

A woman in a military uniform is shown in profile, working in a server room. She is wearing glasses and has her hands on a keyboard. The background is filled with server racks and various cables. Overlaid on the image are digital network graphics, including a grid of nodes and connecting lines, and a faint background of binary code (0s and 1s).

**NDIA**

# 2023 HUMAN SYSTEMS CONFERENCE

---

**Human Systems Design: From Research to Practice**

March 1 – 2, 2023 | Arlington, VA | [NDIA.org/HumanSystems23](https://ndia.org/HumanSystems23)

# TABLE OF CONTENTS

- WHO WE ARE ..... 2
- WELCOME LETTER ..... 3
- EVENT INFORMATION ..... 4
- AGENDA ..... 5
- SPONSORS ..... 10
- POSTER SESSION ..... 11

# 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 than 100 years, NDIA and its predecessor organizations have been at the heart of the mission by dedicating their time, expertise, and energy to ensuring our warfighters have the best training, equipment, and support. For more information, visit [NDIA.org](http://NDIA.org)

## GET INVOLVED

Learn more about NDIA's Divisions and how to join one at [NDIA.org/Divisions](http://NDIA.org/Divisions)



## LEADERSHIP AND COMMITTEES

**Kara Orvis, PhD**  
Division Chair

**BG Pete Palmer, USA (Ret)**  
Vice Chair

**Lillian Asiala, PhD**  
Deputy Chair

# HUMAN SYSTEMS

## WHO WE ARE

NDIA's Human Systems Division promotes the exchange of technical information and discussions between government, industry and academia, and the expansion of research and development in areas related to the human as a system whose performance must be integrated into any military systems. To this end, the division will serve as an infrastructure by providing a variety of ways for government, industry, and academia to collaborate to advance human performance in air, land, sea, space, and cyberspace through research, education, and consultation.

## JOIN THE CONVERSATION



@NDIAToday



@NDIAMembership



NDIA.org/Linkedln



@NDIAToday



@NDIAToday

# WELCOME TO THE 2023 HUMAN SYSTEMS CONFERENCE

On behalf of the NDIA Human Systems Division, we welcome you to The Human Systems Conference!

The mission of the Human Systems Division of the NDIA is to advocate for the expansion of research and development in areas related to the human as a system whose performance must be integrated into any military systems. This conference provides government, industry, and academia a much-needed space to discuss advocacy efforts, exchange technical information, collaborate, and advance human performance in air, land, sea, space, and cyberspace.

Our theme for the 2023 conference is *Human Systems Design: From Research to Practice*. With advances in the areas of artificial intelligence and machine learning, wearable sensors, decision support, and hybrid teaming, critical questions emerge about the role of the human in these sociotechnical systems. Understanding the fundamentals of human systems design is key to optimizing both performance of new technology and support for service members equipped with those technologies operating in real-time high-stakes decision making scenarios. As technology evolves, so do human performance dynamics. Research is required for understanding these new dynamics. So too, is an understanding of how those dynamics emerge during practical application and their consequences. Human systems design is optimized by taking the insights from both research and practice.

For the next two days, we will hear presentations and view posters of technical interest to our community. These include forward looking topics around Artificial Intelligence, human-machine teaming, assessment and training, and the design of system interfaces. We also have two keynote presentations, two special event panels, and one congressional speaker in which government and industry will provide their perspective on the human system and the degree to which we are optimizing our warfighter capabilities. Finally, we have provided ample time for in-person networking.

Thanks to all those who have contributed to the 2023 program, either by serving as a featured speaker, submitting an abstract, or supporting conference planning activities. Looking forward to 2024, we will continue thinking on how to advance our advocacy efforts. Please reach out to Lillian Asiala if you are interested in serving in support of the division.

A warm welcome to all those who joined us this year. We, the members of the Division, our exemplary speakers, and the Human Systems community, hope you will both contribute to and learn from this year's conference!

**Kara Orvis, PhD**  
Chair, Human Systems Division

**Lillian Asiala, PhD**  
Deputy Chair, Human Systems Division

## SCHEDULE AT A GLANCE

### Wednesday, March 1

**Keynote Address**

Auditorium  
8:45- 9:30 am

**COI Overview**

Auditorium  
9:30 - 10:00 am

**Focus Event**

Auditorium  
1:15 - 2:15 pm

**Poster Session and Networking Break**

Multipurpose Room  
2:35 - 3:20 pm

### Thursday, March 2

**Keynote Address**

Auditorium  
8:35 - 9:20 am

**Poster Session**

Multipurpose Room  
2:00 - 3:00 pm

# EVENT INFORMATION

## LOCATION

George Mason University Arlington Campus  
3351 Fairfax Dr.  
Arlington, VA 22201

## WIFI

- 1) Connect to MASON wireless network using your device.
- 2) Go to [itservice.gmu.edu](https://itservice.gmu.edu) The self-registration portal will open.
- 3) Create an account to get online.

## ATTIRE

Civilian: Business  
Military: Uniform of the Day

## SURVEY AND PARTICIPANT LIST

You will receive via email a survey and list of participants (name and organization) after the conference. Please complete the survey to make our event even more successful in the future.

## EVENT CONTACT

**Jenica Seguine**  
Meeting Planner  
(703) 247-2561  
[jseguine@NDIA.org](mailto:jseguine@NDIA.org)

**Tommy Kienzle**  
Division Coordinator  
(703) 247-2575  
[tkienzle@NDIA.org](mailto:tkienzle@NDIA.org)

## SPEAKERS

For information on our speakers, please visit [NDIA.org/HS/Speakers](https://NDIA.org/HS/Speakers)

In lieu of speaker gifts, a donation is being 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.

## EVENT CODE OF CONDUCT

NDIA's Event Code of Conduct applies to all National Defense Industrial Association (NDIA), National Training & Simulation Association (NTSA), and Women In Defense (WID) meeting-related events, whether in person at public or private facilities, online, or during virtual events. NDIA, NTSA, and WID are committed to providing a productive and welcoming environment for all participants. All participants are expected to abide by this code as well as NDIA's ethical principles and practices. Visit [NDIA.org/CodeOfConduct](https://NDIA.org/CodeOfConduct) to review the full policy.

# AGENDA

## WEDNESDAY, MARCH 1

7:30 am – 6:00 pm

**REGISTRATION**  
LOBBY

7:30 – 8:30 am

**NETWORKING BREAKFAST**  
MULTIPURPOSE ROOM

8:30 – 8:45 am

**WELCOME AND INTRODUCTORY REMARKS**  
AUDITORIUM

**Kara Orvis, PhD**  
Chair, Human Systems Division, NDIA  
Executive Vice President, Office of Science and Technology Aptima, Inc.

8:45 – 9:30 am

**KEYNOTE ADDRESS**  
AUDITORIUM

**Bob Ritchie**  
Chief Technology Officer, SAIC

9:30 – 10:00 am

**COI OVERVIEW**  
AUDITORIUM

**Patrick Mason, PhD, SES**  
Department Head, Warfighter Performance, Code 34, Office of Naval Research

10:00 – 10:30 am

**NETWORKING BREAK**

## SESSION 1: PERSONALIZED ASSESSMENT, EDUCATION, AND TRAINING (PAE&T)

**Moderator:** Dr. Henry Phillips, Senior Program Manager, Soar Technology, Inc.

10:30 – 11:00 am

**PAE&T HUMAN SYSTEMS COI BRIEF**  
AUDITORIUM

**Elizabeth Uhl, PhD**  
PAE&T Subarea Lead, Human Systems COI  
Senior Research Psychologist, U.S. Army Research Institute

11:00 – 11:25 am

**DESIGN HEURISTICS FOR DEVELOPING AN EFFECTIVE  
HUMAN-AGENT CO-LEARNING TOOL**  
AUDITORIUM

**Eric Sikorski, PhD**  
Director, Quantum Improvements Consulting

11:25 – 11:50 am **FOUR STEPS TO MODERNIZE DEFENSE LEARNING AND DEVELOPMENT**  
AUDITORIUM  
**Sae Schatz, PhD**  
Co-Founder, Bedrock Learning, Inc.

11:50 am - 12:15 pm **EXPLORING THE TRADESPACE FOR A SYNTHETIC TASK ENVIRONMENT FOR HUMAN-AI TEAMING RESEARCH**  
AUDITORIUM  
**James McCarthy, PhD**  
Vice President, Instructional Systems, Sonalysts

12:15 – 1:15 pm **NETWORKING LUNCH**  
MULTIPURPOSE ROOM

## FOCUS EVENT

1:15 – 2:15 pm **GETTING PAST TECHNOLOGY-FIRST SOLUTIONS IN ACQUISITION**  
AUDITORIUM

**Moderator** **Henry Phillips, PhD**  
Senior Program Manager, Soar Technology, Inc.

**Panelists** **Arwen DeCostanza PhD**  
Program Manager, Catalyst Pathfinder, Strategic Partnerships at DEVCOM, Army Research Laboratory

**BG Peter Palmer, USA (Ret)**  
President, P2 Consulting Services, LLC  
Vice Chair, Human Systems Division, NDIA

**CDR Tatana Olson, USN, PhD**  
Chief of Staff (Acting) DHA R&D Directorate & Prospective XO of the Naval Submarine Medical Research Laboratory

**John Taylor**  
Deputy Program Manager, Training Systems, Marine Corps Systems Command

2:15 – 2:35 pm **VIEW FROM CAPITOL HILL**  
AUDITORIUM  
**Graham Markiewicz**  
Defense Policy Advisor, Office of U.S. Senator Krysten Sinema of Arizona

2:35 – 3:20 pm **POSTER SESSION AND REFRESHMENT BREAK**  
MULTIPURPOSE ROOM

## SESSION 2: PROTECTION, SUSTAINMENT, AND WARFIGHTER PERFORMANCE (PS&WP)

**Moderator:** Brad Chedister, Chief Technology & Innovation Officer, DEFENSEWERX

3:20 – 3:45 pm **PS&WP HUMAN SYSTEMS COI BRIEF**  
AUDITORIUM  
**Logan Williams, PhD**  
PS&WP Government Co-Chair, Human Systems Division, NDIA  
Lead, Human Performance Medical Product Area, Air Force Research Laboratory

3:45 – 4:10 pm

**SLEEP IS THE MILITARY'S MOST CRITICAL WEAPON SYSTEM**

AUDITORIUM

**MAJ Allison Brager, USA PhD**

Chief Science Officer, United States Army John F. Kennedy Special Warfare Center and School

4:10 – 4:35 pm

**DESIGNING HUMAN PERFORMANCE TOOLS FOR US ARMY H2F TECHNOLOGY ENABLEMENT: CASE STUDIES FROM THE ARMY APPLICATION LAB'S PILOT PROJECT USING THE COACHMEPLUS WARRIOR PERFORMANCE PLATFORM (WP2)**

AUDITORIUM

**Kevin Dawidowicz**

President &amp; Co-Founder, CoachMePlus

4:35 – 5:00 pm

**OBJECTIVE PREDICTION OF FLIGHT PERFORMANCE FROM PHYSIOLOGY**

AUDITORIUM

**Hrishikesh Rao, PhD**

Technical Staff Member, MIT Lincoln Laboratory

5:00 – 5:25 pm

**A RESEARCH AND DEVELOPMENT APPROACH FOR HOLISTICALLY MONITORING WARFIGHTER PERFORMANCE**

AUDITORIUM

**Emily Mills, PhD**

Senior Researcher &amp; Portfolio Manager, Design Interactive, Inc.

5:25 – 5:35 pm

**CLOSING REMARKS**

AUDITORIUM

**Lillian Asiala, PhD**

Cognitive Scientist, Sonalysts

Deputy Chair, Human Systems Division, NDIA

5:35 – 7:00 pm

**NETWORKING RECEPTION**

MULTIPURPOSE ROOM

**THURSDAY, MARCH 2**

7:30 am – 3:00 pm

**REGISTRATION**

LOBBY

7:30 – 8:30 am

**NETWORKING BREAKFAST**

MULTIPURPOSE ROOM

8:30 – 8:35 am

## WELCOME AND INTRODUCTORY REMARKS

AUDITORIUM

**Kara Orvis, PhD**

Chair, Human Systems Division, NDIA

Executive Vice President, Office of Science and Technology, Aptima, Inc.

8:35 – 9:20 am

## KEYNOTE ADDRESS

AUDITORIUM

**Jeremy Lanman, PhD**

Chief Technology Officer, U.S. Army Program Executive Office, Simulation, Training, and Instrumentation

9:20 – 9:50 am

## NETWORKING BREAK

## SESSION 3: SYSTEM INTERFACES AND COGNITIVE PROCESSES (SI&CP)

**Moderator:** Mary Quinn, Senior Life Scientist, Leidos

9:50 – 10:20 am

## SI&CP HUMAN SYSTEMS COI BRIEF

AUDITORIUM

**Mark Draper, PhD**

SI&CP Government Co-Chair, Human Systems Division, NDIA

Lead, Adaptive Warfighter Interfaces Core Technical Competency, Air Force Research Laboratory

10:20 – 10:45 am

## JADC2: GETTING DOWN TO WORK

AUDITORIUM

**John Flach, PhD**

Senior Cognitive Systems Engineer, Mile Two, LLC

10:45 – 11:10 am

## THE CONTAGION EFFECT OF TRUST IN MULTI-UAV SYSTEMS

AUDITORIUM

**Blake Piper**

Research Scientist, Leidos

11:10 – 11:35 am

## UNDERSTANDING HUMAN-MACHINE INTERACTION AND DISCOURSE USING A BRAINSTORMING TASK

AUDITORIUM

**Andrew Naber, PhD**

Scientist, Aptima

11:35 am – 12:00 pm

## ON THE SAME COGNITIVE WAVELENGTH: REACHING CALIBRATED TRUST THROUGH COGNITIVE MODELING AND ADAPTIVE HUMAN-AGENT SYSTEMS

AUDITORIUM

**Summer Rebensky, PhD**

Research Scientist, Aptima



**FOCUS EVENT**

1:00 – 2:00 pm

**OPPORTUNITIES AND ISSUES IN DIGITAL REQUESTS FOR PROPOSALS AND MODEL-BASED SYSTEMS ENGINEERING**  
AUDITORIUM

**Moderator** **Stuart Michelson**  
Senior Research Scientist, Georgia Tech Research Institute

**Panelists** **Dave Thomas**  
Technical Program Manager, ManTech

**Kayla Riegner, PhD**  
Research Specialist, Robot Human Integration Team, Combat Capability Development Center, Ground Vehicle Systems Center, Ground Vehicle Robotics (GVR)

**MAJ Brady Juelson, USA**  
Executive Officer to the Commanding General, Mission & Installation Contracting Command (MICC)

**Steve Dam PhD**  
President, Systems and Proposal Engineering Company

2:00 – 3:00 pm

**POSTER SESSION**  
MULTIPURPOSE ROOM

**SESSION 4: ADVOCACY AND METRICS**

**Moderator:** Dr. Eric Sikorski, Director, Quantum Improvements Consulting

3:00 – 3:30 pm

**ADVOCACY AND METRICS OVERVIEW**  
AUDITORIUM

**George Salazar**  
A&M Government Co-Chair, Human Systems Division, NDIA  
Human Computer Interface Technical Discipline Lead, Avionics Systems Division, NASA

**Eric Sikorski, PhD**  
Director, Quantum Improvements Consulting

3:30 – 3:55 pm

**DEVELOPING A SIMULATION TO EXAMINE THE WILL TO FIGHT AND SACRIFICE: DOES FIDELITY MATTER?**  
AUDITORIUM

**C1C Aubrie Kuhrt, USAF**  
Cadet, United States Air Force Academy

3:55 – 4:20 pm

**IMPROVING INTERVIEW AND FOCUS-GROUP PROTOCOL FOR THE COLLECTION OF SYSTEMS DATA FROM MILITARY PERSONNEL**  
AUDITORIUM

**Eugenia O’Kelly**  
Researcher, Cambridge University

4:20 - 4:45 pm

## COMPOUNDING DESIGN INSIGHT: INTEGRATION OF COMPUTER SYSTEMS ENGINEERING IN MODEL BASED SYSTEMS ENGINEERING FOR EARLY HUMAN SYSTEMS INTEGRATION DESIGN RATIONALE

AUDITORIUM

**Dylan Cravens**  
Design Engineer, Leidos, Inc.

4:45 – 5:10 pm

## TACTICAL RESEARCH AT THE EDGE: A NEW PARADIGM FOR TESTING EMERGING WARFIGHTER SYSTEMS

AUDITORIUM

**Brian Higginson, PhD**  
Director, Warfighter Systems Integration Lab  
Galvion, Ltd

5:10 – 5:15 pm

## CLOSING REMARKS

AUDITORIUM

**Lillian Asiala, PhD**  
Cognitive Scientist, Sonalysts  
Deputy Chair, Human Systems Division, NDIA

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.

# THANK YOU TO OUR SPONSORS



### PREMIER

Leidos is a Fortune 500® technology, engineering, and science solutions and services leader working to solve the world's toughest challenges in the defense, intelligence, civil, and health markets. The company's 44,000 employees support vital missions for government and commercial customers. As a leading provider of healthcare solutions for federal agencies and select non-federal customers across the healthcare ecosystem, Leidos delivers secure, holistic health solutions, across ever-changing sites of care, to improve patient outcomes and system efficiencies. We use our expertise in digital modernization, data analytics, life sciences, care enablement, and human performance to address our customers' most important challenges.



### REGISTRATION AND LANYARDS

Powered by endlessly curious people with an unwavering mission focus, Ball Aerospace pioneers discoveries that enable our customers to perform beyond expectation and protect what matters most.

We deliver capabilities that optimize safety and performance for our military and industry partners. From direct augmentation of physical and cognitive performance to intelligent systems working collaboratively with the warfighter to improve safety and decision-making, Ball Aerospace partners with the U.S. Air and Space forces to deliver technology that protects those who protect us.

Your Mission Partner: Together, We Go Beyond®

# POSTER SESSION

**Wednesday, March 1**

2:15 – 3:00 pm

**Thursday, March 2**

2:00 – 3:00 pm

**The Social Return on Investment of Diversity, Equity, Inclusion, & Accessibility**

Kevin Buck  
The MITRE Corporation

**Tactical System Cyber Defense by Non-Cyber-Trained Operators**

Mei Lau, PhD  
Johns Hopkins University Applied Physics Lab

**Expansion of Pilot Selection Methods & Technologies at the United States Air Force Academy**

C1C Hannah Silvestro  
Cadet, United States Air Force Academy

**Improving Human-Machine Collaborations with Heterogeneous Multi-Agent Systems in Space Operations**

C1C Ellen Oh  
Cadet, United States Air Force Academy

**The Method is the Means**

Kitty Gossett  
IP Convergence Corporation

**Human-Centered Design for a Collaborative Decision Support Tool in a Data Constrained Maintenance Environment**

Andrew Naber  
Aptima, Inc.

**Developing a Simulation to Examine the Will to Fight and Sacrifice: Does Fidelity Matter?**

C1C Aubrie Kuhrt, USAF  
Cadet, United States Air Force Academy

**Mission Planning Through Preference Learning**

Raquel Galvan-Garza, PhD  
Lockheed Martin Advanced Technology Laboratories

**Digital Modernization of Musculoskeletal Injury Management for Active Service Members and Veterans**

Meghan Garvey, PhD  
Leidos

**Monitoring Workload and Promoting Workshare**

Lisa Bolin  
SimVentions

**Assessment Technology to Improve Objectivity, Evaluation Granularity and Opportunities for Data Analysis**

Dave Boldt  
SkillGrader

**Amplify Warfighter Performance with the NeuroPak Training System**

Chris Tedesco  
1109 Bravo

## VITAL SIGNS 2023

Posturing the U.S. Defense Industrial Base for Great Power Competition



Download the Free Report: [NDIA.org/VitalSigns](https://ndia.org/VitalSigns)





### 2023 PACIFIC OPERATIONAL SCIENCE & TECHNOLOGY (POST) CONFERENCE

March 6 – 9\*\*, 2023 | Honolulu, HI



### 2023 JOINT NDIA/AIA SPRING INDUSTRIAL SECURITY CONFERENCE

May 8 – 10, 2023 | Lake Buena Vista, FL



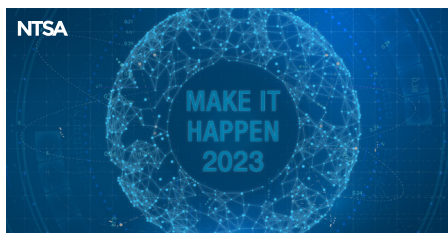
### EMERGING TECHNOLOGIES FOR DEFENSE CONFERENCE & EXHIBITION

August 28 – 30, 2023 | Washington, DC



### 2023 MUNITIONS EXECUTIVE SUMMIT

March 22 – 23, 2023 | Parsippany, NJ



### MODSIM WORLD 2023

May 22 – 23, 2023 | Norfolk, VA



### FUTURE FORCE CAPABILITIES CONFERENCE & EXHIBITION

September 18 – 21, 2023 | Huntsville, AL



### INTEGRATED PRECISION WARFARE REVIEW (IPWR-23)

April 25 – 26, 2023 | Alexandria, VA



### 23<sup>RD</sup> ANNUAL SCIENCE AND ENGINEERING TECHNOLOGY CONFERENCE

May 23 – 25, 2023 | San Antonio, TX



### 2023 WID NATIONAL CONFERENCE

September 26, 2023 | Arlington, VA



### DLA SUPPLY CHAIN ALLIANCE CONFERENCE & EXHIBITION

May 3 – 4, 2023 | Richmond, VA



### TRAINING & SIMULATION INDUSTRY SYMPOSIUM (TSIS) 2023

June 21 – 22, 2023 | Orlando, FL



### I/ITSEC 2023

November 27 – December 1, 2023 | Orlando, FL

\*All Classified | \*\*Partially Classified