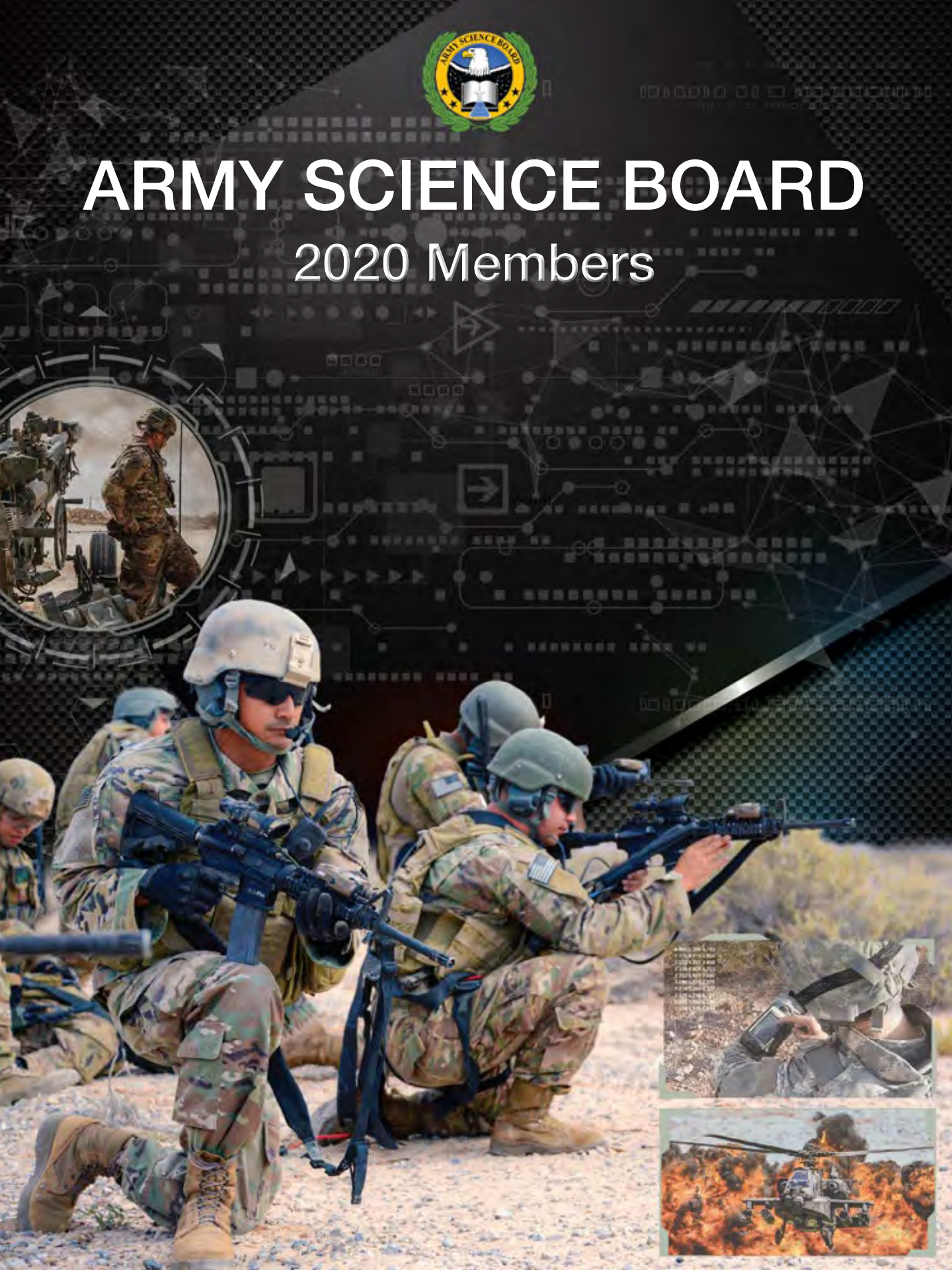
ARMY SCIENCE BOARD

2020 Members



FOREWARD

The Army Science Board (ASB) is a federal advisory committee organized under the Federal Advisory Committee Act. It provides the Army independent advice and recommendations on matters relating to the Army's scientific, technical, manufacturing, logistics, and business management functions, as well as other matters deemed important by the Secretary of the Army.

The ASB began in November 1951 when Secretary of the Army, Frank Pace, Jr., appointed twelve exceptional scientists and industrialists as members of a scientific advisory panel to assist him and the Army leadership in creating an effective, economical and progressive fighting force using existing scientific technology and industrial resources. Three years later, this panel was expanded and officially designated as the Army Science Advisory Panel (ASAP), with its first formal meeting held on November 16, 1954. The ASB was created in 1977 to replace the ASAP and continues in that function today.

ASB members and consultants are appointed under the authority of 5 U.S.C. § 3109 as Special Government Employees and are subject to federal ethics rules. They serve voluntarily without compensation.

The ASB is supported by an administrative staff under the Office of the Deputy Under Secretary of the Army.

ARMY SCIENCE BOARD
2019 FALL PLENARY, ARLINGTON, VA

TABLE OF CONTENTS

Terrence “Terry” F. Alger II, Ph.D.

Director, Automotive Propulsion Systems Department
Southwest Research Institute

EXPERTISE

- Internal Combustion Engine Design and Development
- Exhaust Gas Recirculation
- Ignition Systems
- Hybrid Electric Drivetrains
- Energy Storage Systems
- Connected and Autonomous Vehicles

EXPERIENCE

Dr. Terry F. Alger serves as Director, Automotive Propulsion Systems (APS) Department, Southwest Research Institute (SwRI) where he leads research and development activities on automotive propulsion, including spark-ignited engine design and development, hybrid electric drivelines, energy storage systems, connected and autonomous vehicles. As the past manager of SwRI’s High Efficiency Dilute Gasoline Engine (HEDGE) consortium, he led the development of high Exhaust Gas Recirculation (EGR) dilution for engine efficiency and was the lead inventor of several supporting technologies – such as the award-winning Dual-Coil Offset (DCO) ignition system and Dedicated-EGR (D-EGR) engine.

Dr. Alger is responsible for new technology and business development in the automotive industry. He has led development methods to test for and mitigate Low Speed Pre-Ignition and oversaw SwRI becoming the industry leader in high precision fuel economy measurements. Recent assignments include responsibility for Energy Storage Technology and Electrification and in managing remote activities, including SwRI’s first remote engine laboratory in Ann Arbor, MI. Prior to his employment at SwRI, he was a Research Engineer at Ford Motor Company’s Scientific Research Laboratories. He served as an officer in the U.S. Army Corps of Engineers from 1992 – 1997.

Dr. Alger has published over 70 papers, documents, and articles and has over 25 patents. He is a Fellow of The Society of Automotive Engineers and is the recipient of multiple awards including the 2019 Edith and Peter O’Donnell Award for Technology Innovation from The Academy of Medicine, Engineering and Science of Texas. He is a member of the UT-Austin Mechanical Engineering Academy of Distinguished Alumni.

EDUCATION

University of Texas at Austin, Ph.D., Mechanical Engineering, 2001
University of Texas, San Antonio, M.B.A., Focus – Management of Technology, 2008
University of Texas at Austin, M.S.E., Mechanical Engineering, 1999
U.S. Military Academy at West Point, B.S. Mechanical Engineering, 1992

Clinton J. Ancker III, COL, USA (Ret), M.B.A.

Former Director, Combined Arms Doctrine Directorate
U.S. Army Combined Arms Center

EXPERTISE

- Military History
- U.S. Army Doctrine
- Armor and Armored Cavalry Operations
- Brigade and Battalion Level Operations
- Multi-national Doctrine and Operations

EXPERIENCE

Colonel (Ret) Clinton J. Ancker III graduated from the U.S. Military Academy (USMA), West Point in 1970 and was commissioned an Armor Second Lieutenant. Shortly after that, Mr. Ancker served in multiple positions in Vietnam to include Platoon Leader and Troop Executive Officer, G Troop, 2/11 Armored Cavalry Regiment (ACR), Rifle Platoon Leader, 1-12 CAV (Airmobile), and Training Officer and Property Book Officer (PBO) with the Special Forces training an Army of the Repulic of Vietnam (ARVN) tank battalion and Cambodian Infantry battalions.

Upon returning from Vietnam, he served as Aide-de-Camp for the Superintendent, USMA. His career continued with many more assignments in the 11th ACR in West Germany and another assignment at USMA as a Military History Instructor. After serving as Commander of 3/11 ACR, he deployed with the 2d Armored Division (Forward) to Operations Desert Shield and Desert Storm as the G-3.

COL (Ret) Ancker later served as Special Assistant to the Commander-in-Chief, U.S Special Operations Command, MacDill AFB. Then, after six months TDY as the Chief of the U.S. European Command (USEUCOM) Military Liaison Team to Albania and five years as the Director of the Combined Arms Doctrine Directorate, U.S. Army Combined Arms Center, Fort Leavenworth, Kansas, he retired 30 June 2001. Upon retirement from active duty, COL (RET) Ancker was hired as a Department of the Army Civilian (GS-15) to continue as the Director of the Combined Arms Doctrine Directorate at Fort Leavenworth, which he did for the next 16 years. He retired from civil service in 2017 and currently resides in Gig Harbor, Washington.

EDUCATION

U.S. Naval War College, M.A., International Relations/National Security Studies, 1992
Stanford University, M.A., Political Science, & M.A., Modern European History, 1980
CW Post College, Long Island University, M.B.A., 1974
U.S. Military Academy at West Point, B.S., Engineering, 1970

David E. Anderson, COL, USA (Ret), M.S.E.

Chief Executive Officer, Bay West LLC

EXPERTISE

- Facilities and Infrastructure
- Construction
- Project Management Environmental Remediation Engineering
- Environmental Restoration
- Corporate Real Estate
- Congressional Affairs

EXPERIENCE

Colonel (Ret) David E. Anderson is the Chief Executive Officer (CEO), Bay West LLC. He has over 29 years of experience in environmental restoration, construction, engineering, corporate real estate, and Congressional affairs.

Prior to joining Bay West, he served for 26 years as an officer in the United States Army. His early assignments included service in mechanized and airborne combat engineer units in the United States and Korea. Later in his military career, he commanded both the Honolulu District and the Baltimore District of the U.S. Army Corps of Engineers, where he spearheaded some of the most complex environmental cleanups at both Department of Defense (DoD) and Department of Energy (DoE) sites. He led the successful completion of a $5B military construction program for DoD and several intelligence agencies, oversaw the Army's Enhanced Use Lease Program, and participated in numerous emergency response operations. He served twice in the Army's Office of the Chief of Legislative Liaison (OCLL) where he served as the Army's principal liaison to the House and Senate Armed Services Committees on all matters related to construction, installation management, and real estate. He was the Legislative Assistant to the Secretary of the Army and the Vice Chief of Staff of the Army.

COL (Ret) Anderson was a member of the Army Science Board's "Smart Installations" study (2018). His awards include the Goethals Medal (2011), which is awarded annually by the Society of American Military Engineers for "eminent and notable contributions in engineering, design, or construction in the past five years," and the Legion of Merit (2012).

EDUCATION

Dwight D. Eisenhower School for National Security and Resource Strategy
M.S., National Strategy Resourcing, 2009
University of Texas, Austin, M.S.E., Construction Engineering and Project Management, 1996
U.S. Military Academy at West Point, B.S., Applied Sciences and Engineering, 1986

John F. Antal, COL, USA (Ret)

Soldier, Author, Speaker, Integrator, Technologist, and Leadership Developer

EXPERTISE

- Writing, Speaking
- Integrating, Team-Building and Creative Thinking
- History of the Art of War
- U.S. Army Doctrine
- Decision-Making Strategies
- Battalion through Corps Military Operations
- Armored Fighting Vehicle Future Concepts

EXPERIENCE

Colonel (Ret) John F. Antal is a Soldier, author, speaker, leadership expert, historian, and journalist. In 2003, John was hired by Microsoft Corporation and became the Executive Director for Gearbox Software, Plano, TX. In his 15 years in the video game industry, he has led large and small technology development teams to create successful, multi-million dollar, AAA+ video game titles.

As an author, John has written 14 books and hundreds of magazine articles published in professional and commercial publications. He is a correspondent for two Euro-based magazines: *Military Technology* (Mönch Publishing) and *Mittler Report Verlag*.

John speaks across the nation about leadership and has appeared on numerous television and radio shows to discuss leadership, historical, and national security issues, including the History Channel.

As a co-founder of How2LeadUS, he teaches leadership to private, corporate, and government groups. He created an ongoing leadership development program where he's taught leadership pro-bono to over 4,000 Army ROTC cadets since 2010.

COL (Ret) Antal's military experience spans 30 years as a U.S. Army Armor and Cavalry Officer. He graduated from the U.S. Military Academy (USMA) at West Point in 1977. He is an Airborne Ranger and earned the Expert Infantryman Badge. He is a distinguished graduate of the Command and General Staff College and the Army War College. He has commanded combat units from platoon through regiment, and served on division, corps, and multi-national staffs. John commanded the 2-72 Armor, "The Dragon Force" in Korea, and has written extensively about combat operations in restricted terrain. He served in the Pentagon as Special Assistant to the Commander, Joint Chiefs of Staff; Commander 16th Cavalry Regiment at Fort Knox, KY; and G3, Operations Officer, for the III Armored Corps, Fort Hood, TX. John has been happily married for 30 years to the love of his life, Uncha (Angel) Antal, and they live near Dallas, TX.

EDUCATION

U.S. Army War College, Carlisle, PA, Post Masters Studies, 1998
Command and General Staff College, Ft. Leavenworth, KS Master of Military Art and Science, 1989
U.S. Military Academy at West Point, B.S., 1977

Robert G. Atkins, Ph.D.

Division Head, Advanced Technology Division
Massachusetts Institute of Technology Lincoln Laboratory

EXPERTISE

- Intelligence, Surveillance and Reconnaissance
- Air Defense Radar
- RF Signatures and Electromagnetic Modeling
- Systems Analysis and Architecture Engineering
- Rapid Capability Development
- Technology Development

EXPERIENCE

Dr. Robert G. Atkins is currently the Head of the Advanced Technology Division at Massachusetts Institute of Technology (MIT) Lincoln Laboratory. He holds expertise in intelligence, surveillance and reconnaissance; air defense radar; radio frequency (RF) signatures and electromagnetic modeling; systems analysis and architectural engineering; rapid capability development; and advanced technology development.

He began working at the Laboratory as a cooperative-education student and research assistant in the Air Defense Techniques Group, where his work focused on the modeling of electromagnetic scattering and radar cross-section prediction.

From there, Dr. Atkins expanded his career across multiple divisions and groups within the Laboratory while holding the following positions: Assistant Head of the Intelligence, Surveillance, Reconnaissance, and Tactical System Division; Assistant Head of the Homeland Protection and Tactical Systems Division; Group Leader of the Advanced Capabilities and Systems Group; Assistant Group Leader of the Systems Analysis Group; and Associate Group Leader of the Sensor Exploitation Group.

Currently, Dr. Atkins develops revolutionary and subsystem technologies to enable new system-level solutions for critical national defense challenges. He is a member of the Army Science Board and has participated in a number of studies including “Multi-Domain Battle” and “Robotics and Autonomous Systems,” and he has chaired studies on “Army Cyber” and “Improving the Army’s Software Development and Sustainability Strategy.”

EDUCATION

Massachusetts Institute of Technology, Ph.D., Electrical Engineering, 1993
Massachusetts Institute of Technology, E.E., Electrical Engineering, 1989
Massachusetts Institute of Technology, S.M., Electrical Engineering, 1988
Massachusetts Institute of Technology, S.B., Electrical Engineering, 1987

Samuel “Sam” F. Atkinson, Ph.D.

Regents Professor, Department of Biological Sciences and Scholar
Advanced Environmental Research Institute, University of North Texas

EXPERTISE

- Ecology
- Environmental Science
- Remote Sensing and Geographic Information Systems Modeling Technology
- Environmental Impact Assessment
- Watershed Characteristics
- Water Quality/ Aquatic Ecosystems

EXPERIENCE

Dr. Samuel “Sam” F. Atkinson is Regents Professor in the Department of Biological Sciences and former Director of the Advanced Environmental Research Institute at the University of North Texas. Dr. Atkinson is an environmental systems modeler and his laboratories include both high-end computational facilities, and advanced water quality analyses capabilities. His interest in water began with his masters thesis which examined the relationship between oil and gas field activities and ground water quality. He later shifted his interests to surface water, specifically non-point source pollution sources’ influences on water quality. He has developed modeling approaches to examine the linkage between numerous spatial characteristics of watersheds and the water quality in the streams and rivers that run through those watersheds. He is particularly interested in discovering relationships between watershed characteristics and water quality and aquatic ecosystems.

Dr. Atkinson has been awarded the Decker Scholar prize for outstanding research in science and technology, the Toulouse Scholar prize for outstanding teaching and scholarly achievements, and named Regents Professor in 2010. He has garnered millions of dollars in research funding, which has led to his authoring or co-authoring more than one-hundred scientific publications and two books written on the effects of human activities on the environment. Dr. Atkinson has presented the results of his research at over 100 scientific meetings around the world.

EDUCATION

University of Oklahoma School of Civil Engineering & Environmental Science, Ph.D., Environmental Science, 1985

University of Oklahoma School of Civil Engineering & Environmental Science, M.S., Environmental Science, 1982

Oklahoma State University, B.S., Biology, 1979

Mary C. Barber, Ph.D.

Senior Environmental Scientist, Environmental and Health Sciences
RTI International

EXPERTISE

- Ecology
- Marine Ecology
- Water Quality
- Environmental Science and Policy
- Global Change
- Ecosystem Services
- Science Policy
- Women in Science
- Environmental Education

EXPERIENCE

Dr. Mary Barber has 36 years of experience in Washington, D.C., in the environmental, research, and policy arena working with research scientists, policy and decisionmakers, managers, and regulators in the government, industry, and public interest sectors. She has been involved with discussions at the federal level related to global change, ecosystem management, environmental indicators, and biodiversity. She has managed significant staff and budgets. She successfully organized approaches and venues for the research community to share information with each other, with managers, regulators and decisionmakers, and the public. Dr. Barber builds partnerships, collaborations, and constructive coalitions as a method of achieving technical success in solving global environmental problems. As a trained scientist, Dr. Barber communicates well with those in the technical world. As a practical scholar, she communicates well with decision and policy makers and citizens.

Most recently she worked with the Environment Agency of Abu Dhabi. She and her team developed the inaugural 2012 Marine Water Quality Report and the 2013 through 2017 reports, conducted a programmatic evaluation of the Emirate marine water quality monitoring program, recommended changes to sampling design and data analysis, and established standard operating procedures for monitoring. Further, she developed ambient marine water and sediment standards with associated designated use policy and regulations.

Dr. Barber has served on multiple boards and committees providing scientific advice, judgment, and wisdom ranging from issues of current science to personnel choices. She served as Vice Chair of DoD's Strategic Environmental Research and Development Program (SERDP) Science Advisory Board. She previously served on the U.S. Army Corps of Engineers' Environmental Advisory Board, and now serves as the Chair, Army Science Board (ASB) Environmental Advisory Subcommittee. She also participates on the boards of nonprofit organizations and is currently Chair of the Board of the Bay Journal Media Services focusing on the Chesapeake Bay.

EDUCATION

Senior Ecologist (Professional Certification from the Ecological Society of America), 2012 – 2022
Johns Hopkins University, Ph.D., Ecology and Evolution,1982
Vassar College, B.A., Biology, 1971

Vivian M. Baylor

Independent Consultant

EXPERTISE

- Organizational Culture and Transformation
- Technology Transition
- Security Technologies
- Vulnerability Assessment

EXPERIENCE

Ms. Vivian M. Baylor has been self-employed as a management consultant since her retirement from federal service in 2013. Previously, Ms. Baylor was a Highly Qualified Expert (HQE) under the Deputy Under Secretary of the Army (DUSA), where she was the Deputy Director, Institutional Army Transformation Commission (IATC). The IATC led efforts with Army senior leaders to identify and facilitate initiatives to transform the non-warfighting portion of the Army to become agile, flexible and efficient. She was also the Senior Advisor to the Army Science Board (ASB). Before this, Ms. Baylor was the Senior Studies Manager of the ASB where she worked on innovation, sustainability, next-generation ground vehicles, biometrics, and armed ground robotics. As part of a landmark study for the Secretary on suicide prevention, she led the development of the $50M, 5-year prospective cooperative research program between the National Institute of Mental Health (NIMH) and the U.S. Army. This effort resulted in DoD's cooperative work with many agencies in the Study to Assess Risk and Resilience in Servicemembers (STARRS).

Previously, Ms. Baylor worked for Oak Ridge National Laboratory and other Department of Energy (DOE) facilities, serving in a variety of positions until her retirement in 2008. She began her career as a metallurgical engineer supporting alternative energy programs before moving into program management. She spent almost two decades leading technology development efforts supporting national security initiatives, principally in Chemical, Biological, Radiological, Nuclear, and high yield Explosives (CBRNE) nonproliferation and counterproliferation, intelligence, and law enforcement. Ms. Baylor received numerous awards for technical achievement, performance, and operations including a special award from U.S. Customs and letters of commendation from the Secretary of Energy and the Director of National Intelligence. She also was the recipient of a Research and Development (R&D) 100 award and an award from the Federal Laboratory Consortium for Technology Transfer for a human presence detection system.

EDUCATION

University of Tennessee, M.S., Industrial Engineering/Engineering Management, 2008
University of Tennessee, B.S., Metallurgical Engineering, 1978
Virginia Polytechnic Institute and State University, B.A., English, 1973
Virginia Polytechnic Institute and State University, B.A., Political Science, 1972

Gisele Bennett, Ph.D.

Senior Vice President for Strategic and Research Initiatives
Professor, Electrical and Computer Engineering
Florida Institute of Technology

EXPERTISE

- Autospheric Turbulence
- Optical Imaging Systems
- Secure Supply Chain Technology
- Decision Support Systems

EXPERIENCE

Dr. Gisele Bennett is an exceptional and proven leader in her field. Her research interests are broad to include applied and basic research in coherence theory applications, optical imaging systems, atmospheric turbulence and wave propagation, radio frequency identification (RFID) and secure supply chain technologies. In addition to her current position at Florida Tech, she is also an Adjunct Professor in the School of Electrical and Computer Engineering (ECE) at the Georgia Tech. Prior to joining Florida Tech in 2018, she was a Regents' Researcher, an Associate Vice President (VP) for Research, Faculty Integration, and a Professor in the School of ECE at Georgia Tech. She held the Glenn Robinson Chair in Electro-Optics at Georgia Tech Research Institute (GTRI) and founded the Logistics and Maintenance Applied Research Center focusing on technology solutions for DOD applications. She has worked in numerous areas to include supply chain and manufacturing system modeling and optimization, development of tagging and tracking technology, designing optical imaging systems, superresolution, and modeling of atmospheric turbulence.

Dr. Bennett is a Fellow in The Optical Society (OSA) and the International Society for Optics and Photonics (SPIE), and a Senior Member of Institute of Electrical and Electronics Engineers (IEEE). She is on the Board of Directors for OSA and is the President for the IEEE Council on RFID. She serves as feature editor for *Applied Optics* and has been a topical editor for *Applied Optics* and feature editor for *Optical Engineering*. She is one of the first ten fellows chosen for Georgia Tech's University Leadership program. She has over 130 publications. She has patents and copyrights related to RFID and computer model for Wave Propagation through the atmosphere. She has chaired, co-chaired, and contributed to numerous Army Science Board studies to include the "Internet of Things" (Chair) and the 2019 study "Battlefield Uses of Artificial Intelligence" (Co-Chair). She is frequently called upon to lead ASB studies.

EDUCATION

Georgia Institute of Technology, Ph.D., Electrical Engineering, 1995
Georgia Institute of Technology, Certificate, Management of Technology, 1995
University of Central Florida, M.S.E.E., 1989
University of Central Florida, B.S.E., Electrical Engineering, 1987

Greg L. Bowman, COL, USA (Ret), J.D.

Vice President of Strategy, Growth & Partnerships
Siemens Government Technologies, Inc.

EXPERTISE

- Federal Acquisition Policy, Strategy, and Procurement
- Energy Resiliency and Innovations
- Congressional Relations
- Strategic Military, Defense and Commercial Leadership
- Federal Contracts, Energy and Government Affairs

EXPERIENCE

Colonel (Ret) Gregory L. Bowman, Vice President of Strategy, Growth & Partnerships, retired from the Army after over 25 years of service—culminating his career as the Strategic Military Law and Policy Advisor/Legislative Counsel to the Secretary of the Army. Chosen to establish that position, he served two Secretaries and two Acting Secretaries of the Army for over seven years. After retirement, Greg joined Siemens Government Technologies serving as Director of Large Integrated Programs (OCONUS), then Deputy/Chief Operating Officer of Energy and Infrastructure. In 2019, Greg was chosen to serve in his current position to drive strategic growth.

A graduate of Longwood University, he was commissioned in 1990 graduating *summa cum laude* in Pre-Law and was the Distinguished Military Graduate. Upon graduation, Greg was selected for the "Educational Delay" Program to attend the University of Virginia School of Law. He received his JD in 1993, and later received a Master of Military Law and Government Contracting from the Army Judge Advocate General's School, and a Master of Military Arts and Sciences from the Army Command and General Staff College. He is a member of the Virginia State Bar, and is admitted to practice before the U.S. Supreme Court of the United States.

Greg's military positions include Strategic Military Law and Policy Advisor and Legislative Counsel to the Secretary of the Army; Legislative Counsel, Office of the U.S. Army Chief of Legislative Liaison; Deputy Staff Judge Advocate, U.S. Army Armor Center and Fort Knox, Kentucky; Military Personnel Law Attorney, Administrative Law Division, Office of The Judge Advocate General; Senior Legal Advisor, Governorate Support Team (1st Armored Division-Baghdad); Military Member Judicial Review Committee of Iraq; and Administrator/Amicus Central Criminal Court of Iraq.

EDUCATION

U.S. Army Command and General Staff College, Master of Military Art and Science, 2005

U.S. Army Judge Advocate General's Legal Center and School, Master of Law (Government Contract Law), 2003 (Honor Graduate)

University of Virginia School of Law, Juris Doctorate, 1993

Longwood College, B.S. Sociology (Pre-Law), 1990 (*summa cum laude*/top graduate)

Joseph V. Braddock, Ph.D.

Trustee, The Potomac Foundation

EXPERTISE

- Nuclear Physics
- Threat Assessment
- Concept Development
- Systems Architecture
- Technology Exploitation

EXPERIENCE

Dr. Joseph V. Braddock served in a multitude of positions to include Co-Founder, Board of Directors, Potomac Foundation (1988). In the foundation, he contributed significantly to North Atlantic Treaty Organization (NATO) research. He is a distinguished nuclear physicist, business executive, and philanthropist recognized for his contributions in national security, health, and information technology fields. Dr. Braddock also supported the technical research and policy advances that enabled conventional deterrence in Europe. He is a member of the American Physical Society (APS) and the Institute for Electrical and Electronic Engineers (IEEE).

In his career, Dr. Braddock served as a professor at Fordham University and later lectured at Iona College. In 1959, he co-founded BDM International, a technology-based professional services firm and principal nuclear weapons' failure testing company. BDM was later acquired/re-acquired by Ford Motor Company. BDM eventually was integrated into Northrop Grumman having grown to over 10,000 employees globally.

Dr. Braddock has served on the Defense Science Board (DSB), the Army Science Board (ASB) (Chair & Vice Chair, 2000 – 2004), the National Security Agency Scientific Advisory Board, the Defense Threat Reduction Agency Advisory Committee, the Defense Nuclear Agency Scientific Advisory Group on Effects, and the Sandia National Laboratories National Security Advisory Panel (Chair and Co-Chair).

In honor of a lifetime of service, the Joseph Braddock Award was created by the ASB and is now given out annually to a deserving ASB member.

EDUCATION

Fordham University, Ph.D., Physics, 1958
Fordham University, M.S., Physics, 1952
St. Peters College, B.S., Physics, 1951

Leonard W. Braverman, Ph.D.

Chairman, Army Science Board

EXPERTISE

- Analog Electrical Engineering
- High Power Electrical Devices
- Pulsed Power
- High Energy Lasers
- Technology Development and Management

EXPERIENCE

Dr. Leonard W. Braverman is Chairman of the Army Science Board (ASB). He has worked on a number of ASB studies for the Secretary of the Army and has also served as Vice Chair, ASB.

Prior to his support for the U.S. Army, Dr. Braverman focused his work in the private sector where he personally developed and managed global sales and distribution channels for Universal Voltronics, Hipotronics, Maxwell Labs, and General Electric. Dr. Braverman has a lifetime career in the development, marketing, and management of highly sophisticated government and commercial systems. His expertise lies in transforming foreign Ministries of Defense, commercializing DoD-owned patents, transforming U.S. Army Headquarters, and determining the return on investment of DoD laboratories.

Dr. Braverman was instrumental as a senior mentor during the formation of Army Futures Command (AFC). He participated in the establishment of a formal review process during the intitial establishment of the AFC's Cross Functional Teams (CFTs). He also participated in a variety of science and technology (S&T) reviews aimed at aligning S&T with investigations into the Army's research priorities. He has also been a contributor to both domestic and international defense projects for Boston Consulting Group.

For the past decade, Dr. Braverman has dedicated his work to the transformation of U.S. Army organizations including his work to transform Army Materiel Command (AMC) and the Training and Doctrine Command (TRADOC), which resulted in tangible savings of more than $1B per year.

EDUCATION

University of California, Berkeley, Ph.D., Electrical Engineering, 1975
University of California, Berkeley, M.S., Electrical Engineering, 1973
University of California, Berkeley, B.S., Electrical Engineering, 1971

Stephen E. Broughall, COL, USA (Ret)

Managing Director, Federal, Texas Central, LLC

EXPERTISE

- Information Management
- Project Management
- Logistics
- Government Acquisition
- Enterprise Resource Planning Systems
- Supply Chain
- International Armaments Technology Cooperation

EXPERIENCE

Colonel (Ret) Stephen E. Broughall has spent 30+ years managing and acquiring advanced technologies. Currently, he leads Washington operations for a transportation startup, Texas Central, LLC, building America's first high-speed rail system. Previously, he was Executive Vice President for the McLane Group overseeing business development, mergers, and acquisitions. He has served as a board member and consultant to several private and public organizations.

Upon retirement from active duty, he was appointed as the Director of the Secretary of the Army's Business Mission Area, designing and overseeing the governance structure for the Army's varied enterprise information systems. He also transitioned the incoming administration into the new Defense Chief Management Officer (DCMO) Act structure in 2009-2010 (including the preparation of the Army's first official report to Congress addressing business transformation). His last senior executive civilian position in government was as the Chief Information Officer (CIO/J6) of the U.S. Defense Threat Reduction Agency (DTRA).

As an Army Acquisition Corps Project Manager of two Major Defense Acquisition Programs, Global Combat Support System-Army/Logistics Information Systems and Combat Service Support Control System, he developed the majority of the Army's new retail/tactical logistics systems. He commanded the International Technology Center responsible for Army research and development (R&D) activities throughout Europe, the Middle East, and Africa. He has served on both Joint and Army staffs, including Director of the Army's Artificial Intelligence Center and Army Knowledge Online. Earlier in his career, he served in a variety of infantry and other acquisition positions.

EDUCATION

National Defense University, M.S., National Resource Strategy, 1998
U.S. Naval War College, M.A., National Security & Strategic Studies, 1992
Florida Institute of Technology, M.S., Logistics Management, 1985
Northeastern University, B.S., Social Sciences, 1976

Nancy J. Chesser, Ph.D.

Independent Consultant

EXPERTISE

- Defense Systems Analysis
- Physics
- Directed Energy Weapons
- Identification of Technology to Address Warfighter Problems
- Counter-improvised Explosive Devise Systems
- Biometrics
- Infrared Countermeasures

EXPERIENCE

Dr. Nancy J. Chesser spent over 28 years at Directed Technologies, Inc. (DTI) where she performed requirements, feasibility, and comparative analysis on a multitude of systems including particle beam weapons, high energy lasers, and ballistic missiles. She also developed numerous computer models to analyze phenomena including charged particle beam propagation, nuclear blast, thermal, and radiation effects, and radio frequency (RF) propagation in the diffraction zone.

For the Navy Electro-Optics Technology Program Office, Nancy developed a complete electro-optics simulation. She performed endo- and exo-atmospheric trajectory analyses for long-range vehicle trajectory prediction, and she developed parametric designs of intercontinental range anti-surface missiles using advanced guidance systems. Additionally, she developed a zero-order, end-to-end model to assess overall scaling of the High Energy Power System (HEPS) electrostatic fusion device.

After DTI, Dr. Chesser became an independent consultant working primarily on projects for the Institute for Defense Analyses. She is the author of more than 150 technical reports on military applications of advanced technologies.

Dr. Chesser contributed to the Army Science Board on twelve studies since 2006 including: “The Future of Army Aviation,” “Multi-Domain Battle,” and “Multi-Domain Operations.” She was selected to co-chair the “Support to Army Futures Command” (AFC) study, which was very favorably received by the AFC Commander and study sponsor. Study teams fight to have Nancy join their team too.

EDUCATION

State University of New York at Stony Brook, Ph.D., Physics, 1972
Cornell University, B.A., Physics, 1967

Inderjit Chopra, Sc.D.

Distinguished University Professor and Alfred Gessow Professor

Director Alfred Gessow Rotorcraft Center, Department of Aerospace Engineering, University of Maryland, College Park

EXPERTISE

- Aerospace Engineering
- Rotocraft
- Aeroelastic Analyses
- High Performance Rotary-Wing and Flapping Wing Micro Air Vehicles and Drones

EXPERIENCE

Dr. Inderjit Chopra is a Distinguished University Professor, Alfred Gessow Professor of Aerospace Engineering, and Director of the Alfred Gessow Rotorcraft Center at the University of Maryland. Dr. Chopra has made seminal contributions to helicopter fundamental research and education, milestone design projects (human-powered and solar-powered helicopters), and distinguished professional services to federal agencies, industry and technical societies. He has held a number of positions to include interim Chairman of the Department of Aerospace Engineering and senior researcher at NASA Ames/Stanford University Joint Institute of Aeronautics and Acoustics.

Dr. Chopra developed the smart rotor system with active flaps to actively control vibration, which Boeing incorporated. He also developed high-performance Vertical Take-Off and Landing (VTOL) micro-air vehicles. He advised and mentored 56 Ph.D. and over 100 M.S. students, who are now playing dominant roles in industry, academia and federal labs. He is an author of a textbook in smart structures, 225 archival journal papers and 410 conference proceeding papers. He was awarded the 2002 American Institute of Aeronautics and Astronautics (AIAA) Structural Dynamics & Materials (SDM) Award, the 2002 American Helicopter Society (AHS) Grover Bell Award, the 2001 American Society of Mechanical Engineers (ASME) Adaptive Structures & Material Systems Prize, the 2004 Society of Photo-Optical Instrumentation Engineers (SPIE) Smart Structures & Materials Lifetime Achievement Award, the 2008 Indian Institute of Science Centenary Distinguished Alumni Award, the 2009 AHS Alexander Klemin Award, the 2012 AHS Igor Sikorsky International Trophy, the 2016 ASME Spirit of St. Louis Aviation Medal, and the 2018 AHS Nikolsky Honorary Lectureship. He was a member of the Army Science Board (1997 – 2002), the NASA National Research Council (NRC) Aeronautics and Space Engineering Board (2007 – 2012), and NRC: NASA Aeronautics Research and Technology Roundtable (2011 – 2015). He is a Fellow of AIAA, AHS, and ASME, and Honorary Fellow of AHS.

EDUCATION

Massachusetts Institute of Technology, Ph.D., Aero and Astro, 1977
Indian Institute of Science, M.E. (with Distinction), Aeronautical Engineering, 1968
Punjab Engineering College, Chandigarh, B.S., Aeronautical Engineering, 1965

Raymond K. Compton, COL, USA (Ret)

Principal, Solutions Architecture, National Security Science & Technology, Logistics Management Institute

EXPERTISE

- Army Acquisition
- Research and Development
- Test and Evaluation
- C5ISR
- Program Management
- Modeling and Simulation
- Strategic Planning

EXPERIENCE

Colonel (Ret) Raymond K. Compton is currently serving as Principal, Solutions Architecture, National Security Science & Technology, supporting internal and external Logistics Management Institute (LMI) stakeholders in the strategic development of integrated solutions for capability gaps in National Defense.

He is a recently retired, 30-year Army Officer, with over 20 years of experience as a strategic senior leader working in all aspects of the acquisition life cycle ranging from research and development to production of complex systems supporting our National Defense. This includes managing one of the largest Army Acquisition Category (ACAT) ID, multi-billion dollar programs, supplying the newest digital communications to all Army units worldwide.

Ray ended his military career as the Chief of Staff (CoS) of Combat Capability Development Command (CCDC), where he led the staff in a large transformation from Army Material Command (AMC) to Army Futures Command (AFC), shaping the processes and structures of the newly formed CCDC and its effort to modernize the Army for the future.

As a member of the Army Science Board (ASB), Ray provides members insight into Army leadership interests, science and technology, and current operational requirements by linking members with subject matter experts based on his 30 years of service as an Signal Officer, Lab Director, Product Manager, Test Center Commander, and Chief of Staff of CCDC. Over the past three years, he has contributed to many Army, DoD, and Congressional initiatives supporting Army Modernization.

He is also a Defense Acquisition Workforce Improvement Act (DAWIA) Certified Level III Program Management and Science and Technology Manager; Level II Engineering and Information Technology; Level I Test and Evaluation. He was also a member of the U.S. Army Uniformed Scientist and Engineering Program.

EDUCATION

U.S. Army War College, M.S., Strategic Studies, 2016
University of Central Florida, Graduate Certificate, Simulation Modeling and Analysis, 2000
University of Central Florida, M.S., Simulation Modeling and Analysis, 2000
Christopher Newport University, B.S., Computer Science with Math Minor, 1989

Christopher G. Cross, COL, USA (Ret), Ph.D.

Design Physicist, Lawrence Livermore National Laboratory

EXPERTISE

- Physics
- Joint Munitions
- Tactical Warfare Systems/Land Warfare and Munitions
- Ground Combat
- Capabilities Development

EXPERIENCE

Dr. Christopher G. Cross is a Design Physicist at Lawrence Livermore National Laboratory (LLNL), currently working as the LLNL technical liaison to the Missile Defense Agency. He recently served on an Intergovernmental Personal Act (IPA) position leading the Joint Munitions Program as the Technical Director at the Office of the Under Secretary, Secretary of Defense (OUSD), Acquisition, Technology, and Logistics (AT&L) Acquisition/Tactical Warfare Systems/Land Warfare and Munitions.

While at the Office of the Secretary of Defense (OSD), Dr. Cross served on the Long Range Research and Development Program for Ground Combat and served as the OUSD (AT&L) lead for the Ground Combat Strategic Portfolio Review.

Dr. Cross retired from the U.S. Army as a Colonel and as the Chief Scientist and Chief Technology Officer, Capabilities Development and Learning Directorate, Army Capabilities Integration Center, Training and Doctrine Command. In this role, he was responsible for the warfighter validation of Army science and technology investment supporting current and future force developments. He coordinated efforts with other military, industry, academia, and international research efforts from basic research through fielding of advanced physics, chemistry, biology, material science, neuroscience, nano-technology, data management, electromagnetic spectrum, advanced communications, advanced manufacturing technologies, and engineering technologies.

EDUCATION

U.S. Naval Postgraduate School, Ph.D., Physics, 2007
U.S. Army War College, M.S., International Studies, 2013
University of Washington, M.S., Applied Physics, 1998
North Carolina State University, B.S., Mechanical Engineering, 1987

William S. Crowder, COL, USA (Ret), M.B.A.

Senior Fellow at Logistics Management Institute

EXPERTISE

- Strategic Concepts on Logistics
- Supply Chain and Deployment
- Operational Logistics
- Change Management
- Systems Design and Engineering
- Program Management of Large Programs
- Contingency Contracting
- Financial Management

EXPERIENCE

Colonel (Ret) William S. Crowder entered active duty in 1967 and retired after 26 years in 1993 as a Colonel. Notable achievements included developing three major software systems in transportation and financial management, serving as Director of Strategic Mobility for the U.S. Army in Operations Desert Shield and Desert Storm, and designing and implementing major revisions to the Army approach for strategic deployment and force projection.

Mr. Crowder has extensive experience in long-range planning, strategic mobility management, concepts and doctrine development, and technology assessments as a research program manager and Transportation Army officer. He is currently focused on helping various DoD communities improve operational contracting support and apply analytic frameworks to their large data sets.

Mr. Crowder's expertise lies in logistics, supply chains, and strategic deployments. He is currently a Senior Fellow at Logistics Management Institute (LMI) having served there in the past as Director, Logistics Services and Future Concepts Division. He has also served at Boeing/SAIC and Defense Advanced Research Projects Agency (DARPA).

Mr. Crowder has contributed to numerous studies including "Task Force Odin Assessment," "Evaluation of the Army Use of Predictive Data for High Risk Behavior," "Decisive Army Strategic & Expeditionary Maneuver," "Strategies to Optimize Army Operating and Generating Forces," "The Military Benefits and Risks of the Internet of Things (IoT)," "Dense Urban Operations" (Chair), and "Army Corps of Engineers" 2019 study (Chair).

EDUCATION

Industrial College of the Armed Forces, 1990
University of Georgia, M.B.A., Business/System Design, 1973
University of Alabama, B.S., Accounting, 1966
Marion Military Institute, A.A., Business, 1966

Siddhartha “Sid” Dalal, Ph.D.

Adjunct Professor and Executive in Residence Columbia University
Professor, Rand Corporation

EXPERTISE

- Information Analytics
- Information Technology
- Machine Learning
- Research Management
- Network Engineering
- Software Engineering
- Risk Analysis

EXPERIENCE

Dr. Siddhartha “Sid” Dalal is a Professor of Practice at Columbia University. Prior to joining Columbia University, he was Chief Data Scientist and Senior Vice President at American Internation Group (AIG) in charge of research and development (R&D) that included creation and application of artificial intelligence (AI), Statistics, and Computer Science (CS) to Computer Vision, Natural Language Processing, and Sensors/IOT for managing risks. He came to AIG from RAND Corporation where he was the Chief Technology Officer and Technology Advisor to the president of RAND Corporation.

Dr. Dalal also served as Vice President of Research, Xerox, overseeing worldwide imaging and software services research. He served at Bell Labs and at Bellcore/SAIC as their Chief Scientist and Executive Director. He has over 100 peer-reviewed publications, patents, and monographs covering the areas of AI, machine-learning, risk analysis, medical informatics, Bayesian statistics and economics, image processing, and sensor networks.

At Rand, he was responsible for the creation of technology and spinning-off of Praedicat, Inc., a casualty insurance analytics company. He has received several awards including awards from the Institute for Electrical and Electronics Engineering (IEEE), the American Statistical Association (ASA), and the American Society for Quality (ASQ). Dr. Dalal is one of only a few members of the Army Science Board (ASB) who have extensive knowledge and experience with artificial intelligence.

Dr. Dalal’s work on the ASB includes participation in the following studies: “Talent Management,” “Cybersecurity,” “Army R&D,” “Manned, Unmanned Teaming,” and the 2019 study, “Battlefield Uses of AI.”

EDUCATION

University of Rochester, Ph.D., Statistics, 1976
University of Rochester, M.B.A., Marketing, 1973

Melinda D. Daniels, Ph.D.

Associate Research Scientist and Director of the Fluvial Geomorphology Section at the Stroud Water Research Center

EXPERTISE

- Fluvial Geomorphology
- Hydrology
- River and Watershed Restoration Science and Policy
- Stream Ecosystem Ecology
- Natural Resource Management

EXPERIENCE

Dr. Melinda Daniels is an Associate Research Scientist and Director of Fluvial Geomorphology at the Stroud Water Research Center in Avondale, PA.

Dr. Daniels' research program focuses on modern and legacy human influences on river and watershed dynamics and the complex interactions between hydrology, geomorphology, and ecology that govern stream ecosystem dynamics. Her work has been funded by federal, state, local, and non-governmental organizations including the National Science Foundation, the U.S. Environmental Protection Agency, the U.S. Geological Survey, the U.S. Department of Agriculture, the Nature Conservancy, the National Fish and Wildlife Foundation, and the William Penn Foundation. Her current projects focus on innovative science-based, whole-watershed restoration strategies for ecological resiliency and flood control, the impacts of climate change on coupled human-watershed systems, the effects of watershed land management on hydrologic, sediment and nutrient regimes, and the role of biological ecosystem engineers in regulating stream sediment transport processes.

She is the author of over 50 peer-reviewed publications and more than 200 conference papers. She frequently serves as a panelist for several programs at the National Science Foundation and is a member of the Missouri River Recovery Implementation Committee Independent Science Advisory Panel reviewing U.S. Army Corps of Engineers (USACE) adaptive management strategies and actions regarding three federally endangered bird and fish species.

Dr. Daniels served on the USACE Environmental Advisory Board from 2013 – 2019 and contributed to regulatory and policy efforts regarding e-flow initiatives, recruitment of Army veterans into STEM disciplines, permitting of small dam removals, and river and reservoir sediment management.

Previously, Dr. Daniels was a tenured Associate Professor and Director of the Graduate Program in Geography at Kansas State University. She now teaches at the University of Pennsylvania.

EDUCATION

University of Illinois at Urbana-Champaign, Ph.D., Physical Geography, 2003
University College of London, England, M.R., Environmental Science, 1997
Cornell University, B.S., Natural Resources and Environmental Science, 1996 (with Honors)

Craig J. Desjardins, Ph.D.

Chief Technology Officer for Striveworks, Inc.

EXPERTISE

- Machine Learning Driven Solutions
- Defense and Intelligence
- Sensor Fusion
- Structured and Unstructured Data
- Processing, Exploitation, and Dissemination (PED)
- Process of Full-Motion Video, Graph-Based Neural Network Models for Network ID
- Allsource Intelligence Fusion

EXPERIENCE

Dr. Craig J. Desjardins is the Chief Technology Officer (CTO) for Striveworks, Inc., a firm specializing in the development and delivery of machine-learning driven solutions, with a focus on the Defense and Intelligence Communities. His team has specialized expertise in the application of machine learning to data and sensor fusion problems, including analytics for both structured and unstructured data. The team's work has been applied to applications as diverse as automation of the processing, exploitation, and dissemination (PED) process of full-motion video, graph-based, neural network models for network ID, allsource intelligence fusion.

Prior to joining Striveworks, Inc., Dr. Desjardins was a partner at Virtu Financial, a leading electronic marketmaker and financial services firm for nine years. There, he had many roles developing statistical models and trading strategies as well as software development work including realtime model-fitting, tactical-order management, data management and user interfaces. In these capacities, Dr. Desjardins led teams globally, including from offices in New York, Sydney, and Singapore. His work applies across multiple asset classes, but particularly contributing to the efficient pricing of listed derivatives. He has provided feedback and advice on markets to institutions such as the U.S. Securities and Exchange Commission and the Bank of England.

Before this work, Dr. Desjardins' academic specialties were algebraic combinatorics and geometry.

EDUCATION

Massachusetts Institute of Technology, Ph.D., Mathematics, 2010
Brown University, Sc.B., Mathematics, 2004

Robert E. Douglas, Ph.D.

Managing Director, Douglas Analytic Services

EXPERTISE

- Analysis of Advanced Systems
- Modelling and Simulation
- Systems Engineering

EXPERIENCE

Dr. Robert E. Douglas graduated from the U.S. Military Academy (USMA) at West Point in 1962 and was commissioned as an Infantry Officer. He was in the top one percent of his class in engineering at West Point. During his Army career, he was an Airborne Ranger having a range of experiences from combat tours as an infantryman in Vietnam, to tours with the United Nations in the Middle East, to the Joint Chiefs of Staff studying nuclear weapons, and to developing a communications van for the Under Secretary of Air Force for Space Systems.

Dr. Douglas joined Martin Marietta (later to be part of Lockheed Martin) where he was Director, Systems Analysis for 16 years. In this position, he was responsible for analysis of a wide range of advanced weapons systems including fire control for Air Force fighters (F-22 and F-35), the Joint Air-to-Surface Standoff Missile, Army Javelin and Hellfire missiles, Longbow radar, the Medium Extended Air Defense System, and the Copperhead guided projectile. He later joined DRS Technologies as Vice President, Engineering, with a focus on thermal imaging systems for Army combat vehicles (M1 and M2), combat aviation (AH-64 and OH-58D), and infantry weapons and helmets.

Dr. Douglas has been awarded five patents and has eight patents pending in the medical and space fields. He has been awarded the Personal Achievement Award by the College of Engineering, West Point.

Dr. Douglas supported the Army Science Board (ASB) as the Chair on at least eight studies, Panel Lead on five different panels, Head of the Membership Committee, member of the Red Team, and Chair of “An Independent Assessment of the Next Generation Anti-Armor Strategy.” His contributions to the ASB are immeasurable.

EDUCATION

University of Central Florida, Ph.D., Operations Research, 1993
U.S. Naval Postgraduate School, M.S., Operations Analysis, 1972
U.S. Military Academy at West Point, B.S., Engineering, 1962

Ray Michael Dowe, Jr., Ph.D.

Independent Consultant

EXPERTISE

- Physics
- Space
- Directed Energy
- C3I
- Ballistic Missile Technology
- Missile Defense
- Fusion Power
- Sensor Technology
- Acquisition
- Nuclear Systems

EXPERIENCE

Dr. Ray Michael Dowe, Jr. has over 50 years of experience in defense and industrial research, development, and acquisition in the fields of space, directed energy, Command, Control, Communications, and Intelligence (C3I), ballistic missile technology, missile defense, fusion power, and sensor technology. This includes six years managing major defense programs at Advanced Research Projects Agency (ARPA) in these fields while a United States Army officer. While in the Army, he served 14 years as a unit commander, a service school instructor, and a war plans officer in Europe. During that time, he served three years in combat duty.

Dr. Dowe served concurrently in academia as a physics professor for 12 years. He was the KTech Corporation Chief Scientist from 2008 to 2018 (which was later acquired by Raytheon in 2011). Before that, he served as the President and Chief Executive Officer (CEO) of Information Systems Laboratories (ISL). He worked at ISL for 12 years building the company from a six-man entity to a major developer of advanced sensors, sensor/C3I platforms, and nuclear systems analysis. Prior to that, he served in various positions including Executive Vice President, Senior Vice President, and Vice President at Titan, W.J. Schafer Associates, JAYCOR, Science Applications International, Inc., and Booz Allen Hamilton.

Over his career, Dr. Dowe received numerous awards for outstanding service in recognition of his military service to include the Purple Heart and various awards for contributions to the scientific and business communities. He has served on at least 15 boards of directors and over 40 distinguished government committees and panels including six years on the Army Science Board. He has published over 100 articles in journals, books, and reports.

EDUCATION

University of Alabama, Ph.D., Physics, 1965
U.S. Command and General Staff College, 1964
University of Alabama, M.S., Physics, 1961
U.S. Military Academy at West Point, Military Engineering, 1950

Marilyn Miller Freeman, Ph.D.

Courtesy Faculty, Clarkson University's Mechanical and Aerospace Department in the Coulter School of Engineering

EXPERTISE

- Materials Science and Engineering
- Sustainable Energy
- Research and Technology
- Congressional Affairs
- Future Combat Systems
- Army Acquisition

EXPERIENCE

Dr. Marilyn Miller Freeman currently has a courtesy faculty appointment in Clarkson's Mechanical and Aerospace Department in the Coulter School of Engineering. Formerly, she was the Director and Distinguished Professor, Materials Science and Engineering (MSE), Clarkson University, Potsdam, New York and also advised MSE Ph.D. students. She was the Jesanis Endowed Chair for Sustainable Energy where she advised the Dean of Wallace H. Coulter School of Engineering (CSoE) on MSE and CSoE. As Director, Center for Advanced Materials Processing (CAMP), Dr. Freeman managed all aspects of the Center to ensure successful execution of the New York State Office of Economic Development, a NYSTAR Center for Advanced Technology (CAT) Program.

Dr. Freeman served as the Deputy Assistant Secretary for Research and Technology (R&T) under the Secretary of the Army where she was responsible for oversight of 21 laboratories, 11,000 scientists and engineers, and an annual budget of $2.5B. She served as U.S. Representative to The Technical Cooperation Program (TTCP) LAND Executive Group, comprised of the U.S., U.K., Canada, New Zealand, and Australia. Dr. Freeman served as Director, U.S. Army Natick Soldier Research, Development, and Engineering Center (NSRDEC); Deputy for Technologies, Office of the Deputy Assistant Secretary of the Army for R&T where she managed funding for NSRDEC, U.S. Army Armament Research, Development and Engineering Center (ARDEC), U.S. Army Tank Automotive Research, Development, and Engineering Center (TARDEC), and Future Combat Systems (FCS); Director of Research, TARDEC; Deputy of Technologies, Office of the Assistant Secretary of the Army for R&T; and Technical Director, FCS, Defense Advanced Research Projects Agency (DARPA) where she established the FCS program as a new $600M joint Army S&T/DARPA program.

EDUCATION

University of Texas at Austin, Ph.D., Materials Science and Engineering (MSE), 1996
Stevens Institute of Technology, Master in Materials Science, 1990
University of Dayton, B.S., Physical Science, 1975

Brian T. Friederich, M.I.A.

Senior Data Scientist and Machine Learning Engineer, Striveworks, Inc.

EXPERTISE

- Machine Learning
- Natural Language Processing
- Data Science
- Statistics
- Econometrics
- Economics
- Intelligence Analysis
- Southeast Asia
- Vietnamese
- Chinese
- Russian
- R, Python & SQL

EXPERIENCE

Brian T. Friederich is currently a Senior Data Scientist and Machine Learning Engineer at Striveworks focused on applying cutting-edge machine learning and natural language processing techniques to improve targeting processes.

After completing a year of Vietnamese language training in Hanoi through the U.S. government's National Security Education Program as a Boren Scholar, Mr. Friederich worked as an Executive Assistant at the World Trade Center, San Diego, a Southeast Asia expert at the Stimson Center think tank, and as a Development Consultant with a nonprofit in Rwanda.

Following his grandmother's death, Mr. Friederich left the professional world and moved back to his hometown to become his grandfather's primary caretaker. The following year, Mr. Friederich enrolled in the University of California (UC) San Diego's Graduate School of Global Policy and Strategy, where he fell in love with statistics, became a Dean's Fellow, and earned a Masters of International Affairs (MIA) in Economics and Econometrics.

His data science portfolio and language skills (Vietnamese, Chinese, and Russian) caught the attention of the Central Intelligence Agency (CIA), and Mr. Friederich was recruited as an Economic and Political Analyst. He eventually joined the CIA's Analytic Methodologist Team to author quantitative analytic pieces and to sharpen the analysis of fellow officers throughout the agency. Over four years with the CIA, he authored over 200 deliverables including three Presidential Daily Briefs, and he earned three exceptional service awards for his impactful, insightful, and cogent analysis.

Mr. Friederich has since left the agency to pursue a full-time career as a Data Scientist and Machine Learning Engineer, and has built numerous machine learning, NLP, deep learning, and data science products for the National Geospatial Intelligence Agency and U.S. Army, first with Booz Allen Hamilton, then with Striveworks, Inc., and NCyber. His professional quantitative experience includes supervised, unsupervised, and deep learning, natural language processing, econometrics, graph analysis, software development, and web development.

EDUCATION

University of California, San Diego, M.I.A., Economics, 2014

University of California, San Diego, B.A., International Relations and Political Science, 2010 (*magna cum laude*)

Herbert “Herb” Gallagher, COL, USA (Ret) M.B.A.

Independent Consultant

EXPERTISE

- Directed Energy Weapons and Optics
- Nuclear Weapon Systems
- Strategic Intelligence Collection Planning/ Operations
- Strategic All-Source Intelligence Analysis
- Strategic Information Warfare/ Operations
- Air and Missile Defense Programs/Systems
- Defense/ Intelligence Industry Corporate Business Unit Management

EXPERIENCE

Colonel (Ret) Herb Gallagher graduated from the United States Military Academy (USMA) at West Point in 1971 and for the next seven years, served in Army nuclear air defense units in New York and Germany. Following graduate school at the Georgia Institute of Technology, he served as an Assistant Professor of Physics at West Point where he established the USMA Laser and Photonics Laboratory. He also worked on high energy laser programs at Los Alamos and Lawrence Livermore National laboratories.

For the next 10 years, Mr. Gallagher served in classified Army intelligence/operational units that provided strategic information warfare and targeting support services across the Intelligence Community (IC) and DoD. His final military assignment was in the Pentagon as Executive Director of the Army Science Board (ASB) from 1993 to 1996.

Upon retiring from the Army, Mr. Gallagher joined Computer Sciences Corporation (CSC) where he was the Program Manager of a $250M support contract to the Missile Defense Agency. Following that, he served as an executive at CSC until 2008, managing a $400M business unit that provided integrated end-to-end operational, acquisition, and software services to a wide variety of DoD clients.

During his tenure at CSC, Mr. Gallagher also served as a member/consultant to the ASB. He participated in numerous Army, Air Force, and National Academy of Sciences studies that addressed critical Army and DoD issues.

Following CSC, Mr. Gallagher joined Applied Systems Research Inc., as their Chief Operating Officer, providing technical intelligence services across the IC. Upon the sale of the company in 2010, Mr. Gallagher retired from Corporate activities, becoming an Independent Consultant to the Intelligence and DoD communities. Mr. Gallagher currently resides with his wife Barb in Savannah GA.

EDUCATION

CW Post Long Island University, M.B.A., 1983
Georgia Institute of Technology, M.S., Physics, 1980
Georgia Institute of Technology, M.S., Electrical Engineering, 1980
U.S. Military Academy at West Point, B.S., Physics/ Nuclear Engineering, 1971

Emerson N. Gardner, Jr., LtGen USMC (Ret)

President, Emerson Gardner, LLC

EXPERTISE

- Government Budgeting Processes and Programmatic Analysis
- Defense and Aerospace Industry
- Merger/Acquisition Evaluation
- Combat Aviator

EXPERIENCE

Lieutenant General (Ret) Emerson N. Gardner, Jr. is President of Emerson Gardner, LLC, providing strategic consulting services on government budgeting processes and programmatic analysis, with particular expertise in the defense and aerospace markets. He served 37 years in the United States Marine Corps where his last role was as the acting Director of Cost Assessment and Program Evaluation, Office of the Secretary of Defense.

In his book, *Call to Duty*, Secretary of Defense, Robert Gates, cited General Gardner as his "go to guy on the budget." In this position, he led independent evaluations of all major defense programs and was responsible for the development of the Pentagon's $3T six-year Future Year Defense Plan.

Previously, he was the Deputy Commandant of the Marine Corps for Programs and Resources where he was directly responsible for the integration and execution of all aspects of the Marine Corps' $33B annual budget. LtGen (Ret) Gardner is an aviator with over 4,300 hours of flight and combat experience. His career highlights include tours in Marine Presidential Helicopter Squadron (HMX-1) as a Presidential Helicopter Command Pilot for President Reagan and deployments to the Middle East, Europe, and Japan including command in the Middle East and Africa. He was Deputy Director for Operations at U.S. Central Command after 9/11 prior to becoming Director for Operations, U.S. Pacific Command.

LtGen (Ret) Gardner is a recognized expert on the federal government's programming and budgeting process and has been providing strategic consulting and subject matter expertise to several Fortune 500 companies and to Wall Street investors since his retirement from the Marine Corps in 2010.

EDUCATION

Syracuse University, National Security Seminar, Maxwell School of International Relations, 2000
Norwegian Defense College, 1993 – 1994
Olmsted Scholar, Goettingen, Germany, 1978 – 1980
Duke University, A.B., History, *magna cum laude*, 1972

Greg C. Gardner, COL, USA (Ret), Ph.D.

Certified Information Security Systems Professional

Chief Architect, Defense and Intelligence, NetApp

EXPERTISE

- Intelligence
- Information Technology
- Infantry
- Airborne
- Ranger
- Information Systems Security
- Cyber
- Homeland Security
- Big Data

EXPERIENCE

Dr. Greg C. Gardner currently works as Chief Architect, Defense and Intelligence, NetApp. Prior to that, he served as the Deputy Chief Information Officer (DCIO) in the Intelligence Community, where he developed information management systems that enabled an integrated, agile intelligence enterprise. Greg also worked at Oracle Corporation as the Vice President of Homeland Security Solutions and Public Sector Strategy.

Colonel (Ret) Gardner served over 30 years in the U.S. Army. His military assignments included the Joint Staff in the Command, Control, Communications, and Computers Directorate, where he developed the prototype of the Joint Protected Enterprise Network (JPEN), which enabled force protection information to be securely shared within DoD. He served in leadership positions in infantry, airborne, and ranger units, commanded 1st Battalion, 504th Parachute Infantry Regiment, 82d Airborne Division and the 3rd U.S. Infantry (The Old Guard), served as Operations Officer, 3rd Brigade Combat Team, 7th Infantry Division (Light), Operation Just Cause, Panama, G3, 25th Infantry Division (Light) Hawaii, Executive Officer to the Commander in Chief, Pacific Command, and Chief of Staff, Ministry of National Security and Defense, Coalition Provisional Authority, Baghdad, Iraq.

Greg is an Adjunct Professor in the Volgenau School of Engineering at George Mason University. He was a Senior Fellow of the George Washington University Center for Cyber and Homeland Security and is a standing member of the Cybersecurity Task Force. He has been a Defense Science Board Consultant and Commissioner on the Federal Government's Big Data, Cloud, and Technology Convergence Commissions. Greg also served as a member of the Presidential Transition Team (2016/2017) focusing on information technology and cyber related issues.

EDUCATION

Capella University, Ph.D., IT Management (with Honors), 2014

U.S. Naval War College, M.A., National Security and Strategic Studies, (Highest Distinction), 1994

U.S. Army Command and General Staff College, Master of Military Art and Science, 1987

Purdue University Krannert School, M.S., Industrial Relations (with Distinction), 1982

U.S. Military Academy at West Point, B.S., Electrical Engineering, 1974

Mark N. Glauser, Ph.D.

Professor of Mechanical and Aerospace Engineering
College of Engineering and Computer Science
Professor of Physics, College of Arts and Sciences, Syracuse University

EXPERTISE

- Turbulent Flows
- Jet Noise
- Aero-Optics
- Flow Separation
- Unsteady Aerodynamics
- Unmanned Air Vehicles
- Signal Processing
- Principal Component Analysis
- Compressive Sensing
- Low Dimensional Modeling
- Intelligent Wind Turbines

EXPERIENCE

Dr. Mark N. Glauser recently returned full time as a faculty member at Syracuse University. Prior to that, he served as the Research Dean in the College of Engineering and Computer Science. Past positions include Associate Editor, *American Institute of Aeronautics and Astronautics (AIAA) Journal*, Program Manager, Turbulence and Internal Flows Program, Air Force Office of Scientific Research (AFOSR), and Accreditation Board for Engineering and Technology Engineering Accreditation Commission (ABET EAC) member and evaluator for Aerospace Engineering.

In his work, Dr. Glauser conducts major experimental, computational and theoretical efforts to apply low-dimensional models to turbulent and transitioning flows for understanding and control. He serves as a member of the NASA Langley Fundamental Aerodynamics Peer Review Panel and the Army Research Office (ARO) Mechanics program oversight board (2017 – present).

He has obtained more than $12M in research funding as Principle Investigator (PI)/Co-PI from NASA, Environmental Protection Agency (EPA), Department of Energy (DOE), General Electric (GE), and many others. Dr. Glauser has published more than 120 peer-reviewed publications and conference proceedings and has presented more than 100 invited presentations and keynote talks worldwide. He has mentored multiple post doctorates, Ph.D.s and masters students.

Dr. Glauser is a Fellow of the American Institute of Aeronautics and Astronautics, the American Society of Mechanical Engineers, the American Physical Society, and the Institute of Physics (UK). In 1995, he was honored as a Fulbright Scholar in Poitiers, France.

He has contributed to many Army Science Board studies to include “Multi-Domain Battle” (Vice Chair), “Multi-Domain Operations” (Vice Chair), “Future Armor/Anti-Armor“ (Vice Chair), “Army Aviation” (Vice Chair), and 2019’s “Next Generation Anti-Armor Strategy” (Vice Chair).

EDUCATION

University at Buffalo, SUNY, Ph.D., Mechanical and Aerospace Engineering, 1987
University at Buffalo, SUNY, B.S., Mechanical Engineering, 1982

Jay “Scott” Goldstein, Maj Gen, USAF, Ph.D.

Chief Strategy & Technology Officer, ENSCO, Inc.

EXPERTISE

- Information and Detection Theory
- Space Technology and Space Operations
- Cyberspace Operations
- Electronic Warfare
- Sensor Systems and Signatures
- Battle Management/ Command and Control
- Air Dominance
- Multi-Domain Operations
- ISR

EXPERIENCE

Major General Jay “Scott” Goldstein, U.S. Air Force Reserve, previously worked at Dynetics, QinetiQ North America, ManTech International Corporation, SAIC and the Massachusetts Institute of Technology (MIT) Lincoln Laboratory. He has more than 35 years experience in the Army and Air Force. He is currently serving as the Mobilization Assistant to the Under Secretary of the Air Force and has previously served in general officer assignments at 24th Air Force (Air Forces Cyber), the Space and Missile Systems Center, and Air Force Research Laboratory.

Maj Gen Goldstein began his military career in the U.S. Army and transferred to the U.S. Air Force in 1990. As a developmental engineer, he made significant contributions to intelligence, surveillance and reconnaissance systems, earning 15 Air Force Scientific Achievement Awards. He was mobilized seven times to lead Secretary of Defense authorized space and cyberspace activities during Operations Enduring Freedom and Iraqi Freedom.

In his civilian capacity, Maj Gen Goldstein is an industry executive with extensive leadership and management experience as well as engineering expertise. He has published more than 100 peer-reviewed articles/book chapters and holds five U.S. patents on advanced topics in detection theory, information theory, data compression, ISR, and communications systems.

Maj Gen Goldstein is a Fellow of the Institute of Electrical and Electronics Engineers (IEEE), a Fellow of the Washington Academy of Sciences, a Member of the National Academy of Sciences, Engineering and Medicine’s Intelligence Science and Technology Experts Group, and he served on the Defense Science Board’s Air Dominance Task Force.

EDUCATION

University of Southern California, Ph.D., Electrical Engineering, 1997
George Mason University, M.S., Electrical Engineering, 1992
George Mason University, B.S., Electrical Engineering, 1989

Alan C. Guarino, M.B.A.

Vice Chairman, Chief Executive Officer
and Board Services Practice, Korn Ferry

EXPERTISE

- Talent Management
- Global Financial Markets
- Strategy Execution
- Executive Team Effectiveness
- CEO Coaching

EXPERIENCE

Mr. Alan C. Guarino is Vice Chairman, Chief Executive Officer (CEO) and Board Services practice, Korn Ferry. He brings a unique perspective to Korn Ferry as a former CEO and experienced consultant working with corporate boards and executive teams to drive business and talent management strategies. Alan is a published thought leader on talent management and leadership. He is a frequent presenter through various media outlets such as Fox Business and Bloomberg Radio.

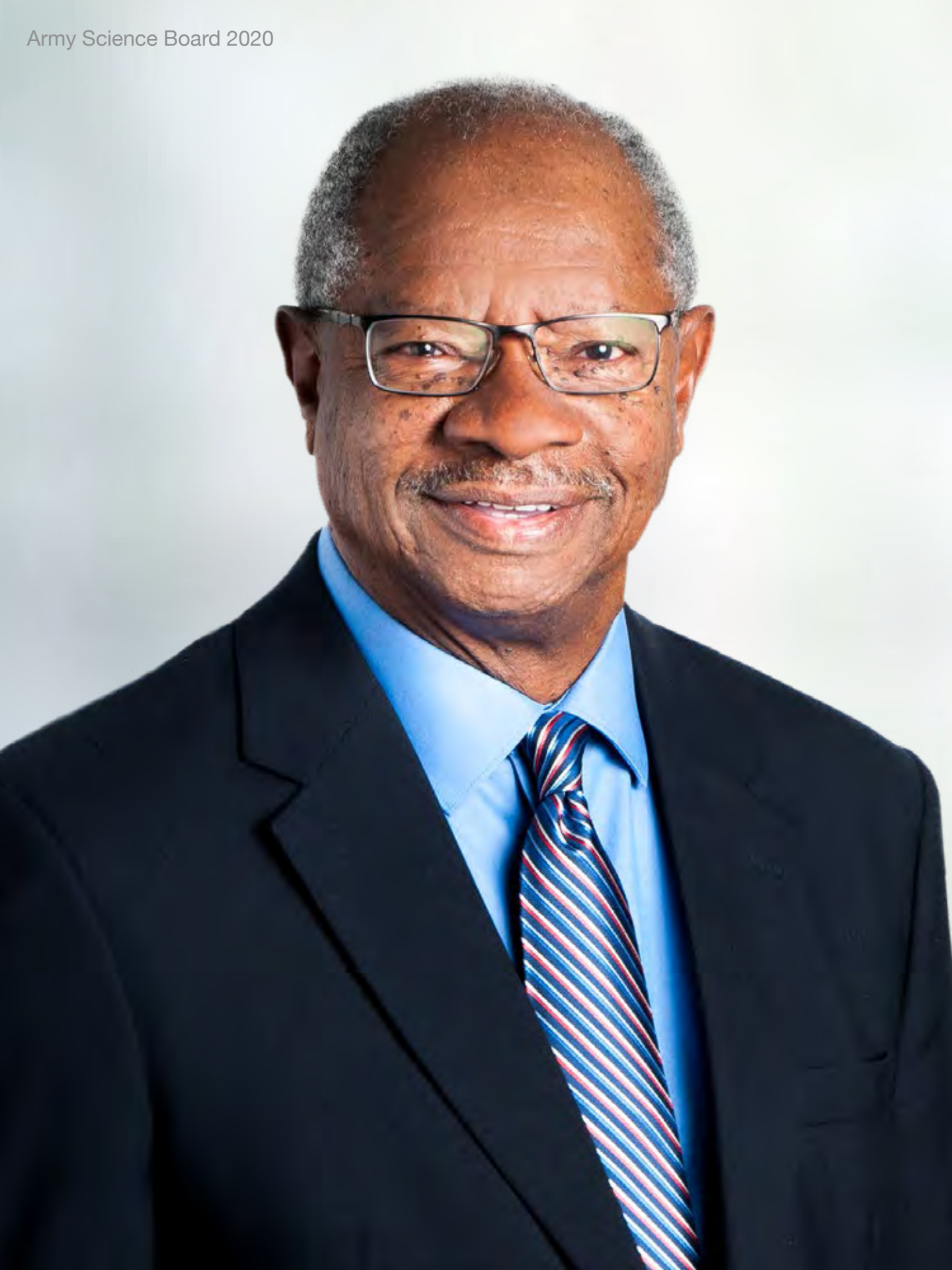
As the Founder and CEO of Cornell International, Alan successfully scaled the company from 1993 through 2003. In 2003, he sold the company to Adecco, which at the time was a $20B company headquartered in Switzerland. It was, and remains, the largest staffing company in the world. He remained with Adecco and served as CEO of Cornell International operating inside Adecco for four years. In 2007, he published the book *Smart is Not Enough!* (Wiley) and joined Korn Ferry.

Currently at Korn Ferry, Alan leads major consulting initiatives across industries, with deep expertise in global financial markets. He launched Korn Ferry's Execution Accelerator initiative, helping business leaders better execute their strategies. He leads senior executive search and C-suite succession assignments for large Fortune 500 companies as well as cutting-edge FinTech companies within capital markets.

Alan has also served as founding Chairman of the Board of Boys Town of New York, President of the West Point Society of New York, and Finance Chairman of Capuchin Youth and Family Ministries. He is an Advisory Board Member to Axoni, R4, CircleBlack, Thoughtwire and Censia. He is also Co-Chairman of the Saint Pio Foundation. As a public company board member, he currently chairs the Compensation Committee of The Chefs Warehouse (NASDAQ: CHEF).

EDUCATION

Embry Riddle University, M.B.A., 1985
U.S. Military Academy at West Point, B.S., Concentration in Chinese and Economics, 1982



William Guyton, Jr.

Former Director, Sandia National Laboratories

EXPERTISE

- Missile Defense
- Conventional Weapon Systems
- Directed Energy Systems
- Defense Management
- Systems Engineering

EXPERIENCE

Mr. William Guyton, Jr., is the former Director, Integrated Military Systems, Sandia National Laboratories having served in this role for nearly a decade. At Sandia, he designed and developed missile defense test targets, operated the Kauai Test Facility, provided modeling and simulation for missile defense system prototypes, threat lethality, and range safety, designed and developed conventional systems' warheads/fuzes, penetrators, special materials, and hypersonic vehicles for the Department of Defense (DoD), managed the Joint Munitions Program for DoD/Department of Energy (DoE) which develops dual-use munitions and sensor-related technologies, and designed and developed directed energy technologies and subsystems in high power microwave, short pulse lasers, electromagnetic applications and power sources. His areas of expertise focus on missile defense, conventional weapons systems, and directed energy.

Prior to his tenure at Sandia, Mr. Guyton had a 30-year career at Lockheed Martin where he served as Principal, Sr. and Jr. Engineer; Program Manager; Manager, Systems Engineering; Director, Advanced Programs; Manager, Systems Analysis and Simulation; and Vice President (VP) and General Manager, Applied Engineering and Development Lab. As the VP and General Manager, he lead over 1,500 people in an organization that performs R&D and product/systems development for DoE, DoD, and Federal Aviation Administration (FAA).

Mr. Guyton has participated on a number of Army Science Board studies to include "Human Interaction and Behavioral Enhancement," "Countering Indirect Fires," "Multi-Domain Battle," "Multi-Domain Operations (MDB 2.0)," and 2019's "Army Futures Command" study.

EDUCATION

Rutgers University, M.S., Electrical Engineering, 1970
Fairleigh Dickenson University, B.S., Electrical Engineering, 1966

Peter A. Hancock, D.Sc., Ph.D.

Provost Distinguished Research Professor, Pegasus Professor
University Trustee Chair, Department of Psychology
University of Central Florida

EXPERTISE

- Psychology
- Simulation and Training
- Cognitive Science
- Human Factors
- Ergonomics
- Occupational Safety
- Human Automation/ Autonomy Interaction
- Behavioral Responses under Extreme Stress
- Trust and Transparency in Human Automation/ Autonomy Interaction
- Human Relations with Robots

EXPERIENCE

Dr. Peter A. Hancock is Provost Distinguished Research Professor in the Department of Psychology and the Institute for Simulation and Training at the University of Central Florida (UCF). He has been named University's Pegasus Professor and University Trustee Chair. At UCF, he directs the MIT^{Z} Research Laboratories. Previously, at the University of Minnesota, he founded and directed the Human Factors Research Laboratory where he was also a member of the Cognitive Science Center and the Center on Aging Research. He is an affiliated Scientist at the Humans and Automation Laboratory at Duke University, a Research Associate of the University of Michigan Transport Research Institute, and a Senior Research Associate at the Institute for Human and Machine Cognition in Pensacola, Florida.

Professor Hancock is a Fellow of multiple scientific societies including the Institute of Electrical and Electronic Engineers (IEEE), the American Psychological Association (APA) and the American Association for the Advancement of Science (AAAS). He has been a Member of the National Academy of Sciences (NAS), National Research Council's Committee on Human Factors, and President of the Human Factors and Ergonomics Society (HFES), the Society of Engineering Psychologists, and Chair of the Board of the Society for Human Performance in Extreme Environments (HPEE). He is a member of the Cosmos Club.

Professor Hancock is the author of over 1,000 refereed scientific articles, chapters, and reports as well as writing and editing 24 books. He has presented, or been an author on, over 1,000 scientific presentations. He has received many world-wide honors including the Sir Frederic Bartlett Medal, the Ergonomics Society of Great Britain, the Norbert Wiener Award of the Institute of Electrical and Electronics Engineers (IEEE), and most recently he was named to the Modelling and Simulation "Hall of Fame."

EDUCATION

Loughborough University, England, D.Sc., Human-Machine Systems, 2001
University of Illinois, Champaign, Illinois, Ph.D., Human Performance, 1983
Loughborough University, England, M.Sc., Human Biology, 1978
Loughborough University, England, B.Ed. (Honors), Anatomy and Physiology, 1976

William W. Hansen

Cavalry Creek Consulting Group, LLC

EXPERTISE

- Doctrinal Development
- Strategic Mobility
- Armor and Anti-Armor
- Strategic Planning
- Air and Missile Defense
- Combat Vehicle Development
- Training
- Joint and Combined Operations

EXPERIENCE

Mr. William W. Hansen served for 24 years in positions at Ford Aerospace, Martin Marietta, and Lockheed Martin. His roles included Vice President (VP), Army Programs & Special Operations; VP, Direct Combat and Missile Defense and Strike Weapons; and VP, Information and Services Technology civil and commercial programs.

Mr. Hansen is an Army veteran with 27 years of service. Highlights of his service include Charter Membership, Chief of Staff Army Assessment and Initiatives group and Chief, Army Studies Group. He commanded the 1st Squadron, 10th Cavalry, and held positions at squadron, regiment, division, corps, Training and Doctrine Command, and at Headquarters, Department of Army staff level. His combat experience included positions in the 11th Armored Cavalry Regiment (Blackhorse).

Mr. Hansen has contributed to the development of U.S. Army operational concepts and doctrine, led transition teams for major Army commands, published articles in professional journals and contributed to several books. He served on the Army Science Board and on the Board of Directors, National Defense University. Mr. Hansen was awarded the J. William Middendorf Award for outstanding research. His military awards include two Silver Stars, a Purple Heart, and the Vietnamese Gallantry Cross. He also received two Secretary of the Army public service awards. The U.S. Army Armor Association recognizes him as a distinguished Knight of the Order of St. George.

Mr. Hansen is the founder of Warrior Afield Legacy Foundation, a 501(c)(3) which conducts hunting, fishing, and off-road events for Combat Veterans.

EDUCATION

Massachusetts Institute of Technology Seminar XXI, Fellow, 1988
U.S. Army War College, 1986
U.S. Navy Command and Staff College, Distinguished Graduate, 1980
University of Utah, M.S., 1974
University of Utah, B.S., 1967

Jill J. Harp, Ph.D.

Director of the Biomedical Research Infrastructure Center
Winston Salem State University

EXPERTISE

- Bioorganic Chemistry
- Neuroscience
- Accreditation and Assessment of Academic Programs and Policies
- Higher Education Administration
- NIH and NSF Study Section Member

EXPERIENCE

Dr. Jill J. Harp is the Director of the Biomedical Research Infrastructure Center and the former Chair and Professor of the Department of Biological Sciences at Winston-Salem State University. She is also an Adjunct Professor at Wake Forest University Health Sciences in the Physiology and Pharmacology Department. Dr. Harp performs research in the area of medicinal chemistry. Her lab focuses on the synthesis of small molecules to study and ultimately find cures for neuronal disorders. She is also involved in the assessment of university programs and student learning. She serves on various leadership teams and assessment committees. She serves or has served on the department's faculty development, assessment, and curriculum committees.

Dr. Harp has been active in developing faculty and postdoctoral associates by mentoring and presenting workshops in the areas of career building, student learning, and STEM-student retention. She has received research and educational grants to enhance the training of hundreds of students (K-12 and college) in the lab and in the classroom. She has also served in countless volunteer community education programs to include Cornerstone Life Center.

In addition to receiving faculty development grants, interdisciplinary educational grants were awarded to enhance the preparation of students as they pursued professional degrees by enhancing their critical-thinking skills in biology, chemistry, and math. In 2011, Dr. Harp received the Board of Governors' Award for Excellence in Teaching, the highest award given in the state of North Carolina.

Dr. Harp participated in the following Army Science Board studies, "Talent Management," "Science and Technology Efficiency," "Harm Reduction," "Peacekeeping," "Enhancing Soldier and Team Performance," "Multi-Domain Battle," and the 2019 "Reforming Talent Management" study.

EDUCATION

University of Maryland, College Park, Ph.D., Organic Chemistry, 1991
York College, City University of New York, B.S., Chemistry, 1985

Michael H. Heinz, M.B.A.

President, MHH Systems Corporation

EXPERTISE

- Program Management
- Defense Acquisition
- Systems Engineering and Integration
- Advanced Systems Development
- Strategic Planning and Assessment
- Weapons Systems Development

EXPERIENCE

Mr. Michael H. Heinz has over 40 years' experience in the aerospace industry. He started at McDonnell Douglas in 1967, which later merged with the Boeing Company in 1997. While at the Boeing Company in 2005, he served as Vice President/General Manager (VP/GM) of Integrated Defense Advanced Systems Development programs.

Other positions at Boeing included VP/GM of the Unmanned Systems business unit, VP/Deputy Program Manager (PM) of the Joint Strike Fighter program, VP/PM of the F/A-18 A/B/C/D program, VP/GM of System Assessment and Planning, VP/GM of the Harpoon/Standoff Land Attack Missile program, and VP/PM of Mission Planning and engineering manager of proprietary programs.

After retiring from Boeing in 2005, Mr. Heinz served as the Executive Director, Unmanned Air Vehicles (UAV) National Industry Team where he was responsible for working issues related to the safe and routine integration of UAVs with the National AirSpace (NAS).

Mr. Heinz has served as a consultant or member of the Army Science Board for over 12 years. During his tenure, he chaired the 2011 "Tactical Non-Cooperative Biometrics Systems" study, the 2016 "Robotic and Autonomous Systems of Systems" study, the 2018 "Manned-Unmanned Teaming study," and consulted on the 2019 study, "Battlefield Uses of Artificial Intelligence."

EDUCATION

Washington University, St Louis, M.B.A., Business Administration, 1988
Stanford University, M.S., Aeronautical and Aerospace Engineering, 1967
University of Notre Dame, B.S., Aeronautical and Aerospace Engineering, 1966
University of Notre Dame, B.A., 1965

Rollin H. Hotchkiss, Ph.D.

Professor of Civil and Environmental Engineering
Brigham Young University

EXPERTISE

- Reservoir Sedimentation Mitigation
- Fluid Mechanics
- Stream Restoration
- Design Of Hydraulic Structures
- Hydraulic Modeling
- The Design of Culverts for Peak Flows and for Fish Passage
- Leadership

EXPERIENCE

Dr. Rollin H. Hotchkiss is a Professor of Civil and Environmental Engineering at Brigham Young University (BYU). His major research areas include mitigating reservoir sedimentation and providing passage for fish through culverts and dams. He has worked with the U.S. Army Corps of Engineers on reservoir sedimentation and fish passage issues and on the Committee on Missouri River Recovery and Associated Sediment Management Issues for the National Academy of Engineering. He recently co-authored comprehensive reports and manuals on the design of culverts for fish passage for the Federal Highway Administration. Prior to his six years at BYU, he taught seven years at Washington State University and nine years at the University of Nebraska-Lincoln.

Dr. Hotchkiss is a licensed Professional Civil Engineer and a Diplomate of the American Academy of Water Resources Engineers. He is past President of the American Society of Civil Engineers' Environmental and Water Resources Institute (EWRI). He is also a member of the International Sedimentation Initiative sponsored by the United Nations Educational Scientific and Cultural Organization (UNESCO). Dr. Hotchkiss has advised over 70 graduate students and has authored or co-authored more than 150 conference papers and project reports, and nearly 50 refereed journal papers. He currently teaches fluid mechanics, stream restoration, design of hydraulic structures and leadership at BYU, including short courses to practicing engineers on hydraulic modeling with Hydrologic Engineering Center's River Analysis System (HEC-RAS), the design of culverts for peak flows and for fish passage, and storm sewer design. He is a department, college, university, and national teaching awardee.

EDUCATION

University of Minnesota, Ph.D., Civil Engineering, 1989
Utah State University, M.S., Civil and Environmental Engineering, 1979
Brigham Young University, B.S., Civil Engineering, 1976

Susan N. Houde-Walter, Ph.D.

Chief Executive Officer, LaserMaxDefense (LMD)

EXPERTISE

- Laser Physics
- Directed Energy
- Optical Engineering
- Optical Materials
- Manufacturing
- Small Arms

EXPERIENCE

Dr. Susan N. Houde-Walter is the co-founder and Chief Executive Officer (CEO) of Laser MaxDefense (LMD), a Woman-Owned Small Business 8(m) manufacturer of ruggedized laser systems for government and original equipment manufacturer (OEM) customers that specializes in quantum cascade laser (QCL) and diode laser technology. She is a former President of The Optical Society (OSA), a professional society comprised of approximately 19,000 members (including 37 Nobel Laureates to date). Dr. Houde-Walter was a tenured professor of Optics at the University of Rochester for 18 years, specializing in lasers, optoelectronics and synchrotron-based studies of special optical materials. She is currently adjunct faculty at the College of Optical Sciences at the University of Arizona.

Dr. Houde-Walter has served on national security science boards, including the Air Force Science Advisory Board, the National Academy of Sciences Intelligence Science and Technology Experts Group, and the Special Operations/Low Intensity Conflicts Board of the National Defense Industry Association. She was also a participant in the 71st Joint Civilian Orientation Conference.

Dr. Houde-Walter has received numerous awards including the Commander's Award for Public Service (from the U.S. Army in 2016 and the U.S. Air Force in 2014), and the 2019 Keeper of the Flame Award from the National Women's Hall of Fame. She has been elected Fellow of both the American Ceramic Society and the OSA. Dr. Houde-Walter currently holds 21 patents and is the author of over 100 peer-reviewed papers and invited presentations.

For the Army Science Board, she contributed to a number of studies including "Innovative Organizations," "Generation Y," "Soldier Resilience and Performance Sustainment" (Co-Chair), "Strategic Direction for Army Science and Technology (S&T)," "Air and Missile Defense Electronic Warfare Assessment," "Manned, Unmanned Teaming," and 2019's "Battlefield Uses of Artificial Intelligence."

EDUCATION

University of Rochester, Rochester, NY, Ph.D., Optics, 1987
University of Rochester, Rochester, NY, M.S., Optics, 1983
Sarah Lawrence College, Yonkers, NY, B.A., 1976

Deanne J. Idar, Ph.D., PCC

Director, Special Projects, Perspectives, Inc.
Senior Program Manager and Technical Advisor, TechSource, Inc.
Chief Executive Officer/Owner, Top Seed Leadership Coaching

EXPERTISE

- Physical Chemistry
- Energetic Materials RDT&E
- Nuclear Weapons and Global Security
- National Security
- Missions Experience
- Leadership Training and Professional Development

EXPERIENCE

Dr. Deanne J. Idar has held numerous technical and leadership assignments spanning over 21 years in national security mission activities at Los Alamos National Laboratory (LANL). These include technical research activities in the Department of Energy (DoE) and Department of Defense (DoD) weapons-related energetic materials science for performance, safety, and reliability, and personnel line management assignments supporting global security mission requirements including a one-year rotation to the Office of the Secretary of Defense, Policy.

While at the Pentagon, Dr. Idar served as the Senior Science Advisor for the Nuclear Defense Portfolio, Chemical, Biological, Radiological, and Nuclear (CBRN) Defense Policy, Countering Weapons of Mass Destruction, and Global Strategic Affairs. In this role, she provided technical insights and guidance on global radiological/nuclear policy topics in collaboration with internal DoD components, U.S. government interagency entities and international agencies.

Dr. Idar has authored or co-authored 66 scientific reports and publications. Her career honors include six Defense Program Team Awards of Excellence, two LANL Distinguished Performance Awards for team contributions, and an individual LANL Star Award.

In her current technical assignments, Dr. Idar primarily serves as a Technical Advisor and Consultant for research and development (R&D) organizations in support of reviewing and pursuing new, cutting-edge R&D objectives. Dr. Idar is also an International Coach Federation Certified Executive Leadership Coach at the Professional Certified Coach level, successfully working with personnel across multiple career levels.

EDUCATION

International Coach Federation Associate/Professional Certified Coach 2013/2017
University of Texas-Dallas, Executive and Professional Coaching Certification
ICF Accredited Coach Training Program, 2013
University of Arizona, Ph.D., Physical Chemistry with Analytical Chemistry Minor, 1990
University of Northern Iowa, B.A., Chemistry with Computer Science Minor, 1985

Jeffrey A. Isaacson, CAPT, USN (Ret), Ph.D.

President and Chief Executive Officer
Universities Space Research Association

EXPERTISE

- Space Systems
- Ballistic Missile Defense
- Systems Engineering

EXPERIENCE

Dr. Jeffrey A. Isaacson became the Universities Space Research Association (USRA's) seventh President and Chief Executive Officer (CEO) in 2014. USRA operates in association with 110 leading universities supporting NASA, Department of Defense (DoD), Department of Energy (DoE), and the National Science Foundation (NSF) in the areas of science, technology development, and STEM education.

Prior to joining USRA, Dr. Isaacson was Vice President for Defense Systems and Assessments, Sandia National Laboratories, where he was responsible for development and integration of advanced science and technology into state-of-the-art systems for the National Nuclear Security Administration, DoD, and other national security agencies.

From 2007 – 2011, Dr. Isaacson was Vice President, RAND Corporation, where he directed the Army's Federally Funded Research and Development Center (FFRDC) for studies and analysis (the Arroyo Center). He had returned to RAND from Lockheed Martin Space Systems Company, where he directed systems engineering and integration of the Space Based Infrared System-High, which is considered one of the nation's highest priority space programs. Prior to joining Lockheed Martin, Dr. Isaacson served in a variety of research and management positions for nearly 13 years at RAND, including Vice President and Director of the National Defense Research Institute, the FFRDC supporting the Office of the Secretary of Defense.

Dr. Isaacson served 25 years in the U.S. Navy Reserve, retiring as Captain. He is a veteran of Operation Enduring Freedom, having served on active duty in Afghanistan from 2009 – 2010.

EDUCATION

Massachusetts Institute of Technology, Ph.D., Theoretical Physics, 1991
Princeton University, M.S.E., Chemical Engineering, 1984
Columbia University, B.S., Nuclear Engineering, 1982

Mo Jamshidi, Ph.D., DEgr. (h.c.)

Lutcher Brown Endowed Chair and Professor, Department of Electrical and Computer Engineering, Founding Director of Autonomous Control Engineering Laboratories, The University of Texas, San Antonio

EXPERTISE

- System of Systems
- Intelligent and mobile Robotics
- Large-Scale Systems
- Cyber-Physical Systems
- Big Data Analytics
- Computational intelligence

EXPERIENCE

Dr. Mo Jamshidi is a Fellow, Institute of Electrical and Electronic Engineers (F-IEEE); Fellow, American Society of Mechanical Engineers (F-ASME); Associate Fellow, American Institute of Aeronautics and Astronautics (AF-AIAA); Fellow, American Association for Advancement of Science (F-AAAS); Fellow, the World Academy of Science (F-TWAS); and Fellow, New York Academy of Science (F-NYAS). He holds honorary doctorate degrees from the University of Waterloo, Canada (2004), Technical University of Crete, Greece (2004), and Odlar Yourdu University, Baku, Azerbaijan (1999). Currently, he is the Lutcher Brown Endowed Distinguished Chaired Professor at the University of Texas, San Antonio, TX.

He was an advisor to NASA for 10 years (including the 1st MARS Mission and seven years with NASA HQR), nine years with U.S. AFRL, eight years with U.S. DOE and one year EC/EU. He has close to 800 technical publications including 75 books (11 textbooks), research volumes, and edited volumes (in English and five foreign languages). He is the Founding Editor, Co-Founding Editor, or Editor-in-Chief of five journals including *IEEE Control Systems Magazine* and the *IEEE Systems Journal*. He has graduated 60 Ph.D. and 80 M.S. students. Moreover, he has advised over 120 U.S. Ethnic Minority students at M.S. and Ph.D. level and over 850 undergraduate students. Six of his edited and authored books are on System of Systems Engineering in English and Mandarin. Among his former students, four Ph.D.'s are Native Americans, 10 Ph.D.'s are Hispanic and eight Ph.D.'s are African Americans. His former students are successful professionals in 22 nations around the world.

He is the recipient of the IEEE Centennial Medal (1984) and the World Automation Congress (WAC) Medal of Honor (2014), among many other awards and honors. He is a member of the University of Texas System Chancellor's Council. He is currently involved in research on system of systems engineering with emphasis in robotics, drones, biological, and sustainable energy systems. He has 11,104 citations on Google Scholar.

EDUCATION

University of Illinois; Urbana-Champaign, Ph.D., Electrical Engineering,1971
University of Illinois; Urbana-Champaign, M.S., Electrical Engineering,1969
Oregon State University, B.S.E.E., Electrical Engineering, 1967 (*cum laude*)

Peter L. Jones, BG, USA (Ret)

President and Chief Operating Officer
National Infantry Museum Foundation

EXPERTISE

- Strategic, Operational and tactical Planning
- Requirements Development
- Resource Allocation
- Staffing and Operational Execution of Combined Arms Operations in Combat
- Security Force Assistance and Nation Building
- Training and Leader Development
- Russian Capabilities

EXPERIENCE

Brigadier General (Ret) Peter L. Jones is a leader in strategic, operational, and tactical planning; requirements development; resource allocation; combined arms operations; security force assistance; and nation building. He has experience in training, leader development, organizational structure and material requirements development. His area of emphasis is Russian capabilities and evolving operational concepts helping to identify U.S. capability gaps and implications to the joint force. BG (Ret) Jones is recognized as a leader, team builder, and innovative thinker who solves complex problems. He is a decorated combat leader with over 48 months of combat deployments in Iraq and Afghanistan. He has broad overseas experience and a good cultural understanding of Europe, Middle East and Afghanistan.

Currently, he is the President and Chief Operating Officer (COO) of the National Infantry Museum Foundation where he oversees a non-profit $110M facility, voted the No. 1 Free Museum by USA Today and one of CNN's Top 12 Military Museums in the World. BG (Ret) Jones is the President and Owner of PLJ & Associates, LLC, providing support to the Army Training and Doctrine Command (TRADOC) G2 concerning Russia and China. He also provides support to Army Futures Command's Future Concept Center (FCC) in terms of Multi-Domain Operations concept development and wargaming.

Prior to retirement, BG (Ret) Jones served as Director, Russian New Generation Warfare Study, HQs, TRADOC, Army Capabilities Integration Center; Chief of Infantry and Commandant, U.S. Army Infantry School; Director, Future Plans (CJ35), International Security Assistance Force (ISAF-NATO), Afghanistan; Deputy Commanding General of Support, 3rd Infantry Division; Executive Officer to the Secretary of the Army; Mechanized Infantry Battalion Commander; Multi-National Headquarters Future Plans Officer; and Heavy Brigade Commander. He is the recipient of the Distinguished Service Medal, the Defense Superior Service Medal, the Legion of Merit, and the Bronze Star with Valor.

EDUCATION

U.S. National War College, M.S., National Security Affairs, 2007

U.S. Army Command & General Staff College/School of Advanced Military Studies, M.A., Military Arts and Science, 1999

Georgetown University, M.S., National Security Affairs, 1997

U.S. Military Academy at West Point, B.S., Political Science, 1985

Phillip A. Karber, Ph.D.

President, The Potomac Foundation

Adjunct Professor of Strategy & Praxis, Georgetown University

EXPERTISE

- National Security Decisionmaking
- Net Assessment
- Competitive Strategy
- Aviation
- Terrorism
- International Law
- Contemporary Chinese and Russian Military Thought

EXPERIENCE

Dr. Phillip A. Karber, is President of the Potomac Foundation, an independent nonprofit, non-partisan think tank specializing in open source analysis and directly observing conflicts in the field. An adjunct professor at Georgetown University since 1978, he has lectured at senior military academies around the world, and testified numerous times before Congress as well as a before half a dozen allied country Parliamentary committees.

A former U.S. Marine, he served on staff of the Congressional Joint Committee on Atomic Energy; directed NSC Study Memorandum 186; and served as strategy advisor to the Secretary of Defense and the Chairman of the Joint Chiefs of Staff.

Subsequently, Dr. Karber led a number special projects for the President, Secretary of State, U.S. Ambassador to NATO, and Chairmen of the House and Senate Armed Services Committees. He also served as consultant to the British Prime Minister, the Secretary General of NATO, and five Supreme Allied Commanders.

At the end of the Cold War, Dr. Karber led a special team that acquired Soviet military technology; recruited, trained and delivered the Free Kuwait Army for Desert Storm; interviewed senior Soviet general officers on their Cold War planning. He was a member of the U.S. delegation to the Quadripartite talks on security in Asia. In private industry, Dr. Karber was as a senior executive with BDM and Ford Motor for 25 years, chaired the Audit Committee of Weirton Steel Board of Directors, and was Chairman, John F. Kennedy International Air Terminal.

Dr. Karber previously served on the Army Science Board and co-authored TRADOC's original *Battlefield Development Plan*. Recently, having spent 180 days at the front directly observing the war in Ukraine, he played a key role in the Army's study of "New Generation Warfare." Dr. Karber has published works on defense, terrorism and net assessment, contributed to 24 books, and authored 40 journal articles.

EDUCATION

Harvard Business School, Certificate, Board Governance, 2005

Georgetown University, Ph.D., International Law, 2005

Wharton Business School, Certificate, Board of Directors Institute, 1997

Harvard University, Kennedy School of Government, Certificate, Senior National Security Program, 1981

Pepperdine University, B.A., Political Science, 1968

Robert J. “Rocky” Kmiecik, COL, USA (Ret)

President and Chief Executive Officer, Rocky Kmiecik, LLC

EXPERTISE

- Foreign Military Sales
- Defense Acquisition and JCIDS
- Requirements Determination
- Combat Vehicle Development
- Active Protection Systems (APS)
- Multi-Domain Operations
- Armor and Armored Cavalry Operations

EXPERIENCE

Colonel (Ret) Rocky Kmiecik was commissioned as a Distinguished Military Graduate from Davidson College, Davidson, NC, and branched Armor. He served in a variety of command and staff positions in Cavalry and Armor units, both in the U.S. and deployed overseas. COL (Ret) Kmiecik commanded 1st Battalion, 66th Armor, “Iron Knights” and deployed the battalion to Iraq in support of Operation Iraqi Freedom (OIF) 05-07. Following command, he was assigned to the Office of the Program Manager, Saudi Arabian National Guard Modernization Program where he served as the Maneuver Division Chief and subsequently Deputy Program Manager. Rocky culminated his 30-year career in the U.S. Army with his final assignment as Director, Mounted Requirements Division, Maneuver Center of Excellence, Fort Benning, GA.

Residing in Columbus, GA, just beyond the gates of Fort Benning, Rocky is now the President and Chief Executive Officer (CEO) of his own consulting firm, specializing in strategic guidance and business development for the defense industry. He serves on the Board of Directors for both Advanced Blast & Ballistic Systems (ABBS), LLC, and the nonprofit National Armor and Cavalry Heritage Foundation. He is the President for the Chattahoochee Valley/Fort Benning Chapter of the Association of the United States Army (AUSA). He is a life member of the Blackhorse Association, 4th Infantry Division Association, Veterans of Foreign Wars, Disabled American Veterans, the Military Officers Association of America, and AUSA. Rocky is currently participating in the “Battlefield 2040” study for the Army Science Board.

He is a graduate of multiple Army schools to include Airborne School, Armor Officer Basic and Advanced Courses, Combined Arms and Services Staff School, M1A2 Tank Commanders Certification Course, Command and General Staff College, and the U.S. Naval War College.

EDUCATION

U.S. Naval War College, M.A., National Security and Strategic Studies, 2008
Central Michigan University, M.S., Administration, 2001
Davidson College, B.S., Biology, 1985

Eric O. Korman, Ph.D.

Lead Technologist, Striveworks, Inc.

EXPERTISE

- Machine Learning
- Deep Learning
- Computer Vision
- Data Fusion
- Topological Data Analysis

EXPERIENCE

Dr. Eric O. Korman is a co-founder and Lead Technologist at Striveworks, Inc., with over 10 years of experience working at the cutting edge of science and technology. In his position at Striveworks, he runs the development of the company's machine-learning endeavors. These projects have included the use of deep learning for real world computer vision applications (such as object detection, tracking, and image super resolution), sensor fusion, open source intelligence processing, and processing, exploitation, and dissemination (PED) automation. A cornerstone of his work at Striveworks has involved working directly with the warfighter to rapidly develop machine learning and software engineering solutions for the battlefield.

Prior to joining Striveworks, Dr. Korman was a Senior Data Scientist at SparkCognition, Inc., where he worked mostly in the defense sector on projects involving applications of deep learning to autonomous flight and computer vision for Intelligence, Surveillance, and Reconnaissance (ISR) data. Dr. Korman also worked on machine learning models for predictive maintenance for the oil and gas industries.

Dr. Korman has published numerous original research articles in mathematics and machine learning. Before moving to industry, he was a post-doctoral researcher and instructor at the University of Texas at Austin department of mathematics, working in the area of differential geometry.

EDUCATION

The University of Pennsylvania, Ph.D., Pure Mathematics, 2014
The University of Pittsburgh, B.S., Mathematics and Physics, 2008

Richard B. “Dick” Ladd, LTC, USA (Ret), M.B.A.

Independent Consultant

EXPERTISE

- Defense Appropriations
- Defense Industry
- Resource Management
- Government

EXPERIENCE

Mr. Richard B. Ladd entered the Army upon graduation from Bowdoin College and retired in 1982 to join the professional staff of the U.S. Senate Committee on Appropriations, Defense Subcommittee, responsible for the Defense procurement Title (except shipbuilding) until 1987.

His military experience includes assignments to an Armed Cavalry Squadron at the Army’s Combat Development and Experimentation Command, and two aviation tours in Vietnam as a maintenance officer, Company Executive Officer, Battalion S-2 and Direct Support Maintenance Company Commander.

Upon graduating from Tulane University, he served at the Army’s operational testing organization, U.S. Army Project Mobile Army Sensor Systems Test, Evaluation, and Review (MASSTER), on a wide range of operational and training issues, and then as the Staff Aviation Logistics Officer in Korea. After the Air Force Command and Staff college, he was assigned to Department of the Army staff preparing life cycle cost estimates for the Army’s Big Five procurement programs before heading the Army Budget Liaison Office.

Following his Senate employment, Dick had a short appointment within the Office of the Undersecretary of the Army, and then became President of a D.C. based consulting firm working with major defense contractors. He also served on the Board of Visitors to the U.S. Army Command and General Staff College and on the Army Science Board. Studies he was involved with include the “LandWarNet (Joint Tactical Radio Program),” “A Review of the Army Industrial Base,” and “Providing Logistical Support to Afghan Forward Operating Bases.”

In retirement, Mr. Ladd served four years as a County Councilman for 78,000 residents of Anne Arundel County, MD, home of Fort Meade.

EDUCATION

U.S. Air Force Command and Staff College, 1978
Tulane University, M.B.A., Management Science, 1973
Bowdoin College, A.B., Mathematics, 1962

William D. Lewis, Ph.D.

President and Chief Executive Officer of Tennessee Technical Test Team

EXPERTISE

Aviation

Aerospace Engineering

EXPERIENCE

Dr. William D. Lewis is presently the President and Chief Executive Officer (CEO), Tennessee Technical Test Team, an aviation consulting and innovation company. He had served 16 years as a federal employee and 13 years as a Senior Executive in Army Aviation positions. Formerly, Dr. Lewis served as the Director for Aviation Development at Research Development and Engineering Command (RDE-COM). In this role, Dr. Lewis managed and directed the execution of the Aviation Science and Technology Program. He initiated the Joint Multi-Role program that served as the technical precursor to future vertical lift (FVL). As Director, Aviation Engineering, he was responsible for all aspects of airworthiness for the manned and unmanned aviation fleet during major combat operations. Prior to becoming a Senior Executive Service (SES) civilian, he was the Chief Engineer of the RAH-66 Comanche program, responsible for overall design and systems integration of the Comanche during the development of a Joint ACAT ID helicopter acquisition program (including technical, supportability, and cost).

Prior to Dr. Lewis' federal government service, he was a professor at The University of Tennessee Space Institute, where he served as the Chairman of the Aviation Systems program and Director of the Flight Research Facility. He also worked as Consultant, Avionics Certification (Westar Corporation), where he was responsible for development of a certification program for complex, future avionics systems.

As an Army Officer, he served in a number of roles to include Program Manager, Experimental Test Pilot, Aerospace Engineer, and Flight Commander. He is a Master Army Aviator, Parachutist, AAAA Order of St. Michael GOLD award and DAC of the Year winner.

EDUCATION

Georgia Institute of Technology, Ph.D., Aerospace Engineering, 1992
Embry-Riddle Aeronautical University, M.S., Aviation Management, 1984
Air Force Institute of Technology, M.S., Aeronautical Engineering, 1983
U.S. Military Academy at West Point, B.S., Applied Science and Engineering, 1975

Michael R. Macedonia, Ph.D.

Assistant Vice President for Research
University of Central Florida

EXPERTISE

Simulations

System Architecture

System Engineering

EXPERIENCE

Dr. Michael R. Macedonia is the Assistant Vice President for Research at the University of Central Florida (UCF). He is a computer scientist and an expert on modeling and simulation technologies, intelligence technology, data mining, networks, and high performance computing. He is a former Infantry officer, and original member of the Uniformed Army Scientist Corps.

In 2010, he served as the Vice President and Chief Scientist/ Chief Technology Officer/Technical Fellow for Simulation and Training Operations at SAIC. Prior to that, he was the General Manager for Forterra Systems, a virtual reality software company. Dr. Macedonia was the Director of the Disruptive Technology Office (DTO), now the Intelligence Advanced Research Projects Activity (IARPA), for the Office of the Director of National Intelligence. DTO was the U.S. intelligence community's centrally funded research activity for advanced technology. He also worked as the Chief Technology Officer for Program Executive Office (PEO) Simulation, Training, and Instrumentation (STRI) where he was responsible for the technology strategy of the U.S. Army's lead simulation system development organization.

Dr. Macedonia has authored over 50 scientific publications relating to virtual worlds, test and evaluation, and simulation. He has also contributed to the Army Science Board in a number of studies to include "Future Character of Warfare" (Chair), "Robotic and Autonomous Systems of Systems" (Vice-Chair), "Human Interaction and Behavioral Enhancement" (Chair), and the 2019 study, "Battlefield Uses of Artificial Intelligence."

EDUCATION

Naval Postgraduate School, Ph.D., Computer Science, 1995
University of Pittsburgh, M.S., Telecommunications, 1989
U.S. Military Academy at West Point, B.S., Electrical Engineering and Political Science, 1979

David M. Maddox
GEN, USA (Ret)

Consultant

EXPERTISE

- Operations Research
- Simulation and Modeling
- Joint Operations/ Warfighting
- Logistics
- Organizational Design

EXPERIENCE

General (Ret) David M. Maddox is a retired Army four-star general who served as Commander in Chief, U.S. Army Europe/Commander, Central Army Group (CINCUSAREUR/ COMCENTAG), and Commander, 7th U.S. Army (1992 – 1993), Commander in Chief, U.S. Army Europe (CINCUSAREUR) and Commander, 7th U.S. Army (1993 – 1994). In addition to commanding at every warfighting echelon, he led multiple Army analysis organizations. GEN (Ret) Maddox spent much of his time transitioning the Army in Europe to a post-Cold War stance.

Since retiring, GEN (Ret) Maddox has worked as an Independent Consultant. He has served on the Defense Science Board, the Army Science Board (ASB), the National Academy of Engineering, and the Board on Army Science and Technology (BAST) (Chair). He is a member of the Washington Institute of Foreign Affairs, George Mason University Volgenau School of Engineering Board of Advisors, and Emeritus member of the Corporation of the Charles Stark Draper Laboratory.

GEN (Ret) Maddox was appointed by the Secretary of the Army to serve on the commission to examine Army expeditionary contracting which issued the report of the "Commission on Army Acquisition and Program Management in Expeditionary Operations." He later served as a member of the Department of the Army's study commissioned by the Secretary of the Army to conduct an "Army Acquisition Review."

GEN (Ret) Maddox is a member of the National Academy of Engineering and has received the Military Operations Research Society's Wanner Award and the Management Sciences' J. Steinhardt prize. He is a member of the Army Operations Research Society Hall of Fame. He was the Army Science Board's first recipient of the Joseph V. Braddock Award. GEN (Ret) Maddox has been a member, consultant, and mentor to the ASB for years. For 2019, GEN (Ret) Maddox Chaired the "Reforming Talent Management" ASB study.

EDUCATION

U.S. Army War College
U.S. Armed Forces Staff College
Southern Illinois University, M.S., Operations Research, 1969
Virginia Military Institute, B.S., Mathematics, 1960

Anthony "Tony" J. Manganiello
LTC, USA (Ret), M.B.A.

Principal, Co-founder Striveworks, Inc.,
Chief Executive Officer, Rowan Technology Solutions LLC

EXPERTISE

- Financial Services
- Technology
- Operations
- Robotics
- Accounting
- Management and Human Resources

Mr. "Tony" Manganiello has 30 years' experience as a technology and operations leader in the U.S. Army and in commercial industry. He is a Principal and Co-founder of Striveworks, Inc., which started up in 2018. Striveworks' core competencies are artificial intelligence (AI), machine learning (ML), data science, and software engineering. Striveworks, Inc., provides direct OCONUS support to the Special Operations Forces (SOF) community.

Before starting up Striveworks, Inc., Mr. Manganiello founded and served as the Chief Administrative Officer (CEO) for Virtu Financial, LLC. Prior to that, he worked at Lehman Brothers as the Head of Infrastructure (Operations & Technology) for the Investment Management Division and at Goldman Sachs as a senior manager in the Building Infrastructure Technology organization and of the Project Management Offices.

Mr. Manganiello, a U.S. Military Academy (USMA) graduate, also teaches Math at West Point, and is developing USMA's History of Warfare through Rowen Technology Solutions, LLC. As the creator and CEO of Rowan, he provides premier educational experiences utilizing leading edge technology.

Mr. Manganiello served as an officer and Airborne Ranger in the Army, retiring as a Lieutenant Colonel. Previous Army assignments included deployments supporting Operation Desert Storm and operations in Bosnia. He served as Lead Project Manager on various types of weapons systems (e.g., Electric Gun, Picatinny Rail system, Tank Armaments), Communications Systems, and Command and Control Systems. He serves on many Boards including the American University of Rome and the Special Operations Wounded Warriors Charity.

Mr. Manganiello is a member serving on the Army Science Board (ASB) and a participant in the ASB's studies on software development, AI/ML, automation and "Future Concepts in Battlefield Technologies.

EDUCATION

Long Island University, M.S., Accountancy, 1987
Long Island University, M.B.A., Finance, 1987
Massachusetts Institute of Technology, M.S., Robotics, 1985
Webster College, M.A., Management and Human Resources, 1979
U.S. Military Academy at West Point, B.S., Applied Sciences & Engineering, 1977

Lester Martinez-Lopez
MG, USA (Ret), M.D., M.P.H.

Senior Independent Medical Consultant

President, Martinez Medical Consulting, LLC

EXPERTISE

- Medical Research Management
- Medical Quality and Patient Safety
- Medical Research Translation
- Deployment Medical Operations and Logistics
- Disaster Management and Humanitarian Response

EXPERIENCE

Dr. Lester Martinez-Lopez is the President of Martinez Medical Consulting, LLC. Since 2015, he has served as President, Medical Technology Enterprise Consortium. He also served as Chief Medical Officer, Brandon Regional Hospital, FL, where he improved staff performance and efficiency for a 407-bed hospital. In 2006, he served as Senior Vice President and Administrator, Lyndon B. Johnson General Hospital in Texas where he directed a 332 licensed-bed acute care teaching hospital.

In 2005, Major General Martinez-Lopez retired from the Army as the first Hispanic to head the Army Medical Research and Materiel Command at Fort Detrick, MD. His responsibilities included directing the Army's world-wide medical research, acquisition, and logistics program. He oversaw a vast research portfolio that included cancer, trauma, biodefense, and chemical defense. He directed the premier national biological and chemical defense laboratories and research programs and led the development of the National Biodefense Campus at Fort Detrick, MD.

He served as Commanding General, Center for Health Promotion and Preventive Medicine at Edgewood, MD where he directed a world-wide public health organization.

During his military career, he commanded three hospitals, oversaw military health support during Hurricane Mitch in Central America, and served as Chief Medical Officer of the United Nation's Mission in Haiti. Dr. Martiniez-Lopez is a diplomat of the American Board of Family Practice and the American Board of Preventive Medicine.

EDUCATION

Johns Hopkins University, School of Hygiene and Public Health, M.P.H., 1984
University of Puerto Rico, School of Medicine, M.D., 1978
University of Puerto Rico, B.S., Pre-Med, 1976

Wen C. Masters, Ph.D.

Deputy Director for Research, Georgia Tech Research Institute
Director, Information and Cyber Sciences Directorate
Principal Research Scientist of the Georgia Institute of Technology

EXPERTISE

- Command, Control, Communications, and Computers (C4)
- Multi-Domain Mission Planning and Battle Management;
- Cyber Security and Protection
- Data, Information, and Human-Centric Systems
- Health Systems
- STEM
- Intelligence Surveillance and Reconnaissance (ISR)
- Deep Space Orbit Determination

EXPERIENCE

Dr. Wen Masters is Deputy Director for Research at the Georgia Tech Research Institute (GTRI), Director of the Information and Cyber Sciences Directorate (ICSD) at GTRI, and a Principal Research Scientist of the Georgia Institute of Technology (GIT). Dr. Masters is responsible for the strategic guidance and execution oversight of ICSD, whose major research areas include Command, Control, Communications (C3); multi-domain mission planning and battle management; cyber security and protection; data, information, and human-centric systems; health systems; and STEM outreach.

Dr. Masters was a member of the Senior Executive Service (SES) of the U.S. Navy, leading integrated Science and Technology (S&T) programs in Command Control Communications Computers (C4), Intelligence Surveillance and Reconnaissance (ISR) as the Department Head of the C4ISR S&T Department of the Office of Naval Research. Throughout her 23 years of Federal civilian service, she has led S&T developments that resulted in numerous capabilities for national security applications. Prior to her Federal civilian service career, she spent a number of years at the Jet Propulsion Laboratory in Pasadena, CA, where she was responsible for orbit determination for NASA's deep space exploration missions, including Magellan, Galileo, and Cassini.

Dr. Masters has been a member of the Society of Industrial and Applied Mathematics (SIAM) and the Association for Women in Mathematics and served as the Vice Chair for SIAM Imaging Science Activity Group. She has published several articles in technical journals, conference proceedings, and a book. Her awards include the Department of the Navy's Distinguished Civilian Service Medal, Superior Civilian Service Medal, and Meritorious Civilian Service Medal.

EDUCATION

University of California, Irvine, Ph.D., Mathematics, 1989
University of California, Irvine, M.S., Mathematics, 1986
University of California, Irvine, B.S., Mathematics, 1984

John M. Matsumura, Ph.D.

Senior Engineer, RAND Corporation

EXPERTISE

- Advanced Technologies Atonomous Robotics and Unmanned Aircraft Systems
- Renewable Energy Technologies
- Artificial Intelligence, Machine Learning and High-Performance Computing
- Analytic Methods System-of-System Analyses
- Engineering and Economic Modeling
- Acquisition Policy Revolutionary Acquisition Processes

EXPERIENCE

Dr. John M. Matsumura is a Senior Engineer at RAND with over 25 years' experience leading research focused on exploring advanced technology and policy. He has served in several research management roles including Associate Director of Research for RAND's Pittsburgh office, Associate Director for Force Development and Technology within the Army's Federally Funded Research and Development Center's (FFRDC) Arroyo Center, and the Director of the Joint Warfare Simulation and Analysis Center. His current research focuses are on advanced technologies including autonomous robotic systems, renewable energy technologies, and advanced modeling and simulation (M&S) methods. He has taught a variety of courses on M&S in support of technology and policy decisions, lectured in a number of national and international forums, and provided expert testimony to Congress.

He has co-authored several major reports within the DoD and has published extensively at RAND. External to RAND, he has served on federal advisory committees including the Defense Science Board Task Force on Power Projection, Office of the Secretary of Defense Task Force on Defense Architecture, and the Army Science Board. He is a recipient of the RAND President's Award, three RAND merit awards, and a Department of Defense (DoD) Commander's Award for outstanding civilian service bestowed by Office of the Assistant Secretary of the Army, Acquisition, Logistics, and Technology. He is also an adjunct professor in the Civil and Environmental Engineering and the Engineering and Public Policy departments at Carnegie Mellon University.

EDUCATION

Carnegie Mellon University, Ph.D., Engineering and Public Policy, 2012
Pennsylvania State University, M.S., Engineering Mechanics, 1987
Pennsylvania State University, B.S., Aerospace Engineering, 1985

Michael R. Molino, M.B.A.

Senior Vice President, Leidos Managing Corporate Strategy

EXPERTISE

- Nuclear, Chemical and Biological Modeling and Detection
- Medical Science and Wound Management
- Research and Development
- Risk Management
- Analytical Decision Support

EXPERIENCE

Mr. Michael R. Molino is the Senior Vice President for Corporate Development at Leidos (formerly SAIC). In this role, he has changed the company's investment process (research and development (R&D), mergers, and acquisitions) from annual models to long term portfolio analysis. He led the effort to merge Leidos with Lockheed Martin.

He worked at SAIC since 2002 serving as the Vice President of Business Development Advanced Programs, Division Manager, and Program Manager/Nuclear Engineer. At SAIC, he grew an R&D operation focused on applied science federal research organizations. He led the $45M Science and Technology Division focusing on R&D in risk management and analytical decision support. He oversaw submarine nuclear defueling operations, the design of casks for transporting nuclear material and three nuclear storage facilities, as well as remediation techniques for nuclear test sites as a part of the Nunn-Lugar Program dismantling former Soviet nuclear infrastructure.

He is an expert in nuclear, biological, and chemical modeling and detection, systems analysis and modeling, and acquisitions, strategic planning, and program management. He has also served as the Director of the National Defense Industrial Association.

Mr. Molino is a former Army Ammunition Ordnance Officer having served in Korea and at Fort Bragg, NC. He has contributed to a number of Army Science Board studies to include "Robotic and Autonomous Systems of Systems Architecture," "Nuclear Survivability in Future Warfare," "Future Character of Warfare," "Manned-Unmanned Teaming," and the 2019 "Reforming Talent Management" study.

EDUCATION

Cornell University, M.B.A., S.C. Johnson Graduate School of Management, 2002
U.S. Military Academy at West Point, B.A., Applied Physics, 1994

Maria N. Mouratidis, Psy.D.

Chair and Professor, Notre Dame of Maryland University
Department of Psychology
Psychologist, Independent Practice

EXPERTISE

- Psychology
- Military Mental Health
- Psychotherapy
- Neuropsychology and Neuroscience
- Strategic Planning
- Post-traumatic Stress Disorder (PTSD)
- Traumatic Brain Injury (TBI)
- Suicide Prevention

EXPERIENCE

Dr. Maria N. Mouratidis is a licensed clinical psychologist, tenured professor, and Chair of the Department of Psychology at Notre Dame of Maryland University.

At the National Naval Medical Center (NNMC), Dr. Mouratidis was the command consultant and subject matter expert for Traumatic Brain Injury (TBI) and Psychological Health, and worked closely with combat casualty care leaders across DOD. She had developed and led the Traumatic Stress and Brain Injury Program to provide assessment and treatment for returning service members. As the Head of Traumatic Stress and Brain Injury program, she was responsible for providing clinical services, and training interns and residents. She has served as an external advisory board member for two Congressionally Directed Medical Research Programs for Post-Traumatic Stress and TBI. Dr. Mouratidis is regarded as an expert and lectures widely on TBI and Psychological Health.

She was recruited to the NNMC from Yale University. While at Yale, Dr. Mouratidis served as a member of the School of Medicine Faculty and conducted neuroscience and neuroimaging research, taught, provided clinical services, and supervised fellows. She has extensive clinical training in psychotherapy and in psychological and neuropsychological assessments and research.

Dr. Mouratidis is the only psychologist on the Army Science Board and has contributed to many studies including “Talent Management and the Next Training Revolution,“ “Army Efforts to Enhance Soldier and Team Performance,” “Human Interaction and Behavioral Enhancement,” and the 2019 study, “Reforming Talent Management.”

EDUCATION

Argosy University, Psy.D., Psychology, 2002
Loyola University Maryland, M.A., Clinical Psychology, 1992
Loyola University Maryland, B.A. Psychology, 1991

Evelyn M. Mullen, P.E.

Associate Director, Threat Identification and Response
Los Alamos National Laboratory

EXPERTISE

- Nuclear Engineering
- Intelligence
- Nuclear Weapons

EXPERIENCE

Ms. Evelyn M. Mullen is the Associate Director, Threat Identification and Response (ADTIR) at Los Alamos National Laboratory (LANL) where her research focuses on nonproliferation/counter-proliferation research and development (R&D) associated with weapons of mass destruction, space defense and systems applications, warfighter support, homeland security, and intelligence analysis. ADTIR includes about 750 staff and executes a budget of $400 million.

With more than 26 years at LANL, Ms. Mullen has served in many leadership roles. She has been engaged in the Weapons Program Science Campaigns as well as Global Security Programs, the Foreign Nuclear Weapons Intelligence Initiative (FNWII), the Capabilities for Nuclear Intelligence (CNI), the Nuclear Counterterrorism Program (NCT), and Nuclear Weapons Emergency Response. Ms. Mullen has been recognized with the National Nuclear Security Administration (NNSA) Medal of Excellence for Distinguished Service in the National Security of the United States, a Defense Program Award of Excellence for development and implementation of the CNI Program Strategy, a Defense Program Award of Excellence for Technical Support for U.S. Nuclear Weapons and Nonproliferation Policy, and a LANL Director's Large Team Distinguished Performance Award for the Critical Experiments Facility Operational Readiness Review Team.

Ms. Mullen is a registered Professional Engineer in New Mexico. She also currently serves on the Executive Board for the American Nuclear Society Trinity Section.

EDUCATION

Texas A&M University, Nuclear Engineering, M.S., 1988
Texas A&M University, Nuclear Engineering, B.S., 1986

Stephen D. Mundt, BG, USA (Ret), M.B.A.

Chief Executive Officer and Owner, Mundts, LLC

EXPERTISE

- Aerospace Defense
- JCIDS Process
- Army Force Development and Aviation
- Future Vertical Lift
- Foreign Military Sales

EXPERIENCE

Brigadier General (Ret) Stephen D. Mundt is the CEO of Mundts, LLC. He partners with Kathryn A. Condon & Associates, LLC (comprised of Kathy Condon and GEN (Ret) Pete Chiarelli) to provide advice to Airbus Defense and Space as well as Airbus Helicopters. Separately, he provides advice to DYNCORP International, Aviation and Missile Research Development and Engineering Center (AMRDEC), Army Futures Command, and Insperity on Army Aviation, Future Vertical Lift, and military health care.

BG (Ret) Mundt was the Senior Vice President for U.S. Government Strategy and Development at Airbus, Inc., where he was responsible for strategic level planning. He was also responsible for developing and securing Foreign Military Sales (FMS) opportunities. Other positions he's held include Senior Vice President for Strategy and Development, European Aerospace and Defense Systems (EADS) North America and Vice President of Army Programs at EADS.

His culminating job in the Army was as the Director of Army Aviation where he was responsible for coordinating Army Aviation transformation, modernization, and support to ongoing combat operations. While serving in the Army, he held a number of challenging positions including Assistant Division Commander (Support); 1st Infantry Division Combat Team Forward, which was deployed to Iraq supporting Operation Iraqi Freedom-2; Director, of Material, Force Development, Army G-8; Division Chief, Army Aviation, Army G-8; Brigade Commander, 17th Aviation Brigade, Korea; and Deputy Director for Readiness, Office of the Under Secretary for Defense (P&R).

He is the past President of the Army Aviation Association of America (AAAA), the Chair of the Combat Survivability Division (CSD) of the National Defense and Industrial Association (NDIA), and Life Member of the Army Association of the United States (AUSA). He has received many awards to include the Distinguished Service Medal, Defense Superior Service Medal, Legion of Merit (with 2 Oak Leaf Clusters) and the Bronze Star Medal.

EDUCATION

National Defense University, M.S., National Security and Strategic Studies, 1997
Troy State University, M.B.A., Personnel Management/Administration, 1984
University of Colorado, B.A., Political Science, 1976

Susan “Sue” R. Myers, COL, USA (Ret) Ph.D., P.M.P.

Senior Account Leader, Northrop Grumman Corporation

EXPERTISE

- Cyber Security
- C4ISR
- Organizational Change
- Innovation
- Risk Management
- Leadership
- Management
- Strategic Planning

EXPERIENCE

Dr. Susan R. Myers serves as an international defense industry leader with over 30 years of leadership experience in the United States Army as an Engineer Officer, Professor, and business development and customer relations expert, most recently with Northrop Grumman Corporation. She leads business growth and strategic planning, analysis, and process improvement. Her extensive business operations and development experience, and her expertise in Department of Defense (DoD) and government operational planning, engineering, leadership, and information assurance provides continuity and quality support to clients.

Sue’s 30 year career as an Army officer includes serving as Director, Strategic Leadership Management Division, U.S. Army War College where she directed increases in international officer and senior civilian enrollment by more than 300 percent. She was also responsible for DOD and Middle States accreditation and the integration of synchronous video technology, resulting in a 20 percent increase in student retention. As a Battalion Commander and Director at the U.S. Army Engineer School, Sue directed the professional development of more than 1,000 students and faculty, including the International Student Detachment. As Program Manager and Project Engineer, Sue led the Base Realignment and Closure (BRAC) of the Maneuver Support Center, the expansion of the National Training Center (NTC), and a number of construction projects in NATO.

As a member of the Army Science Board (ASB), she advises senior Army leaders on science and technology developments. Specifically, Sue served on the “Artificial Intelligence” (AI), “Internet of Things,” and “Multi-Domain Operations” studies. She is currently the Co-Chair of the “Army Modernization” study. She also serves on the National Defense Industry Association (NDIA) Board of Directors and the Association of United States Army (AUSA) National Awards Board.

EDUCATION

The Pennsylvania State University, Ph.D., Public Administration, 2007
U.S. Army War College, M.A., Strategic Studies, 2003
National University, M.B.A., 1992
The Pennsylvania State University, B.S., Environmental Studies, 1980

William J. Neal, Ph.D.

Consulting Engineer, The MITRE Corporation

EXPERTISE

- Command, Control, Communications, Computers and Intelligence
- Systems Engineering
- Computer and Information System Architecture
- Acquisition and Technology Management
- Ground Combat Vehicle Science and Technology

EXPERIENCE

Dr. William J. Neal has been with The MITRE Corporation since 1992. He is currently in semi-retirement and serving as a Consulting Engineer. Previously, he was Executive Director, Center for Acquisition and Systems Analysis, Consulting Engineer, Army Command, Control, Communications, Computer, Intelligence, Surveillance and Reconnaissance (C4ISR), and Principal Engineer, Center for Advanced Aviation Systems Development. He was also Senior Vice President for Research and Development, Potomac Systems Engineering.

Throughout his professional career, Dr. Neal engaged with various organizations of the Department of Defense. His primary focus was systems and technologies involving computer, communication, and space capabilities in tactical, operational, and institutional environments. Dr. Neal contributed to a number of Army acquisitions including Future Combat Systems, Joint Tactical Radio System, and LandWarNet. He contributed to systems architecture developments for Operations Desert Storm, Iraqi Freedom, and Enduring Freedom. In recent years, Dr. Neal has supported management of defense science and technology programs for ground and sea platforms.

Dr. Neal previously served as a member of the Army Science Board (ASB) from 1992 to 1998 and 2006 to 2012. He chaired three ASB studies including “Battlefield Visualization,” “An Approach to Developing an Affordable LandWarNet for Future Forces,” and “Wireless Tactical Networking.” He contributed significantly to eight other ASB studies including “Technical Information Architecture for Command, Control, Communications, and Intelligence,” “Concepts and Technologies for the Future Army,” and “Technical and Tactical Opportunities for Revolutionary Advances in Rapidly Deployable Joint Ground Forces in the 2015 – 2025 Era.”

EDUCATION

Howard University, Ph.D., Electrical Engineering, 1984
Stanford University, M.S., Electrical Engineering, 1978
Howard University, B.S., Electrical Engineering, 1976

Tammy J. Newcomb, Ph.D.

Senior Water Policy Advisor, Michigan Department of Natural Resources

EXPERTISE

- Fisheries and Wildlife Management
- Groundwater Withdrawal Management
- Great Lakes' Fisheries
- Food Habits of Selected Fish Species
- Interrelationships of Freshwater Mussels and Host Fishes
- Fluctuating Releases in the Regulated Rivers of Central Appalachia

EXPERIENCE

Dr. Tammy J. Newcomb is the Senior Water Policy Advisor for the Michigan Department of Natural Resources (MDNR). She is the lead on numerous statewide priorities including preventing Asian carp from entering the Great Lakes, per- and polyfluoroalkyl substances (PFAS), and ecosystem consequences, invasive species, groundwater withdrawal and environmental considerations, and coordination of issues regarding management and research on Great Lakes Fisheries.

Prior to her current position, she served as the MDNR Fisheries Division Research Program Manager with oversight of state programming, six research stations, and four Great Lakes vessels. She also served as Lake Huron Basin Coordinator for seven years, where she was MDNR's lead for fisheries issues in Lake Huron and its tributaries, and worked with Ontario and tribal nations to implement collaborative management. She led technical negotiations resulting in the renewal of the Great Lakes Fisheries Trust and was a member of the Tribal Inland Consent Decree negotiation team.

Prior to her service with MDNR, Dr. Newcomb was an Assistant Professor at Virginia Polytechnic Institute and State University with a research program focused on instream flows for fish and aquatic life, interrelationships of freshwater mussels, host fishes, and fluctuating releases in regulated rivers, mercury contamination in rivers, and water quality and mussel recruitment. Dr. Newcomb has served on three National Academy of Science Panels regarding the Klamath River Basin and the Columbia River. She is also an adjunct Associate Professor at Michigan State University.

EDUCATION

Michigan State University, Ph.D., Fisheries and Wildlife Management, 1998
West Virginia University, M.S., Forestry, 1992
Michigan State University, B.S., Fisheries and Wildlife Management, 1990

Wendy C. Newstetter, Ph.D.

Assistant Dean for Educational Research and Innovation
College of Engineering, Georgia Institute of Technology

EXPERTISE

- Learning Sciences
- Culture and Cognition
- Teams and Collaboration
- Instructional Design

EXPERIENCE

Dr. Wendy C. Newstetter, a cognitive and learning scientist, investigates learning in both formal and informal educational environments. From 2001 – 2012, she and her team used ethnographic methods to investigate the cognitive and learning practices on the frontiers of science in four research laboratories: tissue engineering, neuroengineering, biorobotics, and systems biology. Findings from these studies formed the basis for the design of problem-driven classrooms' foundation in biomedical engineering at Georgia Tech and culminated in a book titled, *Science of Psychology: Sense-making and Identity in Science Practice* that won the American Psychological Association William James Book Award in 2012.

Currently, she is working on three educational research projects focused on 1) the design of inclusive work and learning environments; 2) educational portfolios to support an entrepreneurial mindset; and 3) understanding social responsibility and ethical action in engineering education. Dr. Newstetter was recognized by the National Academy of Engineering in 2019 with the Bernard M. Gordon Prize for Innovation in Engineering and Technology Education.

Dr. Newstetter is the author of numerous peer-reviewed journal articles and reports in conference proceedings. She has also served as editor and/or reviewer for a number of professional science journals and has presented at many technical meetings. She is a recognized expert on the design of optimal learning environments.

Dr. Newstetter has contributed to several Army Science Board (ASB) studies including "Experimentation (LABS)," "Army Efforts to Enhance Soldier and Team Performance," and the 2019 study, "Reforming Talent Management."

EDUCATION

Lancaster University, UK, Ph.D., Linguistics, 1995
Lancaster University, UK, M.S., Linguistics and Language Learning, 1981
Colby College, B.A., Asian Studies, 1971

Susan K. Numrich, Ph.D.

Research Physicist, Institute for Defense Analyses

EXPERIENCE

Dr. Susan K. Numrich is a Research Physicist at the Institute for Defense Analyses (IDA). In this position, she executes studies for the Office of the Secretary of Defense and the Joint Staff with a focus on technology and national security. Her primary areas of concentration include experimentation, test and evaluation resource analyses, joint and combined force planning, operations and assessment, irregular warfare planning, simulation training, wargaming, education and cultural modeling.

From 1967 – 2005, Dr. Numrich worked at the U.S. Naval Research Laboratory (NRL). At NRL, she worked on a number of research topics to include Nuclear Structure, Arctic Acoustics, Active Control, Elastic Acoustic Scattering, Parallel Processing, Computational Steering, Joint Countermine Operational Simulation (JCOS), and In-Stride Natural Environment Development and Delivery Program. She worked as the Director of Technology (Chief Scientist), Defense Modeling and Simulation Office where she had primary responsibility for the determination of the technical program and allocation of a research budget of $34M.

Dr. Numrich is a member of many national committees including the Defense Science Board: Task Force on Gaming, Exercising, Modeling & Simulation, Interservice/Industry Training, Simulation and Education Conference (I/ITSEC). She served on the Simulation Committee, the Advanced Research Committee, and founded (was first chair of) the Tutorial Board. She has also been a member of many technical panels including The Technical Cooperation Program, the U.S. National Leader and the North Atlantic Treaty Organization (NATO), Research and Technology Organization.

Dr. Numrich has been published multiple times, has been a keynote speaker, and has a patent. She's the recipient of many awards to include the Office of the Secretary of Defense Exceptional Civilian Service Award, the Technical Cooperation Program's 2014 Personal Achievement Award, the Trinity College Centennial Alumna Achievement Award, and many other prestigious awards.

EXPERTISE

- Physics
- Nuclear Structure
- Arctic Acoustics
- Active Control
- Elastic Acoustic Scattering
- Parallel Processing
- Computational Steering
- Joint Countermine Operational Simulation (JCOS)
- Modeling and Simulation

EDUCATION

University of Cambridge, England, Certificate, Post Graduate Education, Depart. of Engineering, 1987
American University, Ph.D., Physics, 1979
The Johns Hopkins University M.A., Physics, 1970
Trinity College, A.B., Physics, 1967

Lydia P. Olander, Ph.D.

Director of Ecosystem Services Program; Nicholas Institute for Environmental Policy Solutions; Adjunct Associate Professor in the Nicholas School of the Environment, Duke University

EXPERTISE

- Ecosystem Services
- Environmental Policy
- Sustainable Infrastructure Development
- Environmental Markets and Mitigation
- Role of Habitat in Resilience

EXPERIENCE

Dr. Lydia P. Olander directs the Ecosystem Services Program at the Nicholas Institute for Environmental Policy Solutions at Duke University. She leads the National Ecosystem Services Partnership supporting efforts to integrate ecosystem services into decisionmaking. She studies environmental markets and mitigation including forestry and agricultural-based climate mitigation, wetland, stream and endangered species mitigation, and water quality trading. She serves on the Army Science Board's (ASB) Environmental Advisory Sub-Committee and on the Secretariat of The Bridge Collaborative.

She has published in a wide range of professional journals including *Integrated Environmental Assessment and Management*, *Ecosystems*, *Biogeochemistry*, *Soil Biology and Biochemistry*, *Forest Ecology and Management*, *Earth Interactions*, and *Environmental Research Letters*, *Global Environmental Politics*, *Environmental Management*, *The Environmental Law Reporter*, *Current Opinion in Environmental Sustainability*, *Advances in Agronomy*, *Global Change Biology*, *Frontiers in Ecology and the Environment*, *Ecosystem Services*, and *Ecological Indicators and BioScience*.

Prior to joining the Nicholas Institute, she spent a year as an American Association for the Advancement of Science (AAAS) Congressional Science and Technology Fellow working with Senator Joseph Lieberman on environmental and energy issues. She was also a researcher with the Carnegie Institution of Washington's Department of Global Ecology, where she studied the biogeochemical impacts of logging in the Brazilian Amazon and utilized remote sensing to extrapolate regional impacts. She earned a Master's Degree in forest science from Yale University and received her Ph.D. from Stanford University, where she studied nutrient cycling in tropical forests.

EDUCATION

Stanford University, Ph.D., Biogeochemistry, 2002

Yale School of Forestry and Environmental Studies, Masters of Forest Science, 1995

Cornell University, B.A., Environmental Science and Policy (College Scholar Program, *summa cum laude*), 1992

Norman T. O'Meara, COL, USA (Ret), D.Sc.

Former Senior Research Fellow and Senior Fellow at Logistics Management Institute

EXPERTISE

- Military Manpower
- Civilian Workforce Planning
- Resource Allocation
- Mathematical Modelling

EXPERIENCE

A former career Army officer, Dr. Norman T. O'Meara has 40 years of experience in analyzing military manpower, workforce planning, and resource allocation for a number of top-level governmental entities with specific emphasis on the cabinet-level departments of Defense, State, and Transportation. Around 2010 – 2012, he conceived, designed, and built a civilian workforce model to develop alternative estimates of the size, grade, skill, and organizational targets. This was as part of Logistics Management Institute's (LMI) support to the Army's Civilian Workforce Transformation (CWT) effort.

He has served on two congressionally directed National Academy of Science committees to study the Federal Aviation Administration's (FAA) methods for estimating air traffic controller staffing requirements, with subsequent reports to Congress outlining findings and recommendations for improving the process. He led the analytical team for the Department of Defense's (DoD's) Joint Cross Service Group for Depot Maintenance in support of DoD's base realignment and closure (BRAC) recommendations and provided testimony before the commission.

Dr. O'Meara has served with the Army Science Board on numerous studies to include "Ensuring the Financial Viability of the Objective Force," "Balancing the Force," "Strategies to Optimize Army Operating and Generating Forces for 2025 and Beyond," the 2019 study, "U.S. Army Corps of Engineers," and many others. He holds a Bachelor of Science Degree from the U.S. Military Academy at West Point, Masters Degrees in Mathematics and Operations Research and Statistics from Rensselaer Polytechnic Institute, and a Doctorate in Operations Research from The George Washington University.

EDUCATION

The George Washington University, D.Sc, Operations Research, 1988
Rensselaer Polytechnic Institute, M.S., Mathematics, 1974
Rensselaer Polytechnic Institute, M.S., Operations Research and Statistics, 1974
U.S. Military Academy at West Point, B.S., 1968

Thomas F. Ramos, S.M.

Special Assignment to Principal Associate Director
Weapons & Complex Integration, Lawrence Livermore
National Laboratory

EXPERTISE

- Systems Engineering of Weapons Systems
- Intelligence Analysis
- High Energy Explosives
- Lasers and Other Forms of Directed Energy
- Nuclear Weapons Design

EXPERIENCE

Mr. Thomas F. Ramos is on a Special Assignment to the Principal Associate Director, Weapons and Complex Integration, Lawrence Livermore National Laboratory (LLNL). He has been researching and writing a history of the nuclear weapons program of the LLNL. Through his work, he has identified new perspectives on the weapons program that have not been understood before.

Mr. Ramos created several programs that served the Department of Defense, most notably the Counterproliferation Analysis and Planning System (CAPS), which helped military operators with missions against facilities that are linked to a hostile country's ability to manufacture weapons of mass destruction. CAPS was effectively used in Operations Enduring Freedom and Iraqi Freedom. Mr. Ramos started the Homeland Defense Operational Planning System (HOPS), a program similar to CAPS, but focused more on analyses of America's critical infrastructure.

Mr. Ramos has served as a nuclear weapons designer supporting the Strategic Defense Initiative. He led a team of physicists who designed the program's brightest laser. He also researched and submitted daily summary sheets for the Secretary of Energy to use at National Security Council (NSC) meetings on the resumption of Strategic Arms Reduction Treaty (START) talks. He was later assigned to the Pentagon as a nuclear weapons advisor to the Secretary of Defense with his primary role being to prepare the Assistant to the Secretary of Defense for Atomic Energy for Congressional hearings.

Before joining the LLNL, Mr. Ramos was an Associate Professor of Physics at the U.S. Military Academy at West Point. Prior to that, he served in the U.S. Army, commanding combat engineer companies in Germany and Korea.

EDUCATION

Massachusetts Institute of Technology, S.M., High Energy Physics, 1977
U.S. Military Academy at West Point, B.S., General Engineering, 1969

James M. Rebesco, Ph.D.

Chief Executive Officer and Founder, Striveworks, Inc.

EXPERTISE

- Machine Learning and Artificial Intelligence
- Neuroscience
- Human-Machine Interfaces
- Financial Services

EXPERIENCE

Dr. James Rebesco is the Chief Executive Officer (CEO) and founder of Striveworks, Inc., a firm specializing in the development and delivery of machine-learning driven solutions to the Defense and Intelligence Communities. Striveworks' unique focus lies in the implementation of artificial intelligence (AI) solutions at the nexus of warfighter/end user and AI practitioner where problem sets aren't muffled; where solutions are iterated quickly; and where impact can be measured directly. Dr. Rebesco's teams have led work on data/sensor fusion, computer vision, and network analysis.

This work has been applied to the exploitation of airborne intelligence, surveillance, and reconnaissance (ISR) data, automated generation of network models, counter threat finance, and all-source intelligence fusion.

Prior to this, Dr. Rebesco worked at Virtu Financial, a leading electronic market-making firm, where he led trading and data science teams as a partner in the firm. Dr. Rebesco serves as a board member for Sayari Labs, a financial intelligence and search firm, and he acts as an advisor to a number of startups in fintech, supply chain management, and artificial intelligence. Previously, Dr. Rebesco participated in the Defense Advanced Research Projects Agency (DARPA) Revolutionizing Prosthetics program. He has supported the Federal Reserve Board, multiple elements within the Department of Defense, the United States Military Academy, and others as a subject matter expert in both artificial intelligence and its applications to various industries, including finance and national defense. Dr. Rebesco has published and presented extensively on the topic of network identification in the presence of highly incomplete information.

EDUCATION

Northwestern University, Ph.D., Computational Neuroscience, 2009
California Institute of Technology, B.S., Physics, 2004

Brett A. Reichert

Lead Software Engineer, Striveworks, Inc.

EXPERTISE

- Ordnance
- Software Engineering
- Computer Science
- Machine Learning

EXPERIENCE

Mr. Brett A. Reichert is currently the Lead Software Engineer at Striveworks, Inc., a firm specializing in the development and delivery of machine learning driven solutions to the defense and intelligence communities. He is a 2013 U.S. Military Academy graduate in Computer Science. He spent five years as an Ordnance officer in the Army and is currently in an Individual Readiness Reserve (IRR) status.

Mr. Reichert is currently involved in some exciting projects with Striveworks including a hardware-based WiFi packet sniffer that couples bleeding-edge machine learning with mission objectives. He also hand-developed a web-based, one-stop shop for biometrics information collected down-range. Initially, this project was a small is-this-possible? prototype, and it quickly morphed into a massive supporting effort for Joint Special Operations Command (JSOC). Previously, biometrics data was hosted on hard-to-reach remote servers where soldiers had to manually process a large vat of data (over 30k records). Now, soldiers and global partners can log into a modern web interface and access the important biometrics data that they need to succeed.

As an Army officer, Brett served with the 1st Cavalry Division Sustainment Brigade where he led a Quartermaster platoon and an Electronics Maintenance platoon; was the A/S3 for 553 Combat Sustainment Support Battalion, and subsequently was the Chief of Transportation for the brigade. There, he developed a Sharepoint-based web interface to request, process, and assign Transportation Mission Requests in support of the entire installation at Fort Hood, TX. Finally, as a captain, Brett deployed with 2/1 Cavalry Division as the brigade A/S4 to Camp Humpreys, South Korea from June 2017 – Febuary 2018.

EDUCATION

U.S. Military Academy at West Point, B.S., Computer Science, 2013

Kim A. Roberts, Ph.D.

Professor of the Practice of International Relations
Director of Graduate Studies at Georgetown University's Security Studies Program

EXPERTISE

- International Relations
- Values-Based Decision-Making
- National Security
- Government Affairs
- Public Affairs
- Broadcast Journalism

EXPERIENCE

Dr. Kim A. Roberts is Professor of the Practice of International Relations and the Director of Graduate Studies at Georgetown University's Security Studies Program. Among her research interests are International Relations practice, values-based decisionmaking, and the national security impact of non-state actors including multi-national corporations. She is also a Non-resident Senior Fellow with the Atlantic Council's Brent Scowcroft Center on International Security, Strategic Foresight Initiative.

For eight years, Dr. Roberts was Vice President of Government Affairs at Science Applications International Corporation (SAIC). She directed SAIC's external relationships overseeing the company's role as a thought leader in the Washington community.

Prior to SAIC, Dr. Roberts served as the U.S. Army's civilian Public Affairs Officer at U.S. Army Garrison Okinawa, Torii Station. In this position, she received the Commander's Award for Civilian Service. Dr. Roberts is a former international broadcast journalist and has reported stories on economic, political, and security issues throughout the Middle East, Asia, Europe, and Haiti.

Dr. Roberts and her husband, Ron Buikema, founded TractorShare, a nonprofit dedicated to empowering farming communities in developing nations by providing the agricultural tools to build a sustainable and healthy society. Currently, they are working with a community in the Yucatan Peninsula to help supply much-needed farming equipment.

EDUCATION

University of Miami, Ph.D., International Studies, 2005

Johns Hopkins University's School of Advanced International Studies, Master of International Public Policy

Pennsylvania State University, B.A., International Politics

Pallabi Saboo

Chief Executive Officer for Harmonia Holdings Group, LLC

EXPERTISE

Electronics Engineering

Technology

Marketing

EXPERIENCE

Ms. Pallabi Saboo is the Chief Executive Officer (CEO) for Harmonia Holdings Group, LLC. Under her leadership, Harmonia has enjoyed many honors to include the prestigious Tibbetts Award made to firms that exemplify the very best in Small Business Innovation Research (SBIR) achievement and transition. Harmonia was recognized among the '12 to Watch' small businesses in Virginia and named a GovStar 'Technical Trailblazer' federal contractor, was included among the Fast 50 Asian American Businesses, and is a winner of the *Inc. Magazine* Hire Power Award. Harmonia has been included in the Inc. *Magazine 5000* list of fastest growing companies.

Ms. Saboo has a 15-year track record of building and operating successful technology and technology-related services companies. She is an entrepreneur with great success in the federal and commercial sectors. She is an Electronics Engineer with specialized training in marketing from Virginia Polytechnic Institute and State University, where she was awarded a Cunningham Fellowship. The University also honored her as a distinguished alumnus and member of the Ut Prosim Society. Ms. Saboo has served for eight years as a member of the Virginia Governor's Board for Small Business Financing and is a Paul Harris Fellow of the Rotary Foundation and remains active in several community outreach programs.

Among her many honors, Saboo is a recipient of the Federal 100 Award, which recognizes government, industry, and academic leaders who have played pivotal roles in influencing how the federal government acquires, develops, and manages information technology. She was named in the top 25 female CEOs in the Washington, D.C., area by *SmartCEO Magazine* and named to the Washington SmartCEO Smart100.

EDUCATION

Virginia Polytechnic Institute and State University, M.S., Marketing, 1992
Punjab University, B.S., Electronics and Communications Engineering, 1989

James D. Shields

Former President and Chief Executive Officer
The Charles Stark Draper Laboratory

EXPERTISE

- Guidance Navigation and Control
- Systems Engineering and Analysis
- Autonomous Systems
- Logistics
- Data Fusion

EXPERIENCE

Mr. James Shields retired in 2014 as the President and Chief Executive Officer (CEO), The Charles Stark Draper Laboratory, an independent nonprofit research institution that develops innovative solutions to some of the nation's most difficult national security and space problems. The Laboratory also supports pioneering collaborations between traditional engineers and life scientists to demonstrate the value of biomedical engineering in creating systems' solutions to healthcare problems that would not evolve if the disciplines worked independently. Previously, Mr. Shields was the Vice President for Programs where he was responsible for developing and executing the laboratory's business and strategic plans. He led the organization that is responsible for identifying and capturing new programs, and he was responsible for the successful execution of all the laboratory's research and development (R&D).

Mr. Shields is currently a member of the Defense Science Board (DSB) as well as the Army Science Board (ASB). He has supported the DSB on multiple studies as Co-Chair and member to include "Next Generation Undersea Systems," "Time Critical Conventional Strike from Strategic Standoff," "Integrating Sensor Collected Intelligence," and "The Role of Autonomy in DoD Systems." Mr. Shields has been a member of many ASB studies including "Electronic Warfare for Air and Missile Defense Systems" (Chair), "Robotic and Autonomous Systems of Systems" (Vice Chair), 2019's "Battlefield Uses of Artificial Intelligence" (Senior Mentor) and Red Team Member. He also served as a member of the Air Force Scientific Advisory Board on Networking to Support Coalition Operations.

EDUCATION

Massachusetts Institute of Technology, M.S., Electrical Engineering, 1972
Massachusetts Institute of Technology, B.S., Electrical Engineering, 1972

Neil G. Siegel, Ph.D.

IBM Professor of Engineering Management in the Epstein Department of Industrial and Systems Engineering within Viterbi School of Engineering at the University of Southern California

EXPERTISE

- Systems Engineering
- Mission Systems
- Tactical Systems
- U.S. Blue-Force Tracker
- Forward-Area Air Defense System
- Drug-Interaction Analysis
- Unmanned Air Vehicles
- Ground-Based, Short-Range Air Defense Systems
- Ground-Based Laser Weapon Systems

EXPERIENCE

Dr. Neil G. Siegel is a recognized expert in the design and development of large, complex systems that serve the United States and society overall. He is a computer scientist, systems engineer, and engineer. Until the end of 2015, he held the position of Sector Vice President and Chief Technology Officer at Northrop Grumman. He led the sector's 12,000 scientists and engineers, directed their technology activities and research, and oversaw the development of solutions for the customers' most complex problems.

Dr. Siegel served as a Vice President, Northrop Grumman for nearly 18 years. He led the engineering on a large number of successful-fielded military, intelligence, and commercial systems including U.S. Blue Force Tracker, the Army's first unmanned aerial vehicle, the Forward Area Air Defense system, and Global Positioning Systems-enabled devices such as the iPhone. These systems have repeatedly been cited as model programs and important national capabilities.

He has inventions that are used in a large number of consumer devices around the world, and he holds more than 50 issued and pending patents worldwide, many of which are considered corporate trade secrets. Customers of his include the Department of Defense, U.S. Steel, and the movie industry.

Dr. Siegel's honors include election to the National Academy of Engineering, membership in the National Academy of Inventors, the Insititute of Electrical and Electronics Engineers' (IEEE) Simon Ramo medal for systems engineering, and many others.

For the Army Science Board, Dr. Siegel contributed to the "Landwarnet" study in 2007.

EDUCATION

University of Southern California, Ph.D., Industrial & Systems Engineering, 2011
University of Southern California, M.S., Mathematics, 1976
University of Southern California, B.S., Mathematics, 1974

Charles A. Simenstad

Emeritus Research Professor & Coordinator of the Wetland Ecosystem Team, University of Washington School of Aquatic and Fishery Sciences

EXPERTISE

- Estuarine and Nearshore Marine Ecosystem Structure and Dynamics, Trophic Interactions, Detritus Based Food Webs; and Stable Isotopes
- Landscape Ecology of Coastal Wetlands
- Coastal Wetland Restoration Ecology
- Estuarine Ecology and Life History Diversity of Juvenile Salmonids, and Ecology of Their Prey
- Coastal Ecosystem Management

EXPERIENCE

Professor Charles Simenstad is an Emeritus Research Professor at the School of Aquatic and Fishery Sciences, University of Washington, Washington State. He has studied the organization and function of estuarine and coastal marine ecosystems from Alaska to California for over 40 years. He has also worked in the Louisiana Coastal Area. His research centers on ecosystem-, community-, and habitat-level interactions, emphasizing predator-prey relationships, sources, organization and flow of organic matter through food webs, estuarine ecology of juvenile Pacific salmon, and landscape-scale interaction between estuarine circulation and ecological processes. His research has been applied to restoration and rehabilitation of estuarine and coastal wetland ecosystems, and to evaluating the success of coastal wetland restoration at ecosystem and landscape scales.

Professor Simenstad has also served as Affiliate Faculty, College of Earth, Ocean, and Atmospheric Sciences, Oregon State University, and as a Senior Fisheries Biologist at the Fisheries Research Institute, University of Washington. He is an expert witness, consultant, and advisor, including academic chair to 31 Masters and Ph.D. graduate students, on the committees of another 44 graduate students, and external examiner of three foreign graduate students. He has published hundreds of peer-reviewed journal articles and is a Fellow of the American Association for the Advancement of Science. Professor Simenstad has served on the U.S. Army Corps of Engineers Chief of Engineers Environmental Advisory Board, is the Co-Editor-in-Chief, *Estuaries & Coasts, and the Editorial Board, Encyclopedia of Puget Sound*. He also serves on the Editorial Board, *San Francisco Estuary & Watershed Science*. Professor Simenstad is the recipient of the 2009 National Oceanic and Atmospheric Administration American Fisheries Society (NOAA-AFS) Nancy Foster Award for Habitat Conservation, and the 1993 University of Washington PSO Award for Excellence.

EDUCATION

University of Washington, M.S., Fisheries, 1971
University of Washington, B.S., Fisheries, 1969

Fred H. Sklar, Ph.D.

Associate Editor, Ecological Society of America's Journal: Frontiers in Ecology and the Environment, and Director, Everglades Systems Assessment Section of the South Florida Water Management District

EXPERTISE

- Oceanography
- Wetland Ecology
- Design and Implementation of Landscape-Scale, Adaptive Management Programs and Pilot Studies
- Integration of Super-Computer Numeric and Graphic Processing to Simulate Wetland Evolution and Succession

EXPERIENCE

Dr. Fred H. Sklar has been studying, evaluating, and managing coastal and freshwater ecosystems since 1976. He is an Associate Editor for the *Ecological Society of America's Journal, Frontiers in Ecology and the Environment* and is the Director of the Everglades Systems Assessment Section of the South Florida Water Management District in West Palm Beach. Dr. Sklar studies the hydrology, soil, plant and animal processes associated with both the degradation and restoration of wetland and coastal ecosystems, and he specializes in the design and implementation of landscape-scale, adaptive management programs and pilot studies. His success in the Everglades has been due to a focus on applied science, cost-effective monitoring, and collaborations with academic institutions. Dr. Sklar became nationally recognized for his postdoctoral studies in Louisiana, where he was the first person to ever integrate super-computer numeric and graphic processing to simulate wetland evolution and succession as a consequence of river diversions, natural carbon sequestration by wetlands and sea level rise.

After his post-doctoral studies, Dr. Sklar became the scientific coordinator for the North Inlet Long-Term Ecological Research (LTER) program, University of South Carolina. LTER's are specially selected monitoring sites that the National Science Foundation (NSF) deems critical for unraveling the complexities of ecosystem health and sustainability.

Dr. Sklar has published over 100 papers and book chapters in the field of ecosystem assessment, modeling, and restoration. He currently directs a $6M restoration research program designed to optimize water management for flood control, water supply, and environmental protection. As part of Everglades restoration he created the largest experimental freshwater wetland mesocosm in North America (the Loxahatchee Impoundment Landscape Assessment or LILA) and the second largest adaptive management experiment in the country (the DECOMP Physical Model).

EDUCATION

Louisiana State University, Ph.D., Wetland Ecology, 1983

Louisiana State University, M.S., Oceanography, 1976

Rutgers, The State University of New Jersey, Bachelors, 1973

Susan M. Smyth, Ph.D., FSME, NAE

Chief Scientist, General Motors Manufacturing

Director, Manufacturing Systems Research, GM (Ret)

EXPERTISE

- Global Manufacturing
- Research and Development (R&D)
- Vehicle and Propulsion Systems
- Engineering
- Big Data Analytics
- Government Manufacturing Programs and Policies

EXPERIENCE

Dr. Susan Smyth recently retired as the Chief Scientist for Global Manufacturing at General Motors (GM) and as the Director of GM Research and Development (R&D) Manufacturing Systems Research Labs. In this capacity, she directed the creation of GM's global manufacturing R&D strategies and oversaw innovation and implementation of its advanced manufacturing technology portfolio. Susan was responsible for manufacturing technology R&D, enabling the production of world-class vehicle and propulsion systems and driving innovations to enhance quality, efficiency, and flexibility of GM's manufacturing systems. During her career at GM, she held a variety of leadership positions in manufacturing, engineering, big data analytics, and R&D.

Dr. Smyth is recognized as one of the strategic technology leaders inside and outside of GM. She served as Chair of the U.S. Manufacturing Council, which advises the Secretary of Commerce on government policies and programs affecting United States manufacturing. She was the GM Executive Representative and Chair of the Manufacturing Technology Leadership Council at the United States Council for Automotive Research (USCAR). She has also served as Executive Technology Advisor to a number of prestigious research institutes including the University of Michigan, Massachusetts Institute of Technology, Georgia Institute of Technology, Northwestern University, Shanghai Jiao Tong University, and many others.

Dr. Smyth has been recognized for her technical and business achievements with multiple international awards. She was made a Fellow of the Society of Manufacturing Engineers (FSME) in 2015 and was elected to the National Academy of Engineering (NAE) in 2018. She also serves as an advisor to the National Science Foundation (NSF) Directorate for Engineering.

EDUCATION

The Queen's University of Belfast, Northern Ireland, Ph.D., Physics, 1990
The Queen's University of Belfast, Northern Ireland, M.S., Optoelectronics and Information Technology, 1986
The Queen's University of Belfast, Northern Ireland, B.S., Physics, 1985

William “Bill” E. Snowden, Ph.D.

Technical Consultant

EXPERTISE

- Materials Science
- Armor/Anti-Armor Technology
- Active Protection Systems (APS)
- Defense Technology
- Microtechnology and Applications

EXPERIENCE

Dr. William “Bill” E. Snowden is a materials scientist and defense technologist currently working as a Technical Consultant. He has broad industrial (Corning Inc., General Electric), national Laboratory (Lawrence Livermore National Laboratory (LLNL)), and government (Department of Defense) experience as a research scientist and technical program manager.

Dr. Snowden has a long history of involvement in the armor/anti-armor community, including work as a research scientist at LLNL, as a Defense Advanced Research Projects Agency (DARPA) program manager for the agency’s Armor/Anti-Armor Research and Technology Program (1983 – 1985), as a member of the DOD Senior Executive Service (SES), and as a consultant supporting the Institute for Defense Analyses (IDA). For many years, he provided technical and programmatic support to to DARPA’s Microsystems Technology Office, particularly as related to the development of MicroElectroMechanical Systems (MEMS) and nanotechnology for high-payoff applications in both military and non-military systems.

Dr. Snowden previously served as a member of the Army Science Board (ASB) from 1994 – 2000. Since rejoining the Board in 2012, he has contributed to the following ASB studies: “The Strategic Direction for Army Science and Technology,” “Army Science and Technology (S&T) Essential Core Competencies,” “Decisive Army Strategic & Expeditionary Maneuver,” “The Future of Army Aviation,” “Future Armor Anti-Armor Competition” (Chair), “Multi-Domain Battle,” “Multi-Domain Operations (MDB 2.0),” and “Next Generation Anti-Armor Strategy.”

EDUCATION

University of California, Berkeley, Ph.D., Materials Science and Engineering, 1976
University of California, Berkeley, M.S., Materials Science and Engineering, 1971
Alfred University, B.S., Ceramic Engineering, 1969

Charles “Chuck” C. Somerville, Ph.D. FLS

Professor of Biological Sciences and Dean of the College of Science at Marshall University in Huntington, West Virginia

EXPERTISE

- Biological Sciences
- Marine Microbiology
- Evolution of Photosynthetic Organelles in Marine Algae
- Biodegradation of Chlorinated Solvents
- Biodegradation and Bioremediation of Nitroaromatic Compounds

EXPERIENCE

Dr. Charles C. Somerville is a Professor of Biological Sciences and Dean of the College of Science at Marshall University in Huntington, WV. He earned his Ph.D. in Marine Microbiology in 1989. He then went to work as a Postdoctoral Fellow at the Biological Station in Roscoff, France, where he studied the evolution of photosynthetic organelles in marine algae. From northern France, he moved to the Environmental Protection Agency (EPA) Environmental Research Laboratory, FL, where he worked as a government contractor on the biodegradation of chlorinated solvents, and later to the U.S. Air Force Environics Lab at Tyndall Air Force Base, FL where he worked on the biodegradation and bioremediation of nitroaromatic compounds.

Dr. Somerville joined the faculty at Marshall University in 1997 as an Assistant Professor of Biological Sciences where he studied the biodegradation of chlorinated solvents in mixed wastes, and microbial community dynamics in large river systems. He served as Head of the Division of Biological Sciences and has been Dean of the College of Science since 2009. He was elected as a Fellow of the Linnean Society (FLS) of London in May 2011.

Dr. Somerville has served as the Marshall University Trustee to the Ohio River Basin Consortium for Research & Education (ORBCRE) and is currently a member of the ORBCRE Executive Committee. He also serves as vice-chair of the West Virginia Environmental Quality Board, and is a member of the Marshall University Research Corporation Board of Directors. He has been a member of the Steering Committee for the Ohio River Basin Alliance (ORBA) since 2010, and is currently serving as the Chair of the ORBA Steering Committee and as a scientific advisor to the Steering Committee of America’s Watershed Initiative (AWI).

EDUCATION

University of Maryland, College Park, Ph.D., Marine Microbiology,1989
The Pennsylvania State University, University Park, B.S. Microbiology, 1978

Bruce A. Swett, Ph.D.

Chief of Strategy, Intelligent Combat Systems Group
Johns Hopkins University Applied Physics Lab

EXPERTISE

- Biologically-Inspired Robotic Autonomy and Expertise Development
- Applied Neuroscience for Brain-Computer Interfaces
- High Performance Computing
- Machine Learning
- Artificial Intelligence
- Computational and Experimental Neuroscience

EXPERIENCE

Dr. Swett is the Chief of Strategy of the Intelligent Combat Systems Group at the Johns Hopkins University Applied Physics Lab. He is a computational and experimental neuroscientist with expertise in artificial intelligence (AI), brain-computer interfaces, and robotics. Dr. Swett's Ph.D. is in Neuroscience and Cognitive Sciences (NACS) from the University of Maryland at College Park; his post-doctoral work was completed at the National Institute of Deafness and other Communications Disorders (NIDCD), National Institutes of Health (NIH).

Dr. Swett's current research is on neurally-derived artificial intelligence that can generatively reason and act in complex environments. He is the only neuroscientist on the Army Science Board (ASB), and his unique skill set is very beneficial to the board, where he has served on multiple study teams.

Dr. Swett has contributed to the following ASB studies: "Evaluation of the Army Use of Predictive Data for High Risk Behavior" (2013), "Talent Management and the Next Training Revolution" (2014), "Human Interaction and Behavioral Enhancement" (Vice Chair, 2015), "Countering Enemy Indirect Fires" (Chair, 2016), "Improving Transition of Laboratory Programs into Warfighting Capabilities through Experimentation" (2017), "Manned Unmanned Teaming" (Vice Chair, 2018), and "Battlefield Uses of AI" (2019).

EDUCATION

University of Maryland, College Park, Ph.D., Neuroscience and Cognitive Sciences, 2007
University of Maryland, Baltimore, MSW, Clinical Social Work, 1993
McDaniel College, B.A., Psychology, 1981

Albert Buck Tanner, LTC, USA (Ret) Ph.D., PE

Technology Director for Combat Vehicles, BAE Systems

EXPERTISE

Ground Combat Vehicle Design

EXPERIENCE

Dr. Albert Buck Tanner served as Program Director for combat vehicle programs including Mobile Protected Firepower, Future Fighting Vehicle, Ground Combat Vehicle, Manned Ground Vehicles – Future Combat Systems (FCS) Common Integrated Product Teams including Propulsion, Armor, Crew Station, Signature Management, Hit Avoidance, Track and Close-Combat Armament System, and the Armed Robotic Vehicle, the largest FCS unmanned ground vehicle. He also served as Chief, Research and Development (R&D) and Standardization Division, London, UK; Program Manager, Electro-Magnetic Gun Program; Director of Studies, Future Combat Vehicles and Senior Material Scientist; and numerous R&D positions focused on combat vehicle survivability.

Dr. Tanner joined the former contractor, United Defense, (now BAE Systems Land an Armaments) in 2004 after serving 31 years as an Infantry officer in the U.S. Army. His Army assignments included Associate Professor and Executive Officer of the U.S. Military Academy, Department of Civil and Mechanical Engineering, Commander, C/1-11 Infantry (Mechanized), and M60 Machine Gunner, C (Airborne Ranger)/1-29 Infantry.

Dr. Tanner has been a Professional Engineer (PE) in the Commonwealth of Virginia since 1989. For the Army Science Board, he contributed to multiple studies including, “Army Science and Technology (S&T) Essential Core Competencies,” “Decisive Army Strategic & Expeditionary Maneuver,” “Strategies to Optimize Army Operating and Generating Forces,” “Future Armor Anti-Armor Competition,” “Multi-Domain Battle,” “Multi-Domain Operations (MDB 2.0),” and 2019’s “Next Generation Anti-Armor Strategy.”

EDUCATION

Georgia Institute of Technology, Ph.D., Mechanical Engineering, 1998
Massachusetts Institute of Technology, M.S., Mechanical Engineering-Robotics, 1987
U.S. Military Academy at West Point, B.S., 1979

James A. Tegnelia, Ph.D., M.B.A.

Former Chairman, Army Science Board

EXPERTISE

- Management
- Physics
- Nuclear Engineering
- Science Administration

EXPERIENCE

Dr. James A. Tegnelia served as Chairman of the Army Science Board (ASB) twice from 2004 – 2005 and from 2015 – 2017. He is currently a member of the Defense Science Board (DSB). He lectures as a Research Professor at the University of New Mexico and Georgetown University. He is the Chairman of the Governor of New Mexico's Military Planning Commission; the Chairman, Kirtland Air Force Base Partnership Committee; and a member of the Department of State International Security Advisory Board. He is an expert in management, physics, nuclear engineering, and science administration.

Dr. Tegnelia served in a multitude of positions to include Director, Defense Threat Reduction Agency (DTRA), Vice President (VP), Executive VP, and Deputy Director, Department of Defense (DOD) Programs, Sandia National Laboratories; President, Lockheed Martin Advanced Environmental Systems, Inc.; VP Engineering, Lockheed Martin Corporation; VP, Business Development, Electronics Group, Martin Marietta Corporation; and Deputy Director and Acting Director of Defense Advanced Research Projects Agency (DARPA). Dr. Tegnelia has served as the Assistant Undersecretary of Defense and Acting Deputy Undersecretary of Defense in the Office of the Undersecretary of Defense for Research and Engineering where he oversaw program manager activity on the Joint Surveillance and Target Attack Radar System (JSTARS) radar and Army Tactical Missile System (ATACMS) missile.

Other notable responsibilities include work in Smart Weapons, Radar, Sensors, Stealth Technology, and work in the Army's Night Vision Laboratory. He also served in the National Security Advisory Panel Board of Advisors.

Dr. Tegnelia is a Vietnam Veteran and a recipient of the Bronze Star (1970) and the Defense Science Board Eugene Fubini Award.

EDUCATION

The George Washington University, M.B.A., 1974
The Catholic University of America, Ph.D., Physics, 1968
Georgetown University, B.S., Physics, 1964

Anthony "Tony" J. Tether, Ph.D.

Chief Executive Officer, The Sequoia Group

EXPERTISE

- Organizational Culture and Transformation
- Technology Transition
- Security Technologies
- Vulnerability Assessment

EXPERIENCE

Dr. Anthony J. Tether was Director of the Defense Advanced Research Projects Agency (DARPA) from 2001 to his retirement in 2009. As Director, Dr. Tether was responsible for management of the Agency's projects for high payoff, innovative research and development.

In 2009, Dr. Tether re-formed The Sequoia Group (TSG) providing program management and strategy development services to government and industry. He is on several Advisory and Corporate Boards, and is a Distinguished Fellow with the Council on Competitiveness located in Washington, D.C.

Dr. Tether has held many other positions to include Chief Executive Officer (CEO) and President, TSG, which he founded in 1996, CEO, Dynamics Technology, Inc.; Vice President (VP) of Science Applications International Corporation's (SAIC) Advanced Technology Sector; VP and General Manager for Range Systems, SAIC, VP, Technology and Advanced Development, Ford Aerospace Corporation; Director, Strategic Technology Office, DARPA; Director National Intelligence, Office of the Secretary of Defense (1978 – 1982); and VP, Systems Control, Inc., a company he helped start after receiving his Ph.D.

Dr. Tether has been a member of the Army, Navy, and Defense Science Boards, and a member of the Office of National Drug Control Policy Research and Development Committee. This year, he served as the Chair for the 2019 "Army Futures Command" Army Science Board study. He is a Life Fellow of the Institute of Electrical and Electronics Engineers (IEEE) and is listed in several Who's Who publications.

In 1986, the Director, Central Inteligence Agency (CIA) honored Dr. Tether with the National Intelligence Medal. He was also honored by the Secretary of Defense with the DoD Civilian Meritorious Service Medal and the Department of Defense (DOD) Outstanding Public Service Medal. In 2013, he was awarded the Aerospace Communications Award.

EDUCATION

Stanford University, Ph.D., Electrical Engineering, 1969
Stanford University, M.S., Electrical Engineering, 1965
Rensselaer Polytecnic Institute, Bachelor, Electrical Engineering, 1964

Samuel “Sam” Sanders Visner

Director, National Cybersecurity Federally Funded Research and Development Center

EXPERTISE

- National Cybersecurity
- Science and Technology (S&T)
- International Affairs
- National Security
- Intelligence, Surveillance and Reconnaissance (ISR)

EXPERIENCE

Mr. Samuel “Sam” Sanders Visner is an experienced cybersecurity, national security, and business executive. He is currently the Director of the National Cybersecurity Federally Funded Research and Development Center (MITRE) sponsored by the National Institute of Standards & Technology. He also serves as member of the Cyber Council of the Intelligence and National Security Alliance, and the Cyber Committee of the Armed Forces Communications and Electronics Association. His career has been highlighted by the development and deployment of technology-based capabilities delivered in support of national cybersecurity and national security.

Mr. Visner is an adjunct professor of science and technology (S&T) in International Affairs at Georgetown University, where he teaches a course on cybersecurity policy, operations, and technology. He is a member of the Council on Foreign Relations and the Atlantic Council. He has served as Senior Vice President and General Manager, Cybersecurity and Resilience, ICF International. Prior to ICF, he was the Vice President and General Manager, CSC Global Cybersecurity, a Senior Vice President at SAIC, and Chief of Signals Intelligence Programs, National Security Agency (NSA) where he received the Agency’s highest award for civilian service. He has also served as a member of the Board of Directors, CVG-Avtec (now Integral Systems, Inc.).

He is a member of the Intelligence Community Studies Board (ICSB) sponsored by the National Academy of Science serving the Office of the Director of National Intelligence (ODNI). He has participated in multiple studies with the ICSB. He recently chaired a panel on Surprise Resulting from Convergence. He served twice on the Defense Science Board’s ISR Task Force, and he has published articles on national and cybersecurity in World Politics Review, the Georgetown Journal of International Affairs, and the Defense Intelligence Journal.

EDUCATION

The George Washington University, M.A., Telecommunications, 1992
Georgetown University, School of Foreign Service, B.S., International Politics, 1976

Michael E. Williamson, LTG, USA (Ret), Ph.D.

Former Principal Military Deputy to the ASA (ALT)

EXPERTISE

- Army Acquisition
- Congressional Affairs
- Air Defense Artillery
- Future Combat Systems

EXPERIENCE

Lieutenant General (Ret) Michael E. Williamson was commissioned at the University of Maine as a Second Lieutenant in the Air Defense Artillery (ADA) in 1983. He served in a multitude of assignments to include Chaparral and Vulcan Platoon Leaders, Germany; ADA commander, Ft. Hood, TX; Senior Military Software Analyst, NATO headquarters, Belgium; and Chief, Information Technology, Acquisition Career Management, ASA (ALT). As a Congressional Fellow, he served as a Legislative Assistant on Capitol Hill. He has served as Product Manager, Global Command and Control System-Army, Acquisition Military Assistant to the Secretary of the Army; Commander, Software Engineering Center, Fort Belvoir; Project Manager, Network Systems Integration, within Program Manager, Future Combat Systems (Brigade Combat Team); Director of Systems Integration, ASA (ALT); and Deputy Program Executive Officer, Integration and Joint Program Executive Officer for the Joint Tactical Radio Systems.

After serving as the Assistant Deputy for Acquisition and Systems Management, LTG (Ret) Williamson was selected to be the Assistant Military Deputy to the ASA (ALT). His most recent assignment was as the Deputy Commanding General, Combined Security Transition Command Afghanistan. He is a graduate of the Advanced Management Program, Harvard Business School and was a Senior Service College Fellow at the University of Texas at Austin. LTG (Ret) Williamson is Level III certified in Program Management and Information Technology.

EDUCATION

Georgetown University, Graduate certificates in Public Policy and Government Affairs
Madison University, Ph.D., Business Administration
Naval Postgraduate School, M.S., Material Acquisition Management
Husson College, B.S., Business Administration

Alan E. Willner, Ph.D.

Steven and Kathryn Sample Chair in Engineering
University of Southern California

EXPERTISE

Optical Communications

Optical and Photonic Technologies

EXPERIENCE

Dr. Alan E. Willner is currently the Steven and Kathryn Sample Chaired Professor of Engineering at the University of Southern California. Dr. Willner was a Postdoctoral Member of the Technical Staff at AT&T Bell Laboratories and a Member of the Technical Staff at Bellcore. He also served as a member of the the Defense Sciences Research Council that provided reports to Defense Advanced Research Projects Agency (DARPA).

He has recently contributed to the following Army Science Board studies: "Planning for Climate Change," "Future of Army Aviation," "Improving Transition of Laboratory Programs into Warfighting Capabilities through Experimentation," "Independent Assessment of the Army's Science and Technology Portfolio Realignment," and 2019's "Reforming Talent Management" study.

Dr. Willner has been honored with the following: Member, U.S. National Academy of Engineering; International Fellow, U.K. Royal Academy of Engineering; Presidential Faculty Fellows Award from the White House; Institute of Electrical and Electronics Engineers (IEEE) Eric E. Sumner Award; Fulbright, Guggenheim, Packard, and DoD's Vannevar Bush Fellowships; Egleston Medal from Columbia Engineering Alumni Association; Fellow, National Academy of Inventors; Optical Society (OSA) Paul Forman Engineering Excellence Award; International Society for Optics and Photonics (formerly Society of Photographic Instrumentation Engineers (SPIE)) President's Award; and IEEE Globecom Best Paper Award. He is Fellow of the American Association for the Advancement of Science (AAAS), IEEE, Institute of Engineering and Technology (IET), the Optical Society (OSA), and the International Society for Optics and Photonics (SPIE).

Dr. Willner's activities include: Co-Chair, U.S. National Academies Study on Optics and Photonics; President, Optical Society; President, IEEE Photonics Society; and Editor-in-Chief of *IEEE/OSA Journal of Lightwave Technology, OSA Optics Letters* and *IEEE Journal of Selected Topics in Quantum Electronics*.

EDUCATION

Yeshiva University, Honorary Doctorate, 2012
Columbia University, Ph.D., Electrical Engineering, 1988
Columbia University, M.S., Electrical Engineering, 1984
Yeshiva University, B.A., Physics, 1982

Walter Wojdakowski, MG, USA (Ret), M.B.A.

Independent Consultant

EXPERTISE

- Combat Leadership and Training
- Leader Development
- Curriculum Development
- Team Building
- Analysis
- Management

EXPERIENCE

Major General (Ret) Walter Wojdakowski served in a multitude of positions over his 36-year career in the Army including Commandant, the Army Infantry School; Deputy Commanding General, V Corps; Deputy Commander, Army Division/First U.S. Army; and Chief, Kuwait Advisory Group. He has a proven record of managing training resources and leading trainers. He is an expert in combat leadership, training, leader development, curriculum development, team building, analysis, and management.

In MG (Ret) Wojdakowski's last assignment, he trained 108,000 Soldiers annually across 61 different courses, with a $600M budget. He led the Army's largest training installation supporting 120,000 people and managing a 210,000 acre training area, over $1.4B in payroll, and over $2.4B in contracts.

Over his Army career, he trained, deployed, and led nine Separate Brigades to unparalleled success in major combat and stability operations in Iraq. He commanded a heavy, balanced battalion task force in Operation Desert Storm. His unit had the most awards for valor in the Army. Additionally, MG (Ret) Wojdakowski trained and mentored Combat Brigades as Commander, Operations Group; Combat Maneuver Training Center and built/executed the first stability operations brigade rotation (Boznia). He also executed the first 11 post-Desert Storm infantry battalion rotations at the National Training Center.

MG (Ret) Wojdakowski redesigned the maneuver Battalion/Brigade Pre-Command Course, conducted 62 OES/NCOES courses, and piloted the Maneuver Center of Excellence BCT Commander's Course. He built and executed the very first maneuver Captains' Career and Senior NCO course for the Army. He also designed, built, trained and led a 250 man corps staff through the transition to a 1000 man Combined JTF staff. Finally, he initiated integrated resource management, putting 25 percent more funding and people into key training.

EDUCATION

U.S. Army War College, 1993
U.S. Army Command and General Staff College, M.M.A.S., 1987
University of Alaska, M.B.A., Management, 1983
U.S. Military Academy at West Point, B.S., Engineering, 1972

Michael S. Wong, Ph.D.

William M. McCardell Professor and Chair, Rice University

EXPERTISE

- Chemical and Biomolecular Engineering
- Civil and Environmental Engineering
- Materials Science
- NanoEngineering

EXPERIENCE

Dr. Michael S. Wong is William M. McCardell Professor and Chair of the Department of Chemical and Biomolecular Engineering, Rice University, Houston, TX. He is also Professor of Chemistry, of Civil and Environmental Engineering and of Materials Science and Nano Engineering. His research addresses chemical engineering problems using the tools of materials chemistry and heterogeneous catalysis. Dr. Wong's primary work is in nanotechnology, with a particular interest in energy and environmental applications "catalysis for clean water."

Dr. Wong is Research Thrust Leader on multifunctional nanomaterials in the National Science Foundation-funded Nanotechnology Enabled Water Treatment (NEWT) Engineering Research Center. He served as Chair of the American Chemical Society Division of Catalysis Science and Technology (ACS CATL), Chairman of the American Institute of Chemical Engineers Nanoscale Science and Engineering Forum (AIChE NSEF), and Chair of the Southwest Catalysis Society Chapter of the North American Catalysis Society (SWCS/NACS). He serves on the Applied Catalysis B: Environmental editorial board, having previously served on the Chemistry of Materials editorial board. His laboratory tackles technical energy and sustainability issues through chemical engineering and materials chemistry approaches, producing mor than 20 pending/issued patents, 300 presentations, and one start-up company. His more than 120 publications have cumulatively garnered over 10,000 citations.

Dr. Wong has received numerous honors including the MIT TR35 Young Innovator Award, the American Institute of Chemical Engineers Nanoscale Science and Engineering Young Investigator Award, Smithsonian Magazine's Young Innovator Award, the North American Catalysis Society/Southwest Catalysis Society Excellence in Applied Catalysis Award, the Joe W. Hightower Award from Greater Houston Section of ACS, and Fellow of the American Chemical Society.

EDUCATION

University of California, Santa Barbara, Postdoctoral training, 2000 – 2001
Massachusetts Institute of Technology, Ph.D., Chemical Engineering, 2000
Massachusetts Institute of Technology, M.S., Chemical Engineering Practice, 1997
California Institute of Technology, B.S., Chemical Engineering, 1994

Christopher C. Yu, Ph.D.

Engineering Director, Software and Algorithms, Draper Laboratory

EXPERTISE

- Communications and Networking
- Signal Processing
- Guidance, Navigation, and Control
- Software Systems
- Research and Prototypes

EXPERIENCE

Dr. Yu is currently the Software and Algorithms Engineering Director at Draper Laboratory. This directorate consists of three engineering divisions: Information and Cognition; Autonomy, Guidance, and Control; and Secure and Assured Systems Software supporting programs ranging from the Navy Strategic Weapon System to NASA spaceflight missions to Defense Advanced Research Projects Agency (DARPA) research and development programs. Particular areas of expertise within the directorate include global positioning systems (GPS) denied navigation, mission critical and cyber resilient software systems, human computer interface, machine intelligence and autonomy.

Since joining Draper in 2004, Dr. Yu has also served as the Secure and Assured Systems Division Leader; the Signals, Sensors, and Navigation Division Leader; and the Signal Processing Group Leader. From 2015 to 2017, he served as the Internal Research and Development Director overseeing a budget of $25M to develop novel concepts and ideas.

At Draper, Dr. Yu has co-advised over ten Master's and Ph.D. students at the Massachusetts Institute of Technology (MIT), Boston University, and Northeastern University as part of the Draper fellows program. Prior to joining Draper in 2004, Chris was at Bell Laboratories in Murray Hill, NJ, where he was a member of the Video Networking Group, developing technologies for broadband access, wireless networks, and optical back-haul.

Dr. Yu has most recently contributed to the following Army Science Board (ASB) studies: "The Military Benefits and Risks of the Internet of Things (IoT)," "Dense Urban Operations," "The Future of Telemetry," "Software Development and Sustainability," and currently, "Data Integrity."

EDUCATION

Princeton University, Ph.D., Electrical Engineering
Princeton University, M.A., Electrical Engineering
Massachusetts Institute of Technology, B.S., Electrical Engineering

Marc A. Zissman, Ph.D.

Associate Head, Cyber Security and Information Sciences Division
Massachusetts Institute of Technology Lincoln Laboratory

EXPERTISE

- Human Language
- Technology and Speech, Speaker and Language Recognition
- Networking and Communications
- Tactical Networking on the Move
- Cyber Security
- Quantitative Test and Evaluation of Systems and Technology

EXPERIENCE

Dr. Marc A. Zissman is Associate Head of the Cyber Security and Information Sciences Division, Massachusetts Institute of Technology (MIT) Lincoln Laboratory. He joined the Laboratory in 1983. His early research focused on digital speech processing including parallel computing for speech coding and recognition, co-channel talker interference suppression, language and dialect identification, and cochlear-implant processing for the profoundly deaf. After working for one year in the Department of Defense (DoD) under the Intergovernmental Personnel Act (IPA) program, he expanded his research interests to include cybersecurity technology. He served in a series of laboratory leadership roles including Associate Leader of the Human Language Technology Group, Leader of the Wideband Tactical Networking Group, and Assistant Head of the Communication Systems and Cyber Security Division. Most recently, he had responsibility for developing and executing a strategic plan for growing the Laboratory's cyber security research, development, evaluation and technology transfer efforts.

In addition to his work at Lincoln, Dr. Zissman served for four years as a U.S. technical specialist to the NATO IST-011/TG-001 task group which studies military applications of speech technology for NATO. He was elected to, and served for, four years on the Speech Processing Technical Committee of the Institute of Electrical and Electronics Engineers (IEEE) Signal Processing Society. He also served for four years on the Defense Advanced Research Projects Agency (DARPA) Information Science and Technology Study Group. He was part of the U.S. Southern Command (USSOUTHCOM) and Joint Task Force-HAITI team that responded to the January 2010 earthquake in Haiti.

Since 2011, he has been serving as a member of the Army Science Board. He chaired/co-chaired a number of studies to include "The Future of Telemetry," "The Military Benefits and Risks of the Internet of Things," and "Dense Urban Operations." In 2019, he co-chaired, "Battlefield Uses of Artificial Intelligence."

EDUCATION

Massachusetts Institute of Technology, Electrical Engineering, Ph.D., 1990
Massachusetts Institute of Technology, Electrical Engineering, S.M., 1986
Massachusetts Institute of Technology, Electrical Engineering, S.B., 1986
Massachusetts Institute of Technology, Computer Science, S.B., 1985

PAST ARMY SCIENCE BOARD LEADERSHIP

Past Army Science Board Chairs

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2017 – Present

Dr. James A. Tegnelia
2015 – 2017

Mr. George T. Singley III
2011 – 2014

Dr. Frank H. Akers, Jr.
2005 – 2011

Dr. James A. Tegnelia
2004 – 2005

Dr. Joseph V. Braddock
2002 – 2004

Mr. Michael J. Bayer
1998 – 2002

Dr. Michael Frankel
1996 – 1998

Dr. Wilson K. Talley
1995 – 1996

Dr. Walter B. LaBerge
1992 – 1995

Mr. James Jacobs
1991 – 1992

Dr. Duane A. Adams
1990 – 1991

Dr. Dennis R. Horn
1989 – 1990

Mr. Gilbert F. Decker
1987 – 1989

Dr. Irene C. Peden
1986 – 1987

Dr. Wilson K. Talley
1983 – 1986

Dr. Richard A. Montgomery
1981 – 1983

Dr. J. Ernest Wilkins, Jr.
1978 – 1981

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Dr. Bruce A. Reese
1976 – 1977

Mr. Lawrence H. O'Neill
1971 – 1976

Dr. Harold M. Agnew
1966 – 1970

Dr. Finn J. Larsen
1965

Dean Morrough P. O'Brien
1961 – 1964

Dr. Clifford C. Furnas
1960 – 1961

Dr. James W. McRae
1960

Mr. Richard S. Morse
1958 – 1959

Dr. Frederick L. Hovde
1956 – 1957

Dr. James R. Killian, Jr.
1951 – 1956

PAST ASB BRADDOCK AWARD WINNERS

The Joseph V. Braddock Award was established as an honorary award of the U.S. Army for members of and consultants to the ASB. This award is intended to annually recognize an individual who has made a highly significant contribution to the Department of the Army in the ASB chartered fields of science, technology, manufacturing, acquisition, logistics, and business management while serving in a voluntary advisory capacity as a member of or consultant to the ASB.

This award is named in honor of Dr. Joseph V. Braddock, who has served as an uncompensated volunteer Chair, member, and consultant of the ASB for over 33 years.

Dr. Braddock continues to serve as a senior fellow consultant on the ASB's Red Team, where he mentors and advises the Board's executive committee, study chairs, members, and consultants. His efforts continue to develop the capacity of the ASB and its members to enable timely and relevant advice on some of the most challenging problems the Army is facing.

2016
Joseph V. Braddock, Ph.D.

2017
GEN, USA (Ret)
David M. Maddox

2018
Mr. George T. Singley, III

2019
LTG, USA (Ret)
Jack W. Woodmansee, Jr.

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