and installed systems test facility components of the Navy's principal Air Combat Systems test activity. ATR controls fully-instrumented and integrated test ranges that provide full-service support for cradle-to-grave testing. Airspace and surface target areas are used for test and evaluation of aircraft and for warfighter training missions. In addition to radar and optical tracking systems, fixed and mobile assets provide the necessary capabilities for diverse testing and training scenarios.

Mr. Greer represented the Navy on the 2007 Defense Science Board Task Force on Developmental Test and Evaluation. Mr. Greer is the current and past President of the Southern Maryland Chapter of the International Test and Evaluation Association (ITEA). He also serves on the National Board Of Directors for ITEA. He earned his Bachelor of Science Degree in Electrical Engineering from the University of Maryland, College Park, and received a Master of Science Degree in Management from the Florida Institute of Technology. He is a graduate of the Defense Systems Management College and of the Senior Executive Management Development Program. Mr. Greer is the NDIA 2013 recipient of the Walter W. Hollis Award for Lifetime Achievement in Defense Test and Evaluation.

Mr. Steven Lopes

Mr. Lopes serves as the Deputy Director for Land Warfare & Missile Defense Systems at the Under Secretary of Defense for Research and Engineering (OUSD(R&E)/AC/DTEP/DT&E). Prior to this position, Mr. Lopes was the Director for Test Resources at the Missile Defense Agency where he was responsible for developing test infrastructure and instrumentation architectures to support missile defense flight and ground tests. Mr. Lopes received an M.S. in Systems Engineering from The Johns Hopkins University.

Mr. Brian Nowotny

Mr. Nowotny serves as the the DoD Autonomy Test Lead at the Test Resource Management Center (TRMC).

Mr. Joshua Marcuse

Mr. Marcuse serves as the head of Strategy & Innovation, Global Public Sector. Prior to this role, he served as the Executive Director of the Defense Innovation Board, a group of distinguished business and academic experts that advises the Secretary of Defense and DoD senior leaders on accelerating innovation in the Department's strategy, operations, technology, processes, personnel, and culture. He also served as an adviser on innovation to the Deputy Chief Management Officer, where he focused on building innovation capacity across the DoD workforce and harnessing digital technologies such as data, cloud, machine learning, and artificial intelligence. He was previously the senior adviser for policy innovation in the Office of the Under Secretary of Defense for Policy, and worked at Booz Allen Hamilton, the Center for Strategic & International Studies, and the Council of Foreign Relations. Mr. Marcuse was a 2015 Next Generation National Security Fellow at the Center for a New American Security (CNAS) and is the founder of or advisor to several nonprofit organizations dedicated to promoting the next generation of global leaders. He is a term member of the Council in Foreign Relations. Mr. Marcuse is a graduate of Dartmouth College, and is certified in change management from Georgetown University's McDonough School of Business. He is a Gallup-trained executive coach and a LUMA-trained design thinking instructor and facilitator.

Mr. John Pearson

Mr. Pearson currently serves as the Operational Test Director for the Joint Strike Fighter Operational Test Team. In addition, he is a Senior Evaluator for 5th & 6th generation fighter aircraft, test infrastructure, and action officer for the Director, Operational Test & Evaluation at the Pentagon. Prior to this, he served as the Vice Commander for the Air Force Operational Test and Evaluation Center. Mr. Pearson was part of the Joint Staff, a J-33 Iraq/Afghanistan Action Office, and was a SOUTHCOM Division Chief for the Pentagon. He has also been a part of the F-22 Program Element Monitor and Chief of the F-22 Avionics and Armament Requirements HQ Air Combat and Command. An additional staff assignment includes Air Liaison Officer, 1st Brigade, 8th Infantry Division in Germany.

A 26-year Air Force Officer, Mr. Pearson retired in 2010 with the rank of Colonel. While on active duty, Mr. Pearson flew the A-10A, F16, and T-37 for a total of more than 3,000 flight hours.

Mr. Pearson earned his bachelor's in Aerospace Engineering from the U.S. Air Force Academy, his M.S. in Aero science from Embry-Riddle Aero University, a Master's in Strategic Studies from the U.S. Army War College, and completed an Executive Leadership course entitled *Cybersecurity: Intersection of Policy and Technology* at Harvard University.

Dr. Yevgeniya (Jane) Pinelis

Jane Pinelis serves as the Chief of Test and Evaluation of Artificial Intelligence and Machine Learning at the DoD Joint Artificial Intelligence Center. Prior to this role, she served as the Director of Test and Evaluation of Algorithmic Warfare at The Johns Hopkins University Applied Physics Laboratory. In this role, she served as the on-site representative to the Undersecretary of Defense for Intelligence and oversaw both developmental and operational testing of artificial intelligence algorithms. Dr. Pinelis' previous roles at the Applied Physics Laboratory include Adjunct Senior National Security Analyst and Section Supervisor of Data Analytics and Assessments. Prior to these positions, Dr. Pinelis serves as the Test Science Lead at the Institute for Defense Analyses where she led an interdisciplinary team in providing independent and objective support to the Director, Operational Test and Evaluation. Before joining IDA, Dr. Pinelis was a Senior Research Scientist at the CNA Corporation. While there, she was assigned as a CNA Field Representative to both the Marine Corps Warfighting Lab and the Marine Corps Operational Test and Evaluation Activity. Dr. Pinelis is a member of the American Statistical Association and earned her B.S. in Statistics, Economics, and Mathematics from the University of Michigan. While there, she was a Visiting Scholar of Philosophy, Politics, and Economics at the University of Oxford. She earned her M.A. and Ph.D. in Statistics from the University of Michigan.

Mr. Carroll P. "Rick" Quade

Mr. Quade is the Deputy for Test and Evaluation (T&E) for the Department of Navy. In this position, he acts as the senior advisor on all T&E matters to ASN RDA and the Chief of Navy Operations via the Director, Navy Test and Evaluation and Technology Requirements, OPNAV N84. Mr. Quade is responsible for the development and implementation of T&E policies that support acquisition program planning and execution. In this position, Mr. Quade is the functional leader for the T&E acquisition workforce career field and is the resource sponsor for the T&E investment accounts that have an annual budget of over $500M. Mr. Quade began his career with the Navy in 1990 and was appointed to the Senior Executive Service in July 2014.

Prior to his current position, Mr. Quade was the Special Assistant to the DON T&E Executive and later served as the acting Deputy DON T&E Executive. From 2007 through 2009, Mr. Quade was the PMA-231 Hawkeye/Greyhound Assistant Program Manager for T&E. In this position, he was responsible for the planning and execution of all testing on the C-2, E-2C and E-2D platforms. From 2003 through 2006, Mr. Quade was the program manager of the Navy Major Range and Test Facility Base that funds the sustainment of critical Navy T&E ranges and laboratories. Mr. Quade has held various other positions to include Atlantic Marine Operations and Targets Division Head, AIRSpeed Deployment Champion and a project engineer supporting a number of programs. Mr. Quade is a graduate of the

University of Maryland College Park with a Bachelors of Science in Mechanical Engineering and he has a graduate degree in Management.

Mr. George Rumford

Mr. Rumford serves as the Principal Deputy Director of the Test Resource Management Center (TRMC).

Dr. Arun Seraphin

Dr. Seraphin has served as the Assistant Director for Defense Programs at the White House Office of Science and Technology Policy (OSTP). His areas of responsibility included developing and implementing White House initiatives and policies in areas including defense research and engineering; defense manufacturing and industrial base; and promoting innovation in government research and engineering organizations. He was on detail to OSTP from the Defense Advanced Research Projects Agency (DARPA) where he was the Special Assistant for Policy Initiatives to the Director of DARPA.

Between 2001 and 2010, Dr. Seraphin was a Professional Staff Member on the staff of the United States Senate Committee on Armed Services. His areas of responsibility include the Department of Defense's science and technology programs, information technology systems, technology transition issues, defense laboratories, Small Business Innovation Research program, manufacturing programs, and test and evaluation programs. As such he assisted Senators in their oversight of DOD technology programs, including in the authorization of budgets, civilian nominations, policy, and hearings. In 2009, he was named one of ten Defense "Staffers to Know" by Roll Call, a Capitol Hill newspaper.

Dr. Seraphin has also worked on the United States House of Representatives Committee on Science's Subcommittee on Research as a professional staff member, and in the Office of Senator Joseph Lieberman as the 1999-2000 Materials Research Society – Optical Society of America Congressional Science and Engineering Fellow. In these positions, he covered both civilian and defense research and development programs.

Between 1996 and 2000, Dr. Seraphin worked in the Science and Technology Division of the Institute for Defense Analyses, where his research included work on defense technology transition, microelectromechanical systems (MEMS), export controls, technology forecasting, and international research cooperation. His work included detailed technical and policy analyses supporting the DARPA MEMS program, the Army Science and Technology Master Plan, and the Military Critical Technologies Program.

In 1996, Dr. Seraphin earned a Ph.D. in Electronic Materials from the Massachusetts Institute of Technology, where he performed research on silicon nanotechnology. His research focused on the development of novel silicon nanostructures and tailoring their optical properties. He also holds bachelor's degrees in Political Science with a concentration in American

Government and Engineering Science with a concentration in Materials Science from the State University of New York at Stony Brook.

Mr. David Tremper

Mr. Dave Tremper serves as the Director of Electronic Warfare at the Office of the Secretary of Defense. Prior to joining OSD, Mr. Tremper served at DARPA as a Program Manager in June 2017. Before this, Mr. Tremper served nine years as a program manager in electronic warfare (EW) at the Office of Naval Research (ONR) where he managed applied research programs in the areas of EW and counter-intelligence, surveillance, and reconnaissance (C-ISR) for both stand-alone and networked systems applications. During his time with ONR he led the development and successful transition of new electronic support (ES) and electronic attack (EA) capabilities into surface, submarine, air and ground platforms for anti-ship missile defense (ASMD), C-ISR, suppression of enemy air defense (SEAD), counter-improvised explosive device (C-IED) and platform protection operations. He also worked closely with the joint services while managing the technology development strategy for Joint Counter-Radio Controlled IED EW (JCREW) science and technology when that responsibility transferred from the Joint IED Defeat Organization (JIEDDO) to ONR in 2010. While at ONR Mr. Tremper received numerous awards including both the Department of the Navy Meritorious and Superior Civilian Service Awards, the ONR Future Naval Capability (FNC) Program Manager of the Year Award and the North Atlantic Treaty Organization (NATO) Scientific Achievement Award. He currently serves as the member-at-large for EW to the NATO Systems, Concepts and Integration (SCI) Panel.

From 2002 to 2008, Mr. Tremper served as an electronics engineer and section head at the Naval Research Laboratory (NRL) in the Tactical Electronic Warfare Division. There he developed and integrated EW payloads into a variety of platforms, both manned and unmanned, as well as researched and applied biologically inspired swarming concepts to Naval EW operations.

Mr. Tremper received his Bachelor of Science degree in electrical engineering from Catholic University of America (CUA) and his Master of Science in electrical engineering from Clarkson University with additional coursework following his Master's degree at both Rensselaer Polytechnic Institute (RPI) and CUA. He served as an adjunct professor at CUA in electrical engineering from 2004-2008.

Mr. Jeffrey White

Mr. White currently serves as the Principal Deputy Assistant Secretary of the Army (Acquisition, Logistics & Technology). As the Principal Deputy, he advises the Assistant Secretary and Army leadership on all matters relating to Army acquisition, procurement, research & development and logistics. He participates in the development of policies, programs and processes for the execution of the Army's acquisition efforts.

Prior to being named to this position, he served as Vice President of Business Development at Siemens Government Technologies, Arlington, VA. In this role he was responsible for identifying business opportunities, developing market strategy, and providing business intelligence to senior leadership as well as managing federal engagement opportunities between US Government customers and Siemens Corporation.

Prior to his time with Siemens, he served in multiple SES positions within the Office of the Secretary of the Army, to include Assistant Deputy Under Secretary of the Army. His duties included the transformation of the Army's strategic human capital to include reengineering the Senior Executive Service assignment and distribution system. He served as the integrator for programs related to senior civilian development throughout the Army and oversaw projects related to Business Transformation and Continuous Process Improvement and the day-to-day execution of the Army's business transformation efforts.

Mr. White is a 1978 graduate of Shippensburg State College with a bachelor's degree in psychology. He holds master's degrees in national security and strategic studies from the United States Naval War College, strategic studies from the United States Army War College, and an MBA from the University of Tennessee. Mr. White has over 33 years of Federal Service, including 27 years as an Army Aviation Officer.

Mr. Michael E. White

Mr. White is the Principal Director for Hypersonics (PD,H) in the Office of the Under Secretary of Defense for Research and Engineering OUSD(R&E). In that capacity Mr. White is responsible for leading the Nation's vision and strategy for developing offensive and defensive warfighting capability enabled by hypersonic systems.

Before his current position, Mr. White was Head of the Air and Missile Defense Sector at the Johns Hopkins University Applied Physics Laboratory where he led over 1,100 staff members developing advanced concepts to enhance the Nation's air and missile defense (AMD) capability for programs including AEGIS, STANDARD Missile, Ship Self Defense System, Cooperative Engagement Capability, the Surface Electronic Warfare Improvement Program, Aegis Ballistic Missile Defense and numerous other Missile Defense Agency programs.

Mr. White earned both his Bachelor of Science and Master of Science degrees in aerospace engineering from the University of Maryland. He has authored over 30 papers on hypersonic weapon system development and other defense system related topics.