NDIA

ARMY SCIENCE & TECHNOLOGY
SYMPOSIUM AND SHOWCASE

EMPOWERING A SOLDIER'S SUCCESS

August 21 – 23, 2018

Walter E. Washington Convention Center

Washington, DC

NDIA.org/Army-Science

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NDIA

WHO WE ARE

The National Defense Industrial Association is the trusted leader in defense and national security associations. As a 501(c)(3) corporate and individual membership association, NDIA engages thoughtful and innovative leaders to exchange ideas, information, and capabilities that lead to the development of the best policies, practices, products, and technologies to ensure the safety and security of our nation. NDIA's membership embodies the full spectrum of corporate, government, academic, and individual stakeholders who form a vigorous, responsive, and collaborative community in support of defense and national security. For more information, visit **NDIA.org**

SCHEDULE AT A GLANCE

TUESDAY, AUGUST 21

Registration Open
7:00 am - 5:30 pm

General Session
8:00 - 9:30 am

Grand Opening of the Science & Technology Showcase & Poster Review
9:30 am - 5:30 pm

General Session
10:00 - 11:30 am

Lunch
11:15 am - 1:00 pm

Concurrent Sessions
1:00 - 2:00 pm

Concurrent Sessions
2:30 - 3:30 pm

Welcome Networking Reception and Poster Review
3:30 - 5:30 pm

WEDNESDAY, AUGUST 22

Registration Open
7:00 am - 6:30 pm

General Session
8:00 - 9:30 am

Grand Opening of the Science & Technology Showcase and Poster Review
9:30 am - 6:30 pm

General Session
10:00 - 11:30 am

Lunch
12:00 am - 1:00 pm

Concurrent Sessions
1:00 - 3:00 pm

Concurrent Sessions
3:30 - 4:30 pm

Networking Reception and Poster Review
4:30 - 6:30 pm

THURSDAY, AUGUST 23

Registration Open
7:00 - 11:30 am

Concurrent Sessions
8:00 - 10:00 am

Concurrent Sessions
10:30 - 11:30 am

Symposium Concludes
11:30 am

EVENT INFORMATION

LOCATION

Walter E. Washington Convention Center
801 Mt. Vernon Place NW
Washington, DC 20001

EVENT WEBSITE

NDIA.org/Army-Science

EVENT THEME

Empowering a Soldier's Success

ATTIRE

Civilian: Business
Military: Uniform of the day | For military speakers, we recommend Service dress.

SURVEY AND PARTICIPANT LIST

You'll receive via email a survey and list of attendees (name and organization) after the conference. Please complete the survey, which helps make our event even more successful in the future.

EVENT CONTACT

GENERAL EVENT

Britt Sullivan, CMP
Associate Director
Meetings and Special Projects
(703) 298-1514
bsullivan@ndia.org

AGENDA

Daniel Lung
Program Coordinator
Program Development
(703) 247-9476
dlung@ndia.org

EXHIBITS & SPONSORSHIP

Allison Carpenter, CEM, CMP
Director
Exhibits and Sponsorship
(703) 247-2573
ahcarpenter@ndia.org

REGISTRATION

Renata Casiel
Meeting Planner
(703) 247-2561
rcasiel@ndia.org

SPEAKER GIFTS

In lieu of speaker gifts, a donation will be made to the Fisher House Foundation.

HARASSMENT STATEMENT

NDIA is committed to providing a professional environment free from physical, psychological, and verbal harassment. NDIA will not tolerate harassment of any kind, including but not limited to harassment based on ethnicity, religion, disability, physical appearance, gender, or sexual orientation. This policy applies to all participants and attendees at NDIA conferences, meetings and events. Harassment includes offensive gestures and verbal comments, deliberate intimidation, stalking, following, inappropriate photography and recording, sustained disruption of talks or other events, inappropriate physical contact, and unwelcome attention. Participants requested to cease harassing behavior are expected to comply immediately, and failure will serve as grounds for revoking access to the NDIA event.

AGENDA

TUESDAY, AUGUST 21

7:00 AM – 5:30 PM
REGISTRATION OPEN
EXHIBIT HALL C

7:00 – 8:00 AM
CONTINENTAL BREAKFAST
PREFUNCTION OF ROOM 146

8:00 – 8:15 AM
WELCOME REMARKS
ROOM 146

Gen Herbert "Hawk" Carlisle, USAF (Ret)
President and CEO, NDIA

8:15 – 9:00 AM
KEYNOTE SPEAKER
ROOM 146

GEN James C. McConville, USA
Vice Chief of Staff

9:30 AM
GRAND OPENING OF THE SCIENCE & TECHNOLOGY SHOWCASE AND POSTER REVIEW IN EXHIBIT HALL
EXHIBIT HALL C

9:15 – 10:00 AM
GUEST SPEAKER
ROOM 146

Dr. Bruce D. Jette
Assistant Secretary of the Army (Acquisition, Logistics and Technology)

10:00 – 10:30 AM
NETWORKING BREAK IN EXHIBIT HALL
Sponsored by PAE ISR
EXHIBIT HALL C

10:30– 11:15 AM
GUEST SPEAKER
ROOM 146

LTG Thomas Spoehr, USA (Ret)
Director, Center for National Defense, The Heritage Foundation

11:15 AM – 1:00 PM
LUNCH ON YOUR OWN

CONCURRENT TECHNICAL SESSIONS

1:00 – 2:00 PM

C3/C4ISR

ROOM 152 A/B

Network/C3I Army Modernization Priority
Mr. Seth Spoenlein
Deputy Director, Space and Terrestrial Communications Directorate, Army Communications-Electronics Research, Development and Engineering Center

Embedding Simulation into Mission Command Systems
Dr. John R. Surdu
Senior Scientist, Cole Engineering Systems, Inc.

Use of RF Spectrum Monitoring Assets for 3D Geolocation and Drone Detection
Mickey Patterson
Senior Account Executive, CRFS

1:00 – 2:00 PM

INTEGRATED FIRES

ROOM 151 A/B

Army Science and Technology to Support Long Range Precision Fires Modernization
Michael C. George
Army Research, Development, and Engineering Command

Digital Radar Technology for Air and Missile Defense
Dr. Gregory Mitchell
Army Research Laboratory

Integrating Fires for Air and Missile Defense C2: The Human Dimension
Rob Jassey
Program Manager, Missile Defense and Protective Systems Division, Northrop Grumman

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1:00 – 2:00 PM

PANEL: DISRUPTIVE TECHNOLOGIES

ROOM 150 A/B

Blaise Zandoli
Army Applications Lab, Army Futures Command
Moderator

Dr. Paul Baker
Atomic and Molecular Program Manager, Army Research Laboratory

Dr. Henry Kapteyn
JILA, University of Colorado, and KMLabs

Dr. Jerrold Prothero
Co-founder and CEO
Astrapi Corp.

2:00 – 2:30 PM

NETWORKING BREAK IN EXHIBIT HALL Sponsored by PAE ISR

EXHIBIT HALL C

CONCURRENT TECHNICAL SESSIONS

2:30 – 3:30 PM

PANEL: HUMAN APTITUDE ASSESSMENTS

ROOM 152 A/B

Dr. Kara Orvis
Vice President, Research and Development Group, Aptima, Inc.
Moderator

Dr. Randy J. Brou
Research Psychologist
Army Research Institute

Dr. William S. Weyhrauch
Research Psychologist
Army Research Institute

Dr. Alexander Wind
Research Psychologist
Army Research Institute

2:30 – 3:30 PM

PANEL: MACHINE REASONING FOR DECISION SUPPORT

ROOM 151 A/B

Syeed Mansur
CEO, DeepCortex
Moderator

Dr. Lance Kaplan
Team Leader
Army Research Laboratory

Dr. Charles Kim
Professor, Howard University

Dr. Nick Vlahopoulos
Professor, University of Michigan

2:30 – 3:30 PM

EXPEDITIONARY OPERATIONS

ROOM 150 A/B

Resilient Communications with Hybrid Adaptive Networking
Craig Miller
Vice President and Chief Technical Officer, Viasat, Inc.

Deep Learning Application for Radio Frequency Data
Adam Thompson
Senior Solutions Architect, NVIDIA

Large Virtual Aperture Hyper-spectral NANO-SAT Formations for Operationally Responsive Space-based Identification and Tracking of Fuel Vapors, Lethal Gasses, and Other Hyperspectral Applications
Arnold Kravitz
President, Innovim Defense Services

Energy Efficient "Shelter in Shelter" Concept for Large Expeditionary Structures Application
Reza Salavani
Energy Program Manager, Air Force Civil Engineer Center

3:30 – 5:30 PM

WELCOME NETWORKING RECEPTION AND POSTER REVIEW IN EXHIBIT HALL

EXHIBIT HALL C

WEDNESDAY, AUGUST 22

7:00 AM – 6:30 PM

REGISTRATION OPEN
EXHIBIT HALL C

7:00 – 8:00 AM

NETWORKING CONTINENTAL BREAKFAST
PREFUNCTION OF ROOM 146

8:00 – 8:15 AM

ADMINISTRATIVE REMARKS
ROOM 146

Capt Frank Michael, USN (Ret)
Senior Vice President of Program Development, NDIA

8:15 – 9:00 AM

KEYNOTE SPEAKER
ROOM 146

Mary Miller
Performing the Duties of Assistant Secretary of Defense for Research and Engineering

9:00 – 9:30 AM

GUEST SPEAKER
ROOM 146

Dr. Thomas Russell
Deputy Assistant Secretary of the Army (Research and Technology)

9:30 AM

OPENING OF THE SCIENCE & TECHNOLOGY SHOWCASE AND POSTER REVIEW IN EXHIBIT HALL
EXHIBIT HALL C

9:30 – 10:00 AM

NETWORKING BREAK IN EXHIBIT HALL Sponsored by PAE ISR
EXHIBIT HALL C

10:15 – 11:00 AM

GUEST SPEAKER
ROOM 146

MG Bill Hix, USA (Ret)
Founder and Managing Partner, Next Horizons Partners

11:00 – 12:00 AM

PANEL: SCIENCE TO APPLICATION, OVERCOMING THE TECHNOLOGY VALLEY OF DEATH

Dr. Thomas Russell
Deputy Assistant Secretary of the Army (Research & Technology)

John S. Willison
Deputy to the Commanding General of Army Research, Development, and Engineering Command

Dr. David E. Walker
Director of Technology
Office of Naval Research

Thomas Lockhart
Director of Plans and Programs,
Air Force Research Laboratory

Dr. Thomas Karako
Senior Fellow, Director of the Missile Defense Program,
Center for Strategic and International Studies

12:00 – 1:00 PM **LUNCH ON YOUR OWN**

CONCURRENT TECHNICAL SESSIONS

1:00 – 2:00 PM

PANEL: IMMERSIVE TECHNOLOGIES

ROOM 152 A/B

RADM James A. Robb, USN (Ret)
President, National Training and Simulation Association
Moderator

Dave Fluegeman
Vice President of Simulation, Barco

Dr. David Darkow
Army Research, Development, and Engineering Command

Dr. W. Geoffrey Wright
Associate Professor
Temple University

1:00 – 2:00 PM

MATERIALS SCIENCE

ROOM 151 A/B

Friction Stir Welded Aluminum Hull Structure Material Fatigue Analysis
Victor Burguess
Army Research, Development, and Engineering Command

Development of Flexible Wrinkle-free Optical Stress Sensor for Studying Cell Substrate Interactions
Dr. Jian Sheng
Associate Professor, Texas A&M University - Corpus Christi

Enhancing Warfighter Performance with Non-Invasive Neurostimulation Enabled by Dry Skin Electrodes
Dr. Amy M. Heintz
Research Leader, Battelle

Phase Change Material Filled Graphite for Electronics Cooling in Transient Environments
Dr. James W. Klett
Senior Research Staff Member, Oak Ridge National Laboratory

1:00 – 2:00 PM

OPERATIONAL/EXPEDITIONARY ENERGY

ROOM 150 A/B

Advances in Li/CFx Non-rechargeable Batteries for Portable Electronic Systems
Julianne Douglas
Energy Harvesting Technology Lead, Army Communications-Electronics Research, Development and Engineering Center

Soldier-Borne Power Generation in Tier 1 Environments
Noel Soto
Army Research, Development, and Engineering Command

Photovoltaic/Thermal (PV/T) Energy Addition to Expeditionary Buildings
Michael Tomac
Process and Design Engineer, South Dakota School of Mines and Technology

Active Cooling Thermally Induced Vapor-Polymerization Effect (ACTIVE)
Dr. Gong Zhou
Senior Chemical Engineer, SMART Energy Group, Applied Research Associates, Inc.

CONCURRENT TECHNICAL SESSIONS

2:00 – 3:00 PM

HUMAN SYSTEMS INTEGRATION
ROOM 152 A/B

Preliminary Characterization of Head-Supported Mass Exposure in a Simulated Dismounted Operating Environment
Dr. Bethany L. Shivers
Research Kinesiologist, Army Aeromedical Research Laboratory

Graphene Electronic Tattoos for Imperceptible Human Monitoring and Human-System Interfaces
Dr. Deji Akinwande
Professor, University of Texas – Austin

Tactical Augmented Reality, Precisely Where You Need It: Bringing Registered AR to the Field
Eric M. Jones
Human Systems Architecture, Draper

2:00 – 3:00 PM

PANEL: STEM/EDUCATIONAL OUTREACH
ROOM 151 A/B

David Burns
Director, STEM Innovation Networks, Battelle
Moderator

Jacey Wilkins Cavanagh
National Coordinator, MakerMinded

Dr. Victor M. Nakano
Executive Program Director, Johns Hopkins University

Evelyn Villanueva
Research Geologist, Army Corps of Engineers, Engineer Research and Development Center

Justin Wang
Student, Chantilly High School

2:00 – 3:00 PM

DIRECTED ENERGY
ROOM 150 A/B

A Compact Modular High-Power Microwave Gun
Dr. James Tatoian
Chairman and CEO, Eureka Aerospace Inc.

Lasers for DEW Based on Fully Crystalline Fibers
Dr. Mark Dubinskiy
Team Lead, Advanced Solid State Lasers, Army Research Laboratory

New Process for Efficient Laser Pumping for IRCM: Three-for-One Cross-Relaxation
Dr. Larry Merkle
Scientist and Engineer, General Technical Services

3:00 – 3:30 PM

NETWORKING BREAK IN EXHIBIT HALL Sponsored by PAE ISR
EXHIBIT HALL C

CONCURRENT TECHNICAL SESSIONS

3:30 – 4:30 PM

PANEL: MANNED–UNMANNED TEAMING

ROOM 152 A/B

Matt Whalley
Army Aviation and Missile Research, Development, and Engineering Center
Moderator

Jeffery Ernat
Team Leader for Autonomy Teaming, Army Tank Automotive Research and Development Engineering Center

Dr. Ozlem Kilic
Professor, The Catholic University of America

Dr. Daniel E. Koditschek
Professor, University of Pennsylvania

Matthew England
Vice President of Business Development, Citadel Defense Company

3:30 – 4:30 PM

NEUROSCIENCE

ROOM 151 A/B

Taking New Concepts for Systems Design and Control from Neuroscience to Accelerate Innovation in Artificial Intelligence

Dr. Kelvin S. Oie
Senior Campaign Scientist for Human Sciences, Army Research Laboratory

A Pilot Study to Characterize the Epigenomic Status of the U.S. OEF/OIF War Veterans with PTSD

CPT Derese Getnet, USA
Principal Investigator, Integrative Systems Biology, Army Center for Environmental Health Research

Brain Tissue Mechanics in Blast Loading

Dr. Kurosh Darvish
Associate Professor, Temple University

Variability in Human Head Surrogate Data with Changes to Boundary Conditions in Blunt and Blast Trauma

Abdus Ali
PhD Student, New Jersey Institute of Technology

3:30 – 4:30 PM

HUMAN PERFORMANCE OPTIMIZATION AND ENHANCEMENT

ROOM 150 A/B

Biophysics-based Measuring and Modeling of Social Dynamics

Dr. Lisa Troyer
Program Manager, Army Research Office/Army Research Laboratory

Exoskeletons for Soldier Augmentation: Current Research Perspectives

Karen N. Gregorczyk
Biomech Team and Physical Performance Branch Lead, Army Natick Soldier Research, Development and Engineering Center

Development and Testing of Augmented Reality Command, Control, Communicate, Coordinate (ARC4) for Enhanced Battlefield Situational Awareness

Dr. Eric Gans
Principal Engineer, Applied Research Associates

Warrior Performance Platform (WP2™) for U.S. Navy: Leveraging Best-of-Breed Human Performance Tracking and Analytics Technology to Enhance Navy's Physical Fitness, Wellness, and Nutrition Capabilities

Jake Repanshek
Director of Solutions and Technology, The Informatics Application Group, Inc.

4:30 – 6:30 PM

NETWORKING RECEPTION AND POSTER REVIEW IN EXHIBIT HALL
EXHIBIT HALL C

THURSDAY, AUGUST 23

7:00 – 11:30 AM

REGISTRATION OPEN
PREFUNCTION OF ROOM 146

7:00 – 8:00 AM

NETWORKING CONTINENTAL BREAKFAST
PREFUNCTION OF ROOM 146

CONCURRENT TECHNICAL SESSIONS

8:00 – 9:00 AM

SYNTHETIC BIOLOGY AND LIVING MATERIALS
ROOM 152 A/B

Production of Tunable Nanomaterials Using Assembled Bacteriophage Droplets
Dr. Edward Perkins
Senior Scientist, Environmental Networks and Toxicology, Army Corps of Engineers

Microbial Reactors - Indigenous Feed Stocks to Functional Materials
Dr. Katherine L. Germane
Research Biologist, Army Research Laboratory

Genetic Tools and Synthetic Biology "Parts" for Clostridium Acetobutylicum, a Microbe of Military Interest
Dr. Alexander V. Tobias
Senior Researcher, General Technical Services, LLC

Bioinformatic and Deep-Learning Insight into Engineered DNA at Synthetic Biology Foundries
Dr. Mikhail Y. Wolfson
Senior Software Engineer, Ginkgo Bioworks

8:00 – 9:00 AM

ARTIFICIAL INTELLIGENCE
ROOM 151 A/B

Human Emotion Recognition Using Fused Physiological Signals
Dr. Shaun J. Canavan
Assistant Professor, University of South Florida

Artificial Intelligence and Intelligent Systems: Army Challenges
Dr. Brian M. Sadler
Army Senior Scientist for Intelligent Systems, Army Research Laboratory

Biologically Inspired Processor for Ultra-Low Power Video Surveillance Applications
Dr. Lester A. Foster
Chief Technology Officer, EWA Government Systems Inc.

Implementing Emotions in Cognitive Robots
Dr. Lyle N. Long
Professor, Penn State University

8:00 – 9:00 AM

PANEL: VEHICLE MOBILITY AND ARCHITECTURES

ROOM 150 A/B

Dr. Bruce Brendle
Army Research, Development, and Engineering Command
Moderator

Dion Anglin
Director, Cummins, Inc.

Dr. Paramsothy Jayakumar
Senior Technical Expert, Analytics,Army Tank Automotive Research, Development and Engineering Center

Jason Pusey
Mechanical Engineer, Army Research Laboratory

Dr. Chuanbo Yang
Energy Storage Engineer,
National Renewable Energy Laboratory

CONCURRENT TECHNICAL SESSIONS

9:00 – 10:00 AM

QUANTUM COMMUNICATIONS AND SENSING

ROOM 152 A/B

Schrödinger's Web — Race to Build the Quantum Internet

Dr. Jonathan P. Dowling
Co-Director, Hearne Institute for Theoretical Physics, Hearne Chair Professor of Theoretical Physics Louisiana State University

Director, Institute for Theoretical Physics High-rate Entanglement Generation Using Real Quantum Memories

Dr. Siddhartha Santra
Postdoctoral Research Associate, Army Research Laboratory

Optimal Pulse Schemes for High-precision Atom Interferometry

Dr. Michael H. Goerz
Postdoctoral Fellow, Army Research Laboratory

Quantum-secured Communications Over an Optical Network

Dr. George Siopsis
Professor, University of Tennessee

9:00 – 10:00 AM

PANEL: VERTICAL LIFT

ROOM 151 A/B

Dan Bailey
Army Aviation and Missile Research, Development, and Engineering Center
Moderator

Dr. Mulugeta A. Haile
Research Aerospace Engineer
Army Research Laboratory

Eric Spero
Team Lead
Army Research Laboratory

Dr. Andrew Wissink
Army Aviation and Missile Research, Development, and Engineering Center

9:00 – 10:00 AM

INTELLIGENT SYSTEMS

150 A/B

Deep Learning for Future Army Systems

Dr. Michael Lee
Team Lead, Army Research Laboratory

Tactical Short-Range Radar for Personnel Tracking with Split Brain Autoencoders

Samuel Savage
Software Design Engineer, Alion Science and Technology

Generative Adversarial Networks for Thermal Imagery Data Augmentation

Dr. Lance E. Besaw
Senior Robotics Researcher, Neya Systems

10:00 – 10:30 AM

NETWORKING BREAK

PREFUNCTION OF ROOM 146

CONCURRENT TECHNICAL SESSIONS

10:30 – 11:30 AM

FORCE PROTECTION AND SURVIVABILITY

ROOM 152 A/B

Materials and Manufacturing Advancements to Demonstrate Objective Underbody Protection

Dr. Bryan Cheeseman
Rapid Technology Transition Team Leader, Army Research Laboratory

Advanced Ceramics for Future Soldier Protection Technologies

Dr. Kristopher D. Behler
Senior Material Scientist, Army Research Laboratory

Automating Science to Rapidly Discover Higher Performing Armor Ceramics for Readiness Today

Michael Golt
Materials Engineer, Army Research Laboratory

Forward-Looking, Synthetic Aperture Radar (FLSAR) Concept for Landing in Degraded Visual Environments (DVE)

Dr. Traian Dogaru
Electronics Engineer, Army Research Laboratory

10:30 – 11:30 AM

POINT OF NEED MANUFACTURING

ROOM 151 A/B

Extrusion-Based, Additively Printed Magnets Outperforming Traditional Injection Molded Magnets

Dr. Mariappan P. Paranthaman
Corporate Fellow and Group Leader, Oak Ridge National Laboratory

Operationalizing Additive Manufacturing to Ensure Warfighter Readiness and Modernization

Jim Zunino
Army Research, Development, and Engineering Command

Material Recycling in 3D Printing/Material Sustainability in Additive Manufacturing

Lynn Ahrens
Student, Ursuline Academy

Dr. Andres Tovar
Professor, Indiana University-Purdue University Indianapolis

Systematic Development of Framework for Validation and Performance Quantification of Additively Manufactured (AM) Replacement Parts for Structural Steel Applications

Thomas Gallmeyer
Ph.D. Student, Colorado School of Mines

10:30 – 11:30 AM

PANEL: ELECTROMAGNETIC SPECTRUM DOMINANCE

ROOM 151 A/B

Dr. Jeffrey Boksiner
Senior Research Scientist, Intelligence and Information Warfare Directorate, Communications-Electronics Research, Development and Engineering Center, Army Research, Development and Engineering Command
Moderator

Ellen L. Holthoff
Chemist, Army Research Laboratory

Eric Holzman
Northrop Grumman Mission Systems

11:30 AM

SYMPOSIUM ADJOURNS

The NDIA has a policy of strict compliance with federal and state antitrust laws. The antitrust laws prohibit competitors from engaging in actions that could result in an unreasonable restraint of trade. Consequently, NDIA members must avoid discussing certain topics when they are together at formal association membership, board, committee, and other meetings and in informal contacts with other industry members: prices, fees, rates, profit margins, or other terms or conditions of sale (including allowances, credit terms, and warranties); allocation of markets or customers or division of territories; or refusals to deal with or boycotts of suppliers, customers or other third parties, or topics that may lead participants not to deal with a particular supplier, customer or third party.

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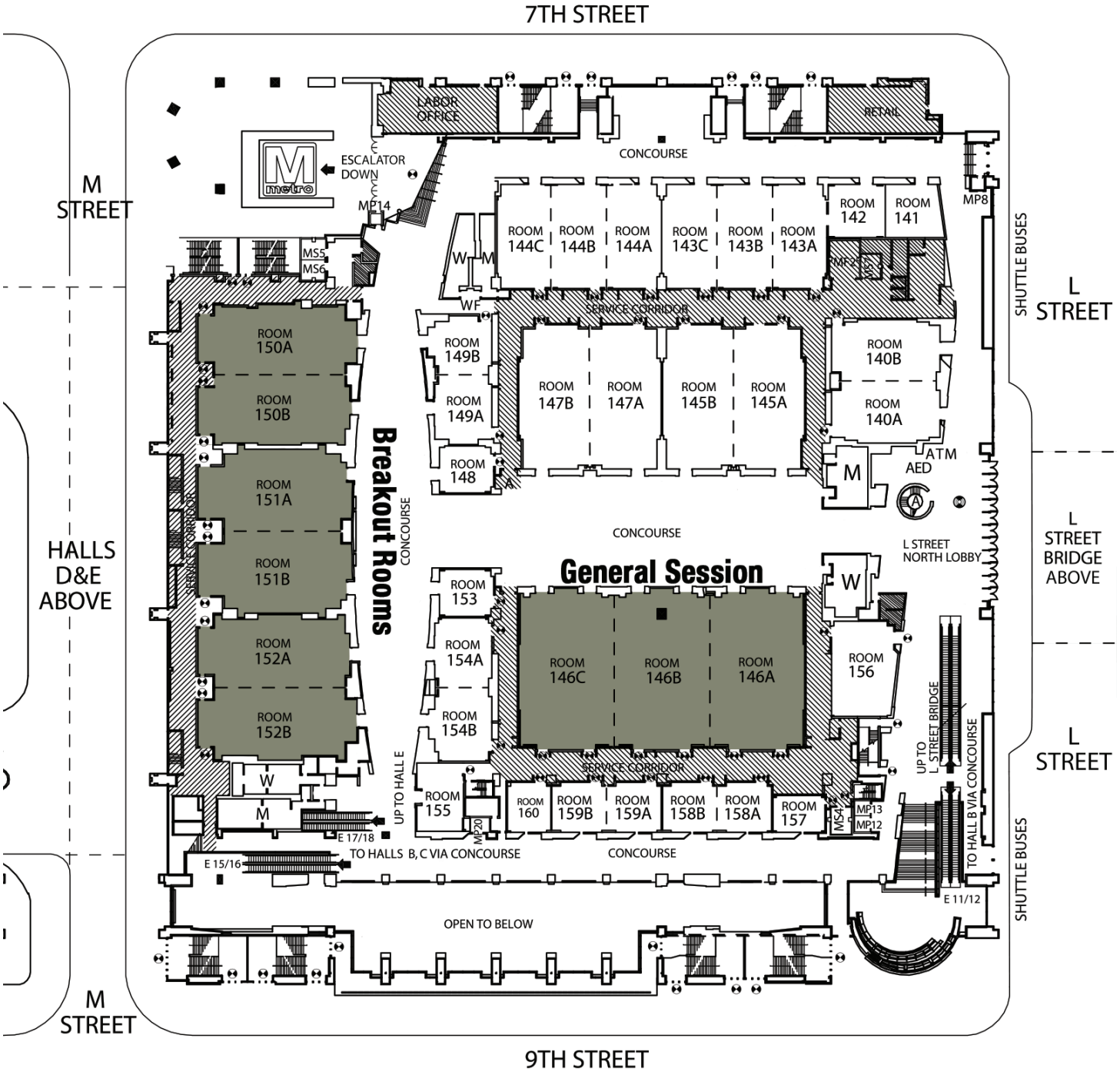
PAE SR

VENUE MAP

STREET LEVEL – LEVEL 1



BIOGRAPHIES

GEN JAMES C. MCCONVILLE, USA

36th Vice Chief of Staff of the Army

Gen. James C. McConville assumed duties as the 36th vice chief of staff of the Army, June 16, 2017. He is a native of Quincy, Massachusetts, and a graduate of the U.S. Military Academy at West Point, New York. He holds a Master of Science in Aerospace Engineering from Georgia Institute of Technology and was a National Security Fellow at Harvard University in 2002.

McConville's command assignments include commanding general of the 101st Airborne Division (Air Assault), where he also served as the commanding general of Combined Joint Task Force-101, Operation Enduring Freedom; deputy commanding general (support) of Combined Joint Task Force-101, Operation

Enduring Freedom; commander of 4th Brigade, 1st Cavalry Division, Operation Iraqi Freedom; commander of 2nd Squadron, 17th Calvary Regiment, 101st Airborne Division (Air Assault); and commander of C Troop, 2nd Squadron, 9th Cavalry Regiment, 7th Infantry Division (Light).

His key staff assignments include the Army deputy chief of staff, G-1; chief of legislative liaison; executive officer to the vice chief of staff of the Army; G-3 for 101st Airborne Division (Air Assault); J5 strategic planner for U.S. Special Operations Command; S-3 for 25th Combat Aviation Brigade; S-3 for 5th Squadron, 9th Cavalry; and S-3 for Flight Concepts Division.

McConville is senior Army aviator qualified in the AH-64D Longbow Apache, OH-58 Kiowa Warrior, AH-6, AH-1 Cobra and other aircrafts. His awards and decorations include two Distinguished Service Medals, three Legions of Merit, three Bronze Star Medals, two Defense Meritorious Service Medals, three Meritorious Service Medals, two Air Medals, the Joint Service Commendation Medal, two Army Commendation Medals, four Army Achievement Medals, the Combat Action Badge, the Expert Infantryman's Badge, the Master Army Aviator Badge, the Air Assault Badge, the Parachutist Badge, and the Army Staff Identification Badge.

McConville and his wife, Maria, have three children serving in the military.

DR. BRUCE D. JETTE

Assistant Secretary of the Army (Acquisition, Logistics and Technology) and Army Acquisition Executive

Dr. Bruce D. Jette was confirmed by the United States Senate as the Assistant Secretary of the Army for Acquisition, Logistics and Technology (ASA(ALT)) on December 20, 2017, and sworn into office on January 2, 2018. In this position, he serves as the Army Acquisition Executive, the Senior Procurement Executive, the Science Advisor to the Secretary of the Army, and the Army's Senior Research and Development official. He also has principal responsibility for all Department of the Army matters related to logistics.

Jette leads the execution of the Army's acquisition function and the acquisition management system. His responsibilities include providing oversight for the life cycle management and sustainment of Army weapon systems and equipment from research and development through test and evaluation, acquisition, logistics, fielding, and disposition. He is also responsible for appointing, managing, and evaluating program executive officers and managing the Army Acquisition Corps and Army Acquisition Workforce. In addition, he oversees the Elimination of Chemical Weapons program.

Before his confirmation, Jette served as President and Chief Executive Officer of Synovision Solutions, LLC, an innovative company he founded to provide management and technical consulting, engineering services, and project management in support of military and governmental agencies, as well as commercial industry.

A decorated veteran of 28 years of active duty, Jette retired as a Colonel following a career that included several armor and cavalry company commands, two overseas tours, various staff assignments at the battalion and brigade level, and over two years of operational deployments to Afghanistan, Iraq and Kuwait. Highlights of his previous acquisition service include founding the U.S. Army Rapid Equipping Force; serving as Program Manager for Solider Systems which led to the establishment of Program Executive Office Soldier; and being honored as U.S. Army PM of the Year for his success as Product Manager for all Army airborne electronic warfare systems.

Jette is a graduate of the United States Military Academy with a Bachelor of Science degree in Nuclear Engineering and Chemistry. He also holds both a Master of Science degree and a Doctorate in Electronic Materials from the Massachusetts Institute of Technology. He was an Adjunct Professor at the Edmund A. Walsh School of Foreign Service Security Studies Program at Georgetown University.

His numerous military awards and commendations include the Distinguished Service Medal, Legion of Merit (3), Bronze Star Medal, Meritorious Service Medal (3), Army Commendation Medal, Army Achievement Medal (2), National Defense Medal (2), Operation Iraqi Freedom Campaign Ribbon, Operation Enduring Freedom Ribbon, Army Service Ribbon, Army Overseas Ribbon (2), Parachutist Badge, Army General Staff Award, and Order of Saint Maurice (Legionnaire).

MARY MILLER

Performing the Duties of Assistant Secretary of Defense for Research and Engineering

Mary Miller is performing the duties of the Assistant Secretary of Defense for Research and Engineering. In April 2016, she joined the Office of the Under Secretary of Defense for Acquisition, Technology and Logistics as the Principal Deputy Assistant Secretary of Defense for Research and Engineering. She's responsible for research and development to ensure U.S. technological superiority. She leads and guides development and execution of the science and technology enterprise as well as joint prototyping and experimentation efforts, systems engineering and developmental test policies and procedures.

Miller oversees research at 63 defense laboratories, warfare centers and engineering centers, and prototyping, systems engineering and developmental test efforts for the department. She promotes coordination and cooperation across defense components, between DoD and other federal and non-federal agencies and organizations and ensures technological exchange with allied and partner nations. Miller also serves as the U.S. principal for The Technical Cooperation Program.

Miller served three years as the Deputy Assistant Secretary of the Army for Research and Technology, where she was responsible for policy and oversight of the research and technology programs at 16 laboratories and research, development and engineering centers. She was charged with identifying, developing and demonstrating technology options for soldiers. Her science and technology portfolio covered basic research through development and demonstration of components, subsystems, manufacturing technology and technology system prototypes.

Miller received a B.S. in Electrical Engineering from the University of Washington, an M.S. in Electrical Engineering, Electro-Physics, from George Washington University, and an M.B.A. from the University of Tennessee. She was selected in 2005 to the Senior Executive Service and is Defense Acquisition Workforce Level III certified in Program Management; Engineering; and Science and Technology Management.

DR. THOMAS P. RUSSELL

Deputy Assistant Secretary of the Army (Research and Technology) and Army Chief Scientist

Dr. Thomas Russell was selected as the Deputy Assistant Secretary of the Army for Research and Technology and Army Chief Scientist in April 2016. He is responsible for policy and oversight of the Army's Research and Technology program, which spans 16 Laboratories and Research, Development and Engineering Centers, employs nearly 12,000 scientists and engineers, and has an annual budget that exceeds $2.4 billion.

In this position, Russell is charged with identifying, developing, and demonstrating technology options that inform and enable effective and affordable capabilities for the Soldier. His science and technology portfolio covers basic research to demonstrating component, subsystem, manufacturing technology, and technology system prototypes. It is executed by the Army's research, development and engineering laboratories and centers; academia; and industrial and international partners. Before this assignment, Russell served as cirector of the Army Research Laboratory.

Before joining the Department of the Army, Russell served as Director of the Air Force Office of Scientific Research (AFOSR) from 2010–2013 where he oversaw the management of the Air Force's basic research investments. He managed the AFOSR's investment portfolio, and he transitioned the resulting discoveries to other components of the Air Force Research Laboratory, to defense industries, and to other federal agencies. Russell served as the Director of the Aerospace and Material Sciences Directorate within AFOSR where he was responsible for the Air Force's basic research program in aerospace, chemical, and material sciences.

From 1997-2006, Russell served with the Department of the Navy as the Director, Research, Development, Testing and Evaluation Directorate at the Naval Surface Warfare Center, Indian Head, MD; Section Head, High Energy Materials Section, Chemistry Division, Naval Research Laboratory, Washington, D.C., and as a research scientist at the Naval Research Laboratory, Washington, D.C. and at the Naval Surface Warfare Center, White Oak Laboratory, White Oak, MD.

Russell received a Ph.D.in chemistry, University of Delaware and a B.S. in chemistry, Muhlenberg College. He is the recipient of a Navy Superior Civilian Service award.

EXHIBIT MAP

LOWER LEVEL – LEVEL L

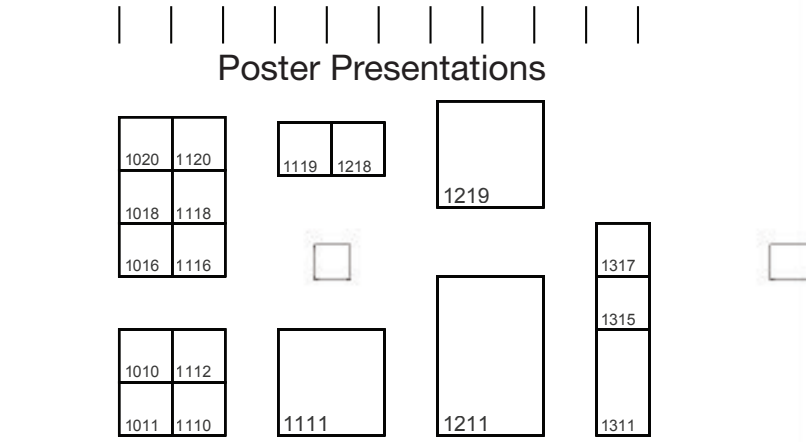


EXHIBIT HALL HOURS

TUESDAY, AUGUST 21
9:30 am - 5:30 pm

WEDNESDAY, AUGUST 22
9:30 am - 6:30 pm

EXHIBITORS BY BOOTH NUMBER

EXHIBITOR DESCRIPTIONS

ARCONIC 1116

Arconic creates breakthrough, multi-material products for the global defense marketplace. Working in close partnership with our customers, we solve complex challenges for all operating environments – air, land, sea and space. Through the ingenuity of our people and cutting-edge advanced manufacturing, we deliver lighter, faster, stronger and more affordable solutions that ensure customer success and meet the critical needs of our armed services.

ASSISTANT SECRETARY OF THE ARMY (ACQUISITION, LOGISTICS AND TECHNOLOGY) 1111

The Office of the Assistant Secretary of the Army for Acquisition, Logistics and Technology is committed to ensuring that the American Soldier is the decisive edge in every mission by fielding the finest materiel and services, enabled by cutting edge technology and innovation, to the Warfighters serving our Nation. By placing the Soldier first, our philosophy is grounded in the belief the Army must design, develop, produce and sustain the highest-quality capabilities and deliver them when and where they are needed most. ASA(ALT) is committed to serving its Army, Joint and International partners, and the American public by ensuring responsible and efficient use of the resources with which it is entrusted. ASA(ALT) will continue to provide our Soldiers a decisive advantage today while modernizing to meet future Army needs.

CAMCODE GLOBAL 1120

Camcode Global is the primary provider of Unique Identification (UID) system implementation services for the UK MoD, NSPA and Australian Defense Force. Camcode Global provides durable barcode labels and several other automatic identification and data capture (AIDC) technologies to help organizations manage their assets and comply with item-unique tracking requirements.

CYBERNET SYSTEMS CORPORATION 1020

Cybernet Systems Corporation, a small R&D business, is committed to advancing human performance through advanced technology. Cybernet has successfully completed hundreds of projects for the Department of Defense, NASA, DARPA, and large and small corporations. Cybernet's headquarters in Michigan is focused on developing new technologies including driverless and drive assisted logistical robotics, human-computer interaction, sensors, artificial intelligence, and hardware/mechanical systems. The Florida office focuses on Cybersecurity support and product development.

DEFENSE SYSTEMS INFORMATION ANALYSIS CENTER 1018

The Defense Systems Information Analysis Center (www.dsiac.org) is part of the DoD IAC Enterprise sponsored by the Defense Technical information Center. DSIAC provides technical support to nine defense systems communities of practice through research, information management, document retrieval, core analysis task delivery orders, and our free 4-hour technical inquiry service.

DEFENSE TECHNICAL INFORMATION CENTER (DTIC) 1010

The Defense Technical Information Center (DTIC®) is the premier provider of defense scientific and technical information. DTIC also designs and hosts more than 100 defense-related Web sites, including password-protected Research and Engineering (R&E) Portal, offering DoD personnel, other federal employees and their contractors access to a variety of defense-related technical information.

HOMELAND DEFENSE AND SECURITY INFORMATION ANALYSIS CENTER (HDIAC) 1016

The Homeland Defense and Security Information Analysis Center (HDIAC) is one of three Information Analysis Centers sponsored by the Department of Defense. HDIAC reports to the Defense Technical and Information Center on projects performed on the behalf of the Under Secretary of Defense for Research and Engineering. HDIAC leverages expertise from government agencies, academia, and industry to solve the government's toughest scientific and technical problems. For more info visit www.hdiac.org.

IXIA A KEYSIGHT BUSINESS 1011

Ixia delivers a powerful combination of innovative solutions and trusted insight to support your network and security products, from concept to operation. Whether you are preparing your product for launch, deploying an application, or managing a product in operation, we offer an extensive array of solutions in testing, visibility, and security—all in one place.

NEURO KINETICS, INC. 1110

Neuro Kinetics, Inc. (NKI), the world leader in clinical eye-tracking and non-invasive neuro-functional diagnostic testing, has the Science to See™ neuro-functional biomarkers invisible to the naked eye. For over three decades, NKI has supplied comprehensive neuro-functional diagnostic and assessment tools to neurologists, audiologists, neurotologists, neuro-ophthalmologists, physical therapists, and others worldwide.

SECUREFOUNDRY 1112

We believe a Secure Supply Chain for microelectronics is vital to National Security, Critical Infrastructure, and for the U.S. to remain a global leader in technology. Our security focused methodology ensures raw materials, IP, designs, and products never leave our control, using blockchain technology for full transparency. We provide: Sourcing of Raw Materials, Robust IP Portfolio, Secure Design Environments, Secure Manufacturing Environments, Product Lifecycle Traceability

SITCHAI 1218

Sitch Ai is a technology company focused on Artificial Intelligence and IoT for geospatial and situational awareness. Sitch Ai aims to provide technology that deliverers advanced display intelligent sensors and software that can support the foundation for defense applications to improve soldier lethality and real-time battlefield analytics.

SIX 15 TECHNOLOGIES 1118

Six15 Technologies is a leader in high-resolution head mounted displays and OEM optoelectronic module manufacturing. Located in Henrietta, NY, our production facility manufactures OEM components for thermal imagers; industrial display systems, R&D projects, and custom solutions. Six15 is at the forefront of wearable solutions for Defense, Public Safety, and Medical markets globally with nearly 10,000 wearable displays already sold and over 200,000 optical modules delivered. www.six-15.com

U.S. ARMY ENGINEER RESEARCH AND DEVELOPMENT CENTER (ERDC) 1311

The U. S. Army Engineer Research and Development Center researchers are available to discuss innovative engineering and environmental solutions. Technologies on display include Visualization, Modeling and Material Design solutions: Engineered Resilient Systems, Structural Hardening, 3D Enriched Urban Terrain Visualization and Persistent Surveillance Technologies. ERDC is one of the most diverse engineering and scientific research organization in the world, developing innovative products and services for the nation and the Warfighter.

U.S. ARMY MEDICAL RESEARCH AND MATERIEL COMMAND (USAMRMC) 1219

The U.S. Army Medical Research and Materiel Command is the Army's medical materiel developer, with responsibility for medical research and technology, development, acquisition and medical logistics management. The USAMRMC's expertise in these critical areas as the DOD's only full lifecycle command helps establish and maintain the capabilities the Army needs to ensure readiness and sustain Soldier lethality. Six medical research laboratory commands execute the science and technology program to develop medical solutions for the battlefield with a focus on various areas of biomedical research, including military infectious diseases, combat casualty care, military operational medicine, medical chemical and biological defense, and clinical and rehabilitative medicine.

U.S. ARMY RESEARCH, DEVELOPMENT, ENGINEERING COMMAND (RDECOM) 1211

The U.S. Army Research, Development and Engineering Command leads a global science and technology network beginning with the command's almost 14,000 scientists, engineers and expanding out through more than 500 active domestic and international partnerships with domestic and international academic institutions, small businesses, industry and other government agencies. This gives RDECOM the reach, position, scale and technical expertise to deliver decisive capabilities to lead modernization today while developing leap-ahead technologies for the future.

U.S. ARMY RESEARCH INSTITUTE (ARI) 1315

The U.S. Army Research Institute for the Behavioral and Social Sciences (ARI) drives scientific innovation to enable the Army to acquire, develop, employ, and retain professional Soldiers and enhance personnel readiness. Research focuses on holistic personnel assessments, leadership competencies for complexity and uncertainty, data science to improve talent management, and team-based personnel assignment and performance. ARI is where Personnel Science Meets Personnel Practice.

ULTI-MATE CONNECTOR, INC. 1119

Ulti-Mate Connector, Inc. technical resources are available to discuss our Nano Connectors and Micro Miniature solutions. Ulti-Mate's reputation for innovation and quality has placed our connectors in many of our country's most advanced missiles, satellite vehicles and navigation systems. We provide design solutions for Military Electronics, Unmanned Systems, Medical and Biotech Industries.

UNANET 1317

Over 1000 organizations trust Unanet cloud software for managing projects, people, and financials in compliance with DCAA regulations. Optimize performance with forecasting, resource planning, project management, time tracking, billing, real-time reporting, and integrated financials.

23RD ANNUAL EXPEDITIONARY WARFARE CONFERENCE

October 16-18, 2018 | Annapolis, MD | **NDIA.org/EWC18**

KEYNOTE REMARKS FROM:

Thomas Modly
Under Secretary of the Navy

James Geurts
Assistant Secretary of the Navy for Research, Development & Acquisition

EXPLORE IT WITH US:

Hear about the latest advances in expeditionary warfare, network with government and industry representatives in the expeditionary warfare field, and see the latest technology on display.

POSTER PRESENTERS BY AUTHOR

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Acosta, J.C. . . . . . BOARD 06
Army Research Laboratory
A platform for automatically characterizing network layer attacks in tactical and strategic networks.

Asher, D. . . . . . Board 31
Army Research Laboratory
ALLIES: Agent Learning Leveraging Intelligent Engagement with Soldiers.

Avera, M. . . . . . BOARD 30
Army Research Laboratory
High fidelity VTOL flight simulator for UAS platform assessment.

Birdwell, A. . . . . . BOARD 15
Army Research Laboratory
Diamond RF electronics for long-range precision fires.

Boteler, L. . . . . . BOARD 26
Army Research Laboratory
Co-design and transient thermal mitigation for high performance power electronics packaging in Army vehicles.

Drost, R. . . . . . BOARD 11
Army Research Laboratory
Ultraviolet communications and networking.

Folkes, P. . . . . . BOARD 09
Army Research Laboratory
Topological materials for energy-efficient electronics.

Hart, R. . . . . . BOARD 29
TARDEC
Development of computational models for composite structures to accelerate the design of lightweight next-generation combat vehicles.

Jayakumar, P. . . . . . BOARD 27
TARDEC
A novel active learning approach for constructing high-fidelity mobility maps.

Kaplan, L. . . . . . BOARD 03
Army Research Laboratory
Social learning theory with uncertain models.

Kim, K. . . . . . BOARD 20
Army Research Laboratory
Assessment of a turbocharger performance and reliability in a UAV engine.

Linder, K. . . . . . BOARD 02
Orbis Technologies
Multimedia topic modeling for threat actor identification.

Malinovsky, V.S. . . . . . BOARD 17
Army Research Laboratory
Optimal rates of quantum repeaters based on two species trapped ions.

Malinovsky, V. . . . . . BOARD 18
Army Research Laboratory
Quantum gyro for assured positioning, navigation and timing.

Maryfield, T. . . . . . BOARD 13
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Small arms precision fire control for reduced engagement time and increased probability of hit.

Michaelis, J. . . . . . BOARD 07
Army Research Laboratory
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Moore, T. . . . . . BOARD 05
Army Research Laboratory
Designing resilient networks using software diversity.

Nair, A. . . . . . BOARD 22
Laramie High School
Engineering bacterial guanylate cyclase for optogenetic applications.

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Booz Allen Hamilton
Synthetic data for deep computer vision.

Nusca, M. . . . . . BOARD 13
Army Research Laboratory
Modeling and simulation of gun and rocket propulsion systems for Army tactical weapons.

Patil, A. . . . . . BOARD 23
Lynbrook High School
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Payne, R. . . . . . BOARD 10
Washington State University
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Army Research Laboratory
Developing the building blocks of a quantum internet with trapped ion qubits.

Reese, C. . . . . . BOARD 08
Army Research Laboratory
Quantum position, navigation and timing for GPS denied environments.

Samavedi, S. . . . . . BOARD 24
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Sampath, A. . . . . . BOARD 14
Army Research Laboratory
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Santhanagopalan, S. . . . . . BOARD 28
NREL
Dynamic response of lithium-ion batteries subjected to mechanical failure under high-velocity impact.

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RDECOM
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TARDEC
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Army Research Laboratory
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CERDEC
Comparing various capacitor types for high-power applications.

Clausen, J. . . . . . **BOARD 14**
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Collins, P. . . . . . **BOARD 27**
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Army Research Laboratory HBCU/MI design challenge.

Crone, J.C. . . . . . **BOARD 18**
Army Research Laboratory
Modeling complex neuronal dynamics across network scales.

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Phase-modulated power of dendro-somatic current transmissions in a neocortical layer 5 pyramidal neuron model.

Foulis, S. . . . . . **BOARD 04**
Army Research Institute of Environmental Medicine
Overview of the ARIEM Reduction in Musculoskeletal Injury (ARMI) study.

Gutstein, S. . . . . . **BOARD 08**
Army Research Laboratory
HAIL: a human-autonomy crowdsourcing approach to image classification.

Hall, C. . . . . . **BOARD 28**
Army Research Laboratory
Physics and chemistry explorations in STEM.

Hansberger, J. . . . . . **BOARD 09**
Army Research Laboratory
Virtual reality interfaces for exploited media analysis.

Jiang, R. . . . . . **BOARD 22**
Army Research Laboratory
In-situ hydrogen generation and hydrogen fuel cell for future soldier power system.

Johnson, T. . . . . . **BOARD 21**
DCS Corp.
Standardized annotated neurophysiological data repository for the assessment of cognitive state.

Manser, M. . . . . . **BOARD 25**
RDECOM
Nano-enhanced thin-film solar metadevice with large broadband absorption augmentation.

McClure, S. . . . . . **BOARD 16**
Michigan State University
Boron-doped diamond carbon paste electrodes.

McCormick, S. . . . . . **BOARD 01**
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Non-lethal protection concept development for next generation combat vehicle consideration.

McNair, O. . . . . . **BOARD 02**
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Temporal world models for embodied systems.

Patton, C. . . . . . **BOARD 10**
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Improving accuracy of human behavior modeling for enhanced soldier performance.

Racicot, K. . . . . . **BOARD 03**
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Ren, F. . . . . . **BOARD 15**
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Understanding and tailoring the micro- and nano-mechanical behavior of high-strength fibers for ballistic fabrics.

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Wireless power transfer using acoustic energy focusing.

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Ohio State University
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A platform for automatically characterizing network layer attacks in tactical and strategic networks.

Ahrens, A. • Jefferson, S. • Tovar, A.
Material recycling in 3D printing/material sustainability in additive manufacturing.

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Ali, A. • Chandra, N. • Hanna, M.J. • Kleinberger, M. • Pfister, B.
Variability in human head surrogate data with changes to boundary conditions in blunt and blast trauma.

Anglin, D. • Major, J.
Advanced Combat Engine (ACE): opposed piston advantages.

Asher, D.E. • Barton, S.L. • Perelman, B. • Schaffer, J. • Waytowich, N.R.
ALLIES: Agent Learning Leveraging Intelligent Engagement with Soldiers.

Avera, M.
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Behler, K.D. • LaSalvia, J.C. • Marvel, C.J. • Shoulders, W.T. • Vargas-Gonzalez, L.R.
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Benard, W. • Clark, S. • Kott, N. • South, J. • Zunino, J.
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Besaw, L.E. • Lupo, J. • Sgroi, A.
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Development of a stochastic mobility map for next generation NATO reference mobility model.

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A novel active learning approach for constructing high-fidelity mobility maps.

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Standardized annotated neurophysiological data repository for the assessment of cognitive state.

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Tactical augmented reality, precisely where you need it: bringing registered AR to the field.

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Bright tabletop source of coherent x-rays: new directions in materials and biological science.

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Machine reasoning for determination of threat level in irregular warfare.

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Moore, T. • Cho, J.
Designing resilient networks using software diversity.

Nair, A.S.
Engineering bacterial guanylate cyclase for optogenetic applications.

Nakano, V.M. • Ramesh, K.T.
Developing the materials-by-design workforce at the Hopkins Extreme Materials Institute.

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Where food science meets nutritional biochemistry: performance nutrition efforts in combat feeding.

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