# MODSIM WORLD 2022

Building a Better Tomorrow | May 9 – 11, Norfolk, VA

# TABLE OF CONTENTS

# EVENT INFORMATION

| | |
|---|---|
| **SLI.DO** | We will be using Sli.do to submit questions.<br>Website: Slido.com<br>Code: MODSIM22 |
| **SURVEY & PARTICIPANT LIST** | You'll receive a survey and list of attendees (name and organization) via email a few days after the conference. Please complete the survey to make MODSIM World even more successful in the future. |
| **MASK POLICY** | Consistent with CDC guidelines as of 4 May 2022, masks are optional in areas of low transmission for fully vaccinated or non-vaccinated individuals. Norfolk transmission levels are low and masks will be optional at MODSIM World 2022 for all attendees to include fully vaccinated attendees and non-vaccinated attendees. |
| **DRESS CODE** | Army: ACUs or Duty Uniform<br>Marine Corps: Service "C"<br>Navy: Service Khaki, Navy Service Uniform<br>Air Force: Short or Long Service Blues<br>Coast Guard: Tropical Blue Long<br>Civilian: Business Casual |

Dear MODSIM World 2022 Guests,

On behalf of the conference committee, welcome back to MODSIM World! It is my privilege and pleasure to serve as this year's conference chair and welcome you all back in person for MODSIM World. This conference provides a unique opportunity for industry and government leaders to come together to exchange ideas, learn about the latest developments in the modeling and simulation (M&S) field, and to form partnerships that will further grow this community. In keeping with the challenges we've experienced the last two years, the focus of the program this year will highlight all the ways M&S has impacted the world in the response to, and recovery from, COVID-19. We will also focus on how M&S technologies can better prepare us for future "black swan" events on the global stage. The committee has worked tirelessly to prepare a program that is relevant and rich with content from a diverse set of fields, and so I am pleased to once again welcome you to MODSIM World.

Our theme this year is "Building a Better Tomorrow." We are very excited to share how the M&S community has helped shape the global response to the unprecedented events of the last two years. 2022 will mark the 14th year of MODSIM World, and we are focusing on the ways that modeling and simulation provides us with the tools to prepare for a future where we can more quickly respond to large scale disruptions. This year, we will explore the many ways M&S is helping the security, community, and industry sectors prepare for a more resilient future.

I am honored to welcome numerous outstanding keynote speakers and panelists who will highlight this year's theme from multiple perspectives. The planning committee and I are extremely grateful to each speaker and to their teams for juggling very busy schedules and working diligently to bring their perspectives to the conference; especially in light of the rapid return to in-person events we are witnessing this year. We believe you will find each speaker engaging, insightful, and knowledgeable about the ways M&S is impacting their business, agency, or branch. I truly appreciate the time these speakers have set aside to join us at MODSIM World 2022 and to share their visions with us.

We are also fortunate to have a diverse group of presenters comprising the technical program. We have a rich agenda anchored by distinguished participants from government, defense, industry, and academia, covering a wide range of topics in the M&S domain.

This year, in keeping with our theme, we have put an emphasis on the ways M&S is impacting decision-makers across the world. While we are maintaining a focus on the Department of Defense (DoD), which continues to embrace the technologies of M&S, we are also focusing on how industries far removed from the defense space are seeing revolutionary change in capabilities, empowered by M&S tools. We are especially focusing on how M&S tools are helping the world better prepare to respond to global events with the speed and intensity of the COVID-19 pandemic.

In closing, I would like to truly thank the sponsors and exhibitors, our presenters, and speakers for being part of such an exceptional program. I am very proud of the work the committee has done this last year and a half to prepare, and am overjoyed to be seeing so many of you in person once again. I would also like to thank NTSA for all their support in organizing and executing this event; we are grateful for all you do to help this community grow and thrive. Thank you for attending, and welcome to MODSIM World!

Sincerely,
Nick Drucker, Huntington Ingalls Industries
Conference Chair, MODSIM World 2022

**PUSHING TRADITIONAL TRAINING METHODS**

# INTO THE FUTURE

As a trusted partner to our military customers, HII designs, develops and operates the largest LVC enterprise that prepares warfighters for cross-domain battle. With advanced technologies to enable mission readiness, HII understands that preparation requires full coordination - not readiness in piece-parts.

**AMERICA'S BEST LARGE EMPLOYERS**
**Forbes** 2021 & 2022
POWERED BY STATISTA
**HII ranks #11**

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# SCHEDULE AT A GLANCE

## MONDAY, 9 MAY

**Registration Open**
Main Salon Foyer
1000 – 1700

**Exhibits Open**
Main Salon Foyer
1230 – 1730

**General Session**
Main Salons DE
1300 – 1400

**Special Event**
Main Salons DE
1400 – 1530

**Networking Break**
Main Salon Foyer
1530 – 1600

**Special Event**
Main Salons DE
1600 – 1730

## TUESDAY, 10 MAY

**Registration Open**
Main Salon Foyer
0700 – 1700

**Continental Breakfast**
Main Salon Foyer
0745 – 0845

**General Session**
Main Salons DE
0845 – 1000

**Exhibits Open**
Main Salon Foyer
0930 – 1800

**Networking Break**
Main Salon Foyer
1000 – 1030

**Paper Session I**
See Agenda for Rooms
1030 – 1200

**Lunch & Exhibits**
Main Salons FGH & Foyer
1200 – 1300

**Special Event**
Main Salons DE
1300 – 1400

**Networking Break**
Main Salon Foyer
1400 – 1430

**Special Event**
Main Salons DE
1430 – 1600

**Networking Event & Exhibits**
Main Salon Foyer
1600 – 1730

## WEDNESDAY, 11 MAY

**Registration Open**
Main Salon Foyer
0700 – 1400

**Continental Breakfast**
Main Salon Foyer
0745 – 0845

**General Session**
Main Salons DE
0845 – 0900

**Special Event**
Main Salons DE
0900 – 1000

**Exhibits Open**
Main Salon Foyer
0930 – 1400

**Networking Break**
Main Salon Foyer
1000 – 1030

**Paper Session II**
See Agenda for Rooms
1030 – 1200

**STEM Event**
Main Salon Foyer
1030 – 1200

**Lunch & Exhibits**
Main Salons FGH & Foyer
1200 – 1300
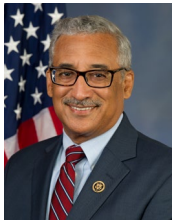
**Paper Session III**
See Agenda for Rooms
1300 – 1430

**Special Event**
Main Salons DE
1430 – 1600

**Closing Remarks & Adjourn**
1600

# CONGRESSIONAL KEYNOTE

Monday, 9 May  |  1315 – 1330  |  Main Salons DE

### REP BOBBY SCOTT

*Congressman*
VA-03

Congressman Robert C. "Bobby" Scott has represented Virginia's third congressional district in the U.S. House of Representatives since 1993.  Prior to his service in Congress, he served in the Virginia House of Delegates from 1978 to 1983 and in the Senate of Virginia from 1983 to 1993.

During his tenure in the Virginia General Assembly, Congressman Scott successfully sponsored laws critical to Virginians in education, employment, health care, social services, economic development, crime prevention and consumer protection. His successes in the state legislature included laws that increased Virginia's minimum wage, created the Governor's Employment and Training Council and improved health care benefits for women, infants and children.

Congressman Scott has the distinction of being the first African-American elected to Congress from the Commonwealth of Virginia since Reconstruction and only the second African-American elected to Congress in Virginia's history. Having a maternal grandfather of Filipino ancestry also gives him the distinction of being the first American with Filipino ancestry to serve as a voting member of Congress

Congressman Scott currently serves as the Chairman of the Committee on Education and Labor. In this capacity, he is advancing an agenda that focuses on improving equity in education, freeing students from the burdens of crippling debt, protecting and expanding access to affordable health care, ensuring workers have a safe workplace where they can earn a living wage free from discrimination, and guaranteeing that seniors have a secure and dignified retirement.

From 2015-2018, he served as the ranking member of what was then called the Committee on Education and the Workforce and developed a strong record of working across the aisle to pass critical legislation. In 2015, he was one of the four primary authors of the Every Student Succeeds Act, which reauthorized the Elementary and Secondary Education Act for the first time in 13 years and replaced the No Child Left Behind Act. Additionally, in 2017, he worked to secure passage of legislation to reform and update our nation's career and technical education system, as well as the juvenile justice system in 2018, which were both signed into law by President Donald Trump.  The latter legislation, the Juvenile Justice Reform Act, contained core tenets of Congressman Scott's Youth Prison Reduction through Opportunities, Mentoring, Intervention, Support, and Education (Youth PROMISE) Act, which he had introduced in every Congress since 2007.

# INDUSTRY KEYNOTE

Monday, 9 May  |  1330 – 1400  |  Main Salons DE

### TERRY WALLEY

*CTO*
HII Ingalls Shipbuilding

Terry Walley, is the CTO for HII Ingalls Shipbuilding, An industry leader, Mr. Walley has 30 years of shipbuilding experience across multiple facets of the business, which includes engineering, planning, production and technology. In his role as CTO Mr. Walley provides visionary leadership, helping to drive organizational performance, integrated automation processes and efficiencies throughout the company and wider shipbuilding industry.

## GOVERNMENT KEYNOTE

Tuesday, 10 May | 0900 – 1000 | Main Salons DE

### BG WILLIAM R. GLASER

*Director*
Synthetic Training Environment Cross Functional Team (STE CFT)

BG William R. Glaser is a native of Hendersonville, Tennessee and was commissioned as a Second Lieutenant in Armor from the U.S. Military Academy at West Point in 1993. He served in various command and staff positions as a company grade officer in Germany, Macedonia, Fort Stewart, and as a Company Commander in the 3rd Infantry Division during Operation Desert Spring in Kuwait in 2002 and the Liberation Phase of Operation Iraqi Freedom in 2003.

As a field grade officer, he returned to the 3rd Infantry Division to serve as the Chief of Simulations, Battle Command Officer, and G3 Chief of Operations while deployed to Operations Iraqi Freedom V. He also served as the primary advisor to the J3, Kuwait Armed Forces in the Office of Military Cooperation – Kuwait and then as the Director of TRADOC Project Office – OneSAF at Fort Leavenworth, Kansas.

Upon graduation from the U.S. Naval War College, BG Glaser served as the USAREUR G37 Chief of Exercises, the Deputy Commanding Officer of 2nd Cavalry Regiment, and the Director of the Joint Multinational Simulation Center, 7th Army Training Command in Germany. He was then centrally selected to serve as the Director, National Simulation Center at Fort Leavenworth, Kansas and then returned to Germany to serve as the Chief of Staff of the 7th Army Training Command. His last assignment was as the Deputy Commanding Officer for the United States Army Cadet Command.

## NTSA LEADERSHIP

### RADM JAMES ROBB, USN (RET.)

*President*
National Training & Simulation Association (NTSA)

Rear Admiral Jim Robb is the President of The National Training and Simulation Association (NTSA). NTSA is a non-profit corporation that provides a portfolio of events allowing the training, simulation, and gaming industries to engage national security markets. NTSA advocates the use of advanced simulation technologies, such as artificial intelligence, virtual reality, and serious gaming, to support training, education, and analysis. NTSA also runs the largest Training Systems Conference and Exposition in the world (IITSEC.org).

Before assuming his current position, Admiral Robb provided consulting and strategic planning services to large and small businesses in the defense market. He transitioned from the U.S. Navy in 2006, after a 34 year career in Naval Aviation where he deployed nine times across the globe and accumulated over 5,000 hours in the air and survived over 1,000 carrier landings at sea. He is a recognized expert in training and simulation, having spent much of his naval career instructing in fighter tactics and threat simulations. His notable training tours included flying captured Russian MIG fighters against U.S. forces in the Nevada desert and command of the Navy Fighter Weapons School, also known as TOPGUN. Admiral Robb also commanded a fighter squadron, a carrier air wing, and a carrier strike group.

Admiral Robb graduated from Rensselaer Polytechnic Institute with a BS in Mechanical Engineering and from the University of West Florida with a Masters degree in Aeronautical Systems.

# AGENDA

## MONDAY, 9 MAY

**1000 – 1700**

### REGISTRATION OPEN
MAIN SALON FOYER

**1230 – 1730**

### EXHIBITS OPEN
MAIN SALON FOYER

**1300 – 1315**

### MODSIM WORLD 2022 WELCOME & OPENING REMARKS
MAIN SALONS DE

**Welcome & Opening Remarks**
Nick Drucker
Huntington Ingalls Industries, 2022 Conference Chair

**Introduction of Congressional Keynote Speaker**
RADM James Robb, USN (Ret.)
President, NTSA

**1315 – 1330**

### CONGRESSIONAL KEYNOTE ADDRESS
MAIN SALONS DE

Congressman Bobby Scott
VA-03

**1330 – 1400**

### INDUSTRY KEYNOTE ADDRESS
MAIN SALONS DE

Terry Walley
CTO, HII Ingalls Shipbuilding

**1400 – 1530**

### SPECIAL EVENT: INDUSTRY KEYNOTE PANEL
MAIN SALONS DE

Join a panel of industry experts as they share the ways modeling and simulation (M&S) technologies are helping them transform their businesses. This industry keynote panel provides broad ranging perspectives on the impact of M&S technologies in emerging markets (drone and unmanned systems), heavy manufacturing and construction with the nation's largest shipbuilder, and on the international supply chain with North America's largest value added distributor. Based on the theme of "Building a Better Tomorrow" the panelists will provide perspective on how M&S tools are helping them deploy solutions for a more resilient future.

Nick Drucker
Manager, Enterprise Centers of Excellence,
Huntington Ingalls Industries, 2022 Conference Chair
*Moderator*

Kenyth Campbell
Sr. Supply Chain Analyst, Ferguson Enterprise

Rese Cleaver
Director of Product Management, DroneUp

Mary Claire McLaughlin
Digital Capabilities Lab Manager,
Newport News Shipbuilding (NNS)

**1530 – 1600**

### NETWORKING BREAK & DEDICATED EXHIBIT TIME
MAIN SALON FOYER

**1600 – 1730**

## SPECIAL EVENT: "THE SIMULATION CENTURY" – DIGITAL TWINS & THE METAVERSE
### MAIN SALONS DE

This is our tenth annual session to address the growing issue of managing the human/machine interface as we hurtle towards the singularity and the metaverse. We will discuss how to achieve fluency with smarter balance between humans and machines to optimize outcomes. The Simulation Century Panel presentations this year focus on technologies that build towards the metaverse.

*"AI Digital Twins and the Metaverse"*
**Richard Boyd**
CEO, Tanjo, Inc.
*Moderator*

*"In the Footsteps of Marco Polo using XR"*
**Dennis Belliveau**
Explorer in Residence and Author,
*In The Footsteps of Marco Polo*

*"Digital Twins to Manage Community Wellness"*
**Anil Menon, Ph.D.**
Executive Vice President, Community & Urban Services,
Sharecare, Inc.

*"Empowerment"*
**Marc Prensky**
Renowned author and creator of the term "Digital Natives"

## TUESDAY, 10 MAY

**0700 – 1700**

## REGISTRATION OPEN
### MAIN SALON FOYER

**0745 – 0845**

## CONTINENTAL BREAKFAST
### MAIN SALON FOYER

**0845 – 0900**

## DAY TWO WELCOME & OPENING REMARKS
### MAIN SALONS DE

**Opening Remarks**
Nick Drucker
Huntington Ingalls Industries, 2022 Conference Chair

**Introduction of Government Keynote Speaker**
RADM James Robb, USN (Ret.)
President, NTSA

**0900 – 1000**

## GOVERNMENT KEYNOTE ADDRESS
### MAIN SALONS DE

**BG William R. Glaser**
Director, Synthetic Training Environment Cross Functional Team (STE CFT)

**0930 – 1800**

## EXHIBITS OPEN
### MAIN SALON FOYER

**1000 – 1030**

## NETWORKING BREAK & DEDICATED EXHIBIT TIME
### MAIN SALON FOYER

## PAPER SESSION I – INDUSTRY TRACK: DATA AUTHENTICITY & TRAINING SUPPORT
### MAIN SALON A

**1030 – 1050**

**Provisioning Zero Trust Security to Physical and Cloud Endpoints Through an Uncontrolled Wide Area Network**

**Joseph Warren**
Thales Cloud Protection and Licensing

**1050 – 1110**

**Fake Data – Real Operations**

**Lt Col Matt Martin, USAF (Ret.)**
CAE USA, Inc.

**1110 – 1130**

**The Value of Cyber Physical Digital Twins**

**Steven Huang**
ManTech International Corporation

**Douglas Orellana**
ManTech International Corporation

**1130 – 1150**

**Development and Testing of a Virtual Reality Aviation Illusion Trainer**

**Robert Thomas, Ph.D.**
Embry-Riddle Aeronautical University

**Gary Garter**
Embry-Riddle Aeronautical University

**Nicholas Nieves**
Embry-Riddle Aeronautical University

**Trevor Goodwin**
Embry-Riddle Aeronautical University

**Thomas Barcza**
Embry-Riddle Aeronautical University

## PAPER SESSION I – SECURITY TRACK: TRAINING WITH SYNTHETIC AGENTS & AI
### MAIN SALON B

**1030 – 1050**

**Red Rover, Red Rover, Send an F-35 Right Over: Assessing Synthetic Agent Trust in Human Teammates to Optimize Mission Outcomes in Mosaic Warfare**

**Sandro Scielzo, Ph.D.**
CAE USA, Inc.

**Brian Hall**
CAE USA, Inc.

**1050 – 1110**

**Real-Time Situation Awareness Assessment for Pilots via Machine Learning: Constructing an Automated Classification System**

**Sandro Scielzo, Ph.D.**
CAE USA, Inc.

**Nicholas Crothers**
Southern Methodist University

**Eric Larson, Ph.D.**
Southern Methodist University

**Yash Sinha**
Southern Methodist University

**1110 – 1130**    **Innovative Automated Analysis Tools for After Action Review Using AI & Modeling & Simulation**

Ariane Bitoun
MASA Group

Anne-Gwenn Bosser
ENIB / Lab-STICC

Hans ten Bergen
MASA Group

François Legras
Independent Researcher

James Appleby
MASA Group

**1130 – 1150**    **A Neuro-Symbolic Approach to Conversational AI within Simulation**

Samuel Griffith
Discovery Machine, Inc.

Hudson Pepper
Discovery Machine, Inc.

Todd Griffith. Ph.D.
Discovery Machine, Inc.

Isaiah Mallery
Discovery Machine, Inc.

Brady Kirkmmpatrick
Discovery Machine, Inc.

## PAPER SESSION I – COMMUNITY TRACK: EDUCATIONAL APPROACHES UTILIZING M&S
### MAIN SALON C

**1030 – 1050**    **Analog vs. Digital: Amplifying Feedback for Learning**

Nicholas Armendariz
University of Central Florida

JJ Walcutt, Ph.D.
Clay Strategic Designs

**1050 – 1110**    **Boosting Cognitive Capabilities through Enhanced States during Gaming**

Maria Kozhevnikov, Ph.D.
Harvard Medical School

**1110 – 1130**    **Augmented & Mixed Reality-based Modules for Scientific Instrumentation Training**

Michael Kozhevnikov, Ph.D.
Norfolk State University

**1130 – 1150**    **Transitioning M&S Courses from a M&S Engineering Degree to a Major Under a Computer Engineering Degree**

James Leathrum, Jr., Ph.D.
Old Dominion University

Masha Sosonkina, Ph.D.
Old Dominion University

Yuzhong Shen, Ph.D.
Old Dominion University

Michel Audette, Ph.D.
Old Dominion University

**1200 – 1300**    **LUNCH & DEDICATED EXHIBIT TIME**
MAIN SALONS FGH & SALON FOYER

**1300 – 1400**

## SPECIAL EVENT: SIMULATION FOR THE COMMON MAN: ACCESSIBILITY REVISITED
### MAIN SALONS DE

Given the power of insight and learning that simulation provides, you might question why simulations are not more widely used. This facilitated, interactive brainstorming session intends to follow up on the discussion about the M&S accessibility problem that arose at the 2018 MODSIM conference. The purpose is to try and understand how our M&S community can reach new users and decision-makers. All attendees are welcome.

**Andrew Collins, Ph.D.**
Assistant Professor, Old Dominion University

**1400 – 1430**

## NETWORKING BREAK & DEDICATED EXHIBIT TIME
### MAIN SALON FOYER

**1430 – 1600**

## SPECIAL EVENT: HAPPENINGS IN MEDICAL MODELING & SIMULATION
### MAIN SALONS DE

Join a panel of industry and academic experts as they share the ways M&S technologies are innovating in the medical space. This panel will provide broad ranging perspectives on the impact of M&S technologies in DoD and civilian medical training. Based on the theme of "Building a Better Tomorrow," the panelists will provide perspectives on how M&S tools are being deployed to help save lives.

**Claire Hughes**
Research Associate III, eXtended Reality Division, Design Interactive, Inc., 2022 Deputy Program Chair

**Bob Armstrong**
Assistant Professor, School of Health Professions and Executive Director, Sentara Center for Simulation and Immersive Learning, Eastern Virginia Medical School

**Frank Karluk**
Account Executive, Medical Modeling and Simulation, DLH Corporation

**Philip LeDuc, Ph.D.**
William J. Brown Professor, Mechanical Engineering Department, Carnegie Mellon University

**1600 – 1730**

## ATTENDEE ONSITE NETWORKING EVENT
### MAIN SALON FOYER

MODSIM World reception is a networking event for industry, academia, and government attendees involved in the modeling and simulation community. This standing reception will have appetizers and beverages served at various stations throughout the lobby of the Hilton. Participants will have the chance to network and visit exhibitor tables to discover the latest in M&S technology.

**Welcome Remarks**
Nick Drucker
Huntington Ingalls Industries, 2022 Conference Chair

**Networking Reception Sponsor**
VMASC

# WEDNESDAY, 11 MAY

**0700 – 1400**

## REGISTRATION OPEN
### MAIN SALON FOYER

**0745 – 0845**

## CONTINENTAL BREAKFAST
### MAIN SALON FOYER

**0845 – 0900**

## DAY THREE WELCOME & OPENING REMARKS
MAIN SALONS DE

### Opening Remarks
**Nick Drucker**
Huntington Ingalls Industries, 2022 Conference Chair

**0900 – 1000**

## SPECIAL EVENT: AR/VR PANEL – TECHNOLOGIES CONTRIBUTING TO THE METAVERSE
MAIN SALONS DE

This panel will define the metaverse, what it means for the government, and then dive into the technological advancements that are making it possible today. The panel will explore areas such as real-time 3D, scaling, geospatial, rendering, UI/UX, and how they come together to make a credible metaverse available for the government to realize significant value.

**Bob Kleinhample, CMSP**
Strategic Account Executive,
Improbable U.S. Defense & National Security
*Moderator*

**Gastao De Figueiredo**
SVP Strategic Partnerships, Blackshark.ai

**Caitlin Dohrman**
General Manager, Improbable U.S. Defense and National Security

**John Burwell**
Global Lead, Simulation and Training, Varjo

**Luke DeVore**
Senior Client Partner, Unity Technologies

**Tim Woodard**
Senior Solutions Architect, NVIDIA

**0930 – 1400**

## EXHIBITS OPEN
MAIN SALON FOYER

**1000 – 1030**     **NETWORKING BREAK & DEDICATED EXHIBIT TIME**
MAIN SALON FOYER

## PAPER SESSION II – INDUSTRY TRACK: INDUSTRY FOCUSED M&S
MAIN SALON A

**1030 – 1050**     **Data Science Team Topology: An Interdisciplinary Team Framework for AI**

Ralitsa Maduro, Ph.D.
Sentara Healthcare

Jay Gendron
USAA

Phil Lacasse

**1050 – 1110**     **Advancing Electrical Grid Operator Training Through eXtended Reality (XR) Technology**

Diana Perera
Design Interactive, Inc.

Melynda Hoover, Ph.D.
Design Interactive, Inc.

Charis Horner
Design Interactive, Inc.

Stacey Sanchez
Design Interactive, Inc.

**1110 – 1130**     **Optimal Electric Grid Black Start Restoration Subject to Threats**

Kevin Stamber
Sandia National Laboratories

Walt Beyeler
Sandia National Laboratories

Bryan Arguello
Sandia National Laboratories

Casey Doyle
Sandia National Laboratories

Richard Garrett
Sandia National Laboratories

David Schoenwald
Sandia National Laboratories

**1130 – 1150**     **Adaptive Camera Motion Generation for Procedural Guidance and Understanding in Virtual Environments**

Shan Liu, Ph.D.
Old Dominion University

Yuzhong Shen, Ph.D.
Old Dominion University

## PAPER SESSION II – SECURITY TRACK: TRAINING AFFORDED THROUGH GAMING
MAIN SALON B

**1030 – 1050**     **Training Beyond 2025: A Vision for Synergizing RRL and STE**

George Stone, Ph.D., CMSP
Aptima, Inc.

Evan Oster
Aptima, Inc.

**1050 – 1110**

### Developing & Applying an Accelerated Learning Framework for Game-Based Training

**Julian Abich IV, Ph.D.**
Quantum Improvements Consulting

**Eric Sikorski, Ph.D.**
Quantum Improvements Consulting

**1110 – 1130**

### Cyber Red Zone: Capture-the-Flag the DoD Way!

**Tashara Cooper**
NAWCTSD

**Jonathan Harris, Ph.D.**
NAWCTSD

**1130 – 1150**

### Implementation of Live-Virtual-Constructive (LVC) Workplace Setting to Enhance Occupational Success among Young Adults with ADHD

**Rachel Su Ann Lim**
University at Buffalo

**Sandro Sodano, Ph.D.**
University at Buffalo

**Kevin Hulme, Ph.D., CMSP**
University at Buffalo

**Chanelle Gordon, Ph.D.**
Child and Family Translational Research Center

**Gregory Fabiano, Ph.D.**
University at Buffalo

## PAPER SESSION II – COMMUNITY TRACK: M&S IN HEALTHCARE
MAIN SALON C

**1030 – 1050**

### Artificial Societies Enabling Multidisciplinary Policy Evaluation: A Health Policy Example

**Andreas Tolk, Ph.D., CMSP**
The MITRE Corporation

**Jon Cline, Ph.D.**
The MITRE Corporation

**Bianica Pires, Ph.D.**
The MITRE Corporation

**1050 – 1110**

### Establishing and Maintaining a Research Agenda for Healthcare Modeling & Simulation

**Brian Goldiez, Ph.D., CMSP**
VMASC, Old Dominion University

**1110 – 1130**

### A Digital Clinical Experience for Nursing Skills Training: Enhancing Nursing Student Efficiency and Efficacy in Patient Care through Virtual Patient Simulation

**Thomas Santarelli**
Tipping Point Media

**Cheryl Wilson, DNP**
Shadow Health® at Elsevier

**Francisco Jimenez, Ph.D.**
Shadow Health® at Elsevier

**1130 – 1150**

### Introduction of the Joint Emergency Trauma Simulation (JETS) System

**CSM David Litteral, USA (Ret.), Ph.D.**
IVIR, Inc.

**1030 – 1200**

## SPECIAL EVENT: STEM EVENT
MAIN SALON FOYER

The MODSIM STEM event provides a unique opportunity to contribute directly to the school experience of youth who are beginning to formulate their dreams for the future. During the MODSIM STEM event, approximately 100 area high-school students will get the opportunity to see firsthand the world of M&S. Students will rotate through hands-on M&S demonstrations provided in the exhibit hall to see STEM in action.

**1200 – 1300**

## LUNCH & DEDICATED EXHIBIT TIME
MAIN SALONS FGH & SALON FOYER

## PAPER SESSION III – SECURITY TRACK: DIGITALLY–CONNECTED TRAINING WORLDS
MAIN SALON B

**1300 – 1320**

### Warfighter Digital Twin

Zhiqing Cheng, Ph.D.
Innovision, LLC

Gary Zientara, Ph.D.
U.S. Army Research Institute of Environment Medicine

Reed Hoyt, Ph.D.
U.S. Army Research Institute of Environment Medicine

**1320 – 1340**

### Online Synchronous Matrix Wargaming as a Multi-Domain Government & Military Decision Support Training Capability

COL Wayne Stilwell, USA (Ret.), Ph.D.
Stilwell Technology and Robotics, LLC

MAJ Stephen Nelson, USA
NATO ACT

**1340 – 1400**

### Simulating Changing Environments with Socio-Technical Modeling: An Air Combat Example

Benjamin Bell, Ph.D.
Eduworks Corporation

Winston "Wink" Bennett, Jr., Ph.D.
Air Force Research Laboratory

Kristin Wood
Eduworks Corporation

Fritz Ray
Eduworks Corporation

**1400 – 1420**

### Replacing Paper: Simulation Assessment App in the Canadian Navy

Dave Boldt
Marine Learning Systems

Murray Goldberg
Marine Learning Systems

Arvinder Aujla
Royal Canadian Navy

## PAPER SESSION III – COMMUNITY TRACK: RETHINKING COGNITIVE & PERFORMANCE MODELS
**MAIN SALON C**

**1300 – 1320**

### Comparison of Collective Day & Night Shooting and Lethality Performance

**Gregory Goodwin, Ph.D.**
Combat Capabilities Development Command – Soldier Center

**Grace Teo, Ph.D.**
Quantum Improvements Consulting

**Jacquelyn Schreck**
Quantum Improvements Consulting

**1320 – 1340**

### The Implementation of Virtual Humans: Rethinking Critical Thinking & Metacognition

**CDR Dan Davis, USN (Ret.)**
Catholic Polytechnic University

**Jennifer Nolan, Ph.D.**
Catholic Polytechnic University

**John Tran, Ph.D.**
Catholic Polytechnic University

**Mark Davis, Ph.D.**
Wood Duck Research, Inc.

**1340 – 1400**

**Applying Learning Experience Design to Real-time Simulator-Based Adaptive Training**

Trish Mulligan-Renaud
TTD Learning Solutions, LLC

Ivar Oswalt, Ph.D., CMSP
The MIL Corporation

Tim Cooley, Ph.D.
DynamX Consulting

**1430**

## SCHOLARSHIP PRESENTATIONS
MAIN SALONS DE

Scholarship Awardees from Old Dominion University

**1430 – 1600**

## SPECIAL EVENT: MSVE CAPSTONE PRESENTATIONS
MAIN SALONS DE

The Modeling, Simulation & Visualization Engineering (MSVE) student capstone event will showcase presentations from the annual Old Dominion University Modeling, Simulation & Visualization Student Capstone Conference (MSVSCC) that was hosted at ODU-VMASC. Presenters are all best paper award winners in their domains and will provide perspective on how tomorrow's M&S practitioners are already shaping the future of MODSIM.

### Infrastructure, Security & Military Track
*"DeapSECURE Computational Training for Cybersecurity: Third Year Improvements and Impacts"*
Bahador Dodge, Jacob Strother, and Dr. Wirawan Purwanto

### Transportation, Business & Industry Track
*"A Discussion on Supplier Selection Modeling Approaches"*
Sheida Etemadidavan

### Virtual Environments Track
*"Engaging Human-in-the-Loop for Autonomous Vehicle Simulation"*
John di Battista, Christian Johnston, and Valerie Randall
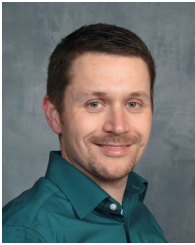
### General Sciences & Engineering Track
*"Is Explainability Always Necessary? Discussion on Explainable AI (XAI)"*
Gayane Grigoryan

**1600**

## CLOSING REMARKS & ADJOURN

**Monday, 9 May | 1400 – 1530 | Main Salons DE**

### KENYTH CAMPBELL

*Sr. Supply Chain Analyst*
Ferguson Enterprise

Kenyth Campbell is a Senior Supply Chain Analyst at Ferguson Enterprises. In this role, Mr. Campbell is responsible for designing and generating executive level statistical reports that highlight company performance in meeting inventory goals and addressing market needs. His role also includes executing and supporting projects related to whole stack supply chain inventory planning and advanced analytics applications. Before joining Ferguson Enterprises, Mr. Campbell served as a Modeling and Simulation Product Owner with Newport News Shipbuilding, leading project teams during the creation and utilization of modeling and simulation applications for multiple shipyard operations. Mr. Campbell possesses a Master's Degree from Old Dominion University in International Studies with a concentration and certification in Modeling and Simulation, as well as a Bachelor's Degree from Christopher Newport University in Political Science.

### RESE CLEAVER

*Director, Product Management*
DroneUp

Ms. Cleaver is a leader at DroneUp's aviation technology organization, directing strategy and execution of its UTM, airspace and drone services platforms. With over 12 years of experience in the technology industry, she has indepth experience in successfully bringing leading edge technology solutions to market at scale in global markets.

Prior to joining DroneUp, Ms. Cleaver served in product management leadership roles, overseeing SaaS platforms servicing large-scale government and Fortune 500 clients. Rese also has a consistent track record of closing the "say-do gap" to solve operational challenges through leading edge tech including NASA LRC, DoD and NATO.

Ms. Cleaver serves on local and national councils which drive innovation, best practices and skill development in unmanned aerial vehicle operations, and is also an FAA Part 107 Certified Remote Pilot.

### MARY CLAIRE MCLAUGHLIN

*Digital Capabilities Lab Manager*
Newport News Shipbuilding (NNS)

Mary Claire McLaughlin is the Digital Capabilities Lab Manager at Newport News Shipbuilding (NNS). Ms. McLaughlin was born in Norfolk and raised in Hampton Roads. She earned a bachelor's degree in Mechanical Engineering from Old Dominion University in 2010.

Ms. McLaughlin joined NNS in 2011 and worked in submarine engineering as the lead of the external hydraulic system on the Columbia Class Submarine Program. Early in her career, she recognized the potential of Augmented Reality (AR) to empower the industrial workforce. She joined the AR Team at NNS in 2014 after many years of following the development of the technology. In 2017 she became the AR Project Supervisor leading an experienced team of AR experts that develop and deploy innovative industrial AR solutions to the shipyard, the Navy, and commercial clients. In 2018 Ms. McLaughlin and her team took on the responsibility of conducting research and rapid prototypes across multiple strategic technologies forming Newport News Shipbuilding's Digital Capabilities Lab. In 2019 the Lab's area of responsibility grew to include the NNS Mobile Center of Excellence. Ms. McLaughlin and her team are focused on creating advanced technology solutions to drive the digital transformation at Newport News Shipbuilding.

# THE SIMULATION CENTURY PANEL BIOGRAPHIES

Monday, 9 May | 1600 – 1730 | Main Salons DE

### RICHARD BOYD

*CEO*
Tanjo, Inc.

Mr. Boyd is the CEO of Tanjo, a human-based neural net company designed to help businesses achieve the right balance between humans and machines. Over the last 25 years, Mr. Boyd has led or helped create some of the most innovative game technology companies in the industry. At Lockheed Martin, he created and led a group of innovative engineers and designers across all mission areas called Virtual World Labs. Mr Boyd joined Lockheed Martin in 2007 with the acquisition of 3Dsolve, a North Carolina-based computer game technology firm where he was founder and CEO. He served for a decade on the executive management team of Virtus Corporation where he helped create several pioneering computer gaming companies including Red Storm Entertainment with author Tom Clancy, iRock Entertainment with Ozzy Osbourne, and Timeline Computer Entertainment with author Michael Crichton.

### DENNIS BELLIVEAU

*Explorer in Residence and Author, "In The Footsteps of Marco Polo"*

Mr. Belliveau is a photographer, author and explorer whose career has taken him to over 70 countries and whose work has been widely published in books and periodicals including *Photographic Magazine, Smithsonian Magazine* and the companion book for the BBC documentary series, *Planet Earth*. He is the recipient of numerous awards from professional photographers organizations as well as Eastman Kodak's highest honor, the Gallery Award. In 1996, he received an Emmy® nomination in 2009 for writing and directing his acclaimed documentary film, *In The Footsteps of Marco Polo*. For over a decade, his live Explorer-in-Residence program has been a staple at select schools all over the world.

### ANIL MENON, PH.D.

*Executive Vice President, Community & Urban Services*
Sharecare, Inc.

Mr. Menon is a member of the managing board and Head of the Centre for Global Industries at the World Economic Forum. He served as Global President, Smart+Connected Communities, Cisco Systems from 2009 –16, and Deputy Chief Globalization Officer. He led Cisco's globalization headquarters in Bangalore, India and was a former Chairman of Cisco India's Advisory Board.

From 2002 – 09, he served in global functional roles at IBM, ranging from Chief Marketing and Strategy Officer for IBM to managing IBM's transition from a hardware to a business technology brand. He was a tenured professor, Graduate Faculty, at Emory University's Goizueta Business School and holds a PhD in Marketing Strategy, Multivariate Statistics and Linear Equation Modelling, Strategic Planning Council from Cambridge, MA. He was a Sony Business Fellow at Sony Corporation and was awarded the American Marketing Association's Alpha Kappa Psi award and the Academy of Marketing Science's Distinguished Practitioner award. He is a board member of the Board of Directors, Center for Customer Insights, Yale University School of Management. He has served on the board of Coca-Cola Company's Technology Incubator, Fizzion, and as Citibank India's board of advisors.

### MARC PRENSKY

*Renowned author and creator of the term "digital natives"*

Mr. Prensky holds degrees from Oberlin College (1966), Middlebury College (MA, 1967), Yale University (1968) and the Harvard Business School (1980). He is the author of seven books: *Digital Game-Based Learning* (McGraw-Hill 2001), *Don't Bother Me Mom – I'm Learning* (Paragon House 2006), *Teaching Digital Natives* (Corwin Press 2010), *From Digital Natives to Digital Wisdom: Hopeful Essays for 21st Century Learning* (2012), *Brain Gain: Technology and the Quest for Digital Wisdom* (2012), *The World Needs a New Curriculum* (The Global Future Education Foundation, 2014), *Education To Better Their World: Unleashing the Power of 21st Century Kids* (Teachers College Press, 2016). Prensky also designed the first first-person-shooter game for corporate training, Straight Shooter, in 1987. Mr. Prensky began his career as a teacher in Harlem, New York. He worked for six years (1981-1987) as a corporate strategist and product development director with the Boston Consulting Group, and six years (1993-1999) for Bankers Trust on Wall St., where he created game-based training for financial traders.

Tuesday, 10 May  |  1300 – 1400  |  Main Salons DE

### ANDREW COLLINS, PH.D.

*Assistant Professor*
Old Dominion University

Andrew J. Collins, Ph.D., is an assistant professor at Old Dominion University in the Department of Engineering Management and Systems Engineering. He has a Ph.D. in Operations Research from the University of Southampton, and his undergraduate degree in Mathematics was from the University of Oxford. He has published over 90 peer-review articles. He has been the Principal Investigator on projects funded to the amount of approximately $7 million. Dr. Collins has developed several research simulations including an award-winning investigation into the foreclosure contagion that incorporated social networks.

His website and full resume can be found at www.drandrewjcollins.com.

# REGISTER NOW

## MODELING & SIMULATION (M&S) LEADERSHIP SUMMIT 2022

**14 June 2022  |  Orlando, FL  | NTSA.org/MSSummit**

The 2022 M&S Leadership Summit, co-located with TSIS 2022, will discuss the potential policy and legislative impacts of the Metaverse and Augmented Reality/Virtual Reality (AR/VR).

## WHY THE M&S LEADERSHIP SUMMIT?

The Modeling & Simulation Leadership Summit is an event sponsored by the National Training and Simulation Association (NTSA) in support of the Modeling and Simulation Congressional Caucus. The purpose of the event is to bring the M&S Community of Practice together to discuss important issues related to Modeling and Simulation, and to try to reach consensus on one or two specific, actionable initiatives for the Congressional M&S Caucus to take for action.

**NTSA** | **NATIONAL TRAINING & SIMULATION ASSOCIATION**

**Tuesday, 10 May | 1430 – 1600 | Main Salons DE**

### BOB ARMSTRONG

*Assistant Professor, School of Health Professions and Executive Director, Sentara Center for Simulation and Immersive Learning*
Eastern Virginia Medical School (EVMS)

Mr. Bob Armstrong is passionate about leveraging modeling and simulation technologies to improve patient safety and outcomes. He serves as an Assistant Professor within the School of Health Professions and as Executive Director of the Sentara Center for Simulation and Immersive Learning at Eastern Virginia Medical School (EVMS) in Norfolk, Virginia. He is also the Program Director for the National Center for Collaboration in Medical Modeling and Simulation, and EVMS Director of Corporate Relations. Mr. Armstrong served as the President of the Society for Simulation in Healthcare in 2020. He is a graduate of the U.S. Naval Academy and Naval Postgraduate School, retiring from the U.S. Marine Corps as a Lieutenant Colonel in 2005.

### FRANK KARLUK

*Account Executive, Medical Modeling and Simulation*
DLH Corporation

Frank J. Karluk, MA, PMP, NRP has over 30 years' experience in the medical field in multiple areas including advancing patient care on the battlefield, direct patient care in the hospital setting, instruction, and curriculum development. Twenty-one of these years were in service to the United States Army with various assignments that included combat operations in the Helmand Province of Afghanistan. During this deployment, he served as the Non-Commissioned Officer in Charge of an Army MEDEVAC detachment that was tasked to directly support the Special Operations Command during high-risk kinetic operations involving active warfare, including lethal force. He and his unit were the first Army MEDEVAC unit to conduct in flight blood resuscitation and he is credited with being the first flight paramedic to perform an emergency escharotomy in flight under the remote direction of a trauma surgeon. He maintains active licensure and certifications and is currently a faculty member at The George Washington University. Mr. Karluk has been invited to speak at international conferences and has been a spokesperson within the Medical/Chemical, Biological, Radiological, Nuclear, and high yield Explosives (CBRNE) community before the Joint Chiefs, and other high-level government leaders post 9/11.

### PHILIP LEDUC, PH.D.

*William J. Brown Professor, Mechanical Engineering Department*
Carnegie Mellon University

Philip LeDuc (Ph.D. Johns Hopkins University; post-doctoral fellow, Children's Hospital and Harvard Medical School) is the William J. Brown Professor in the Mechanical Engineering Department at Carnegie Mellon University with appointments in Biomedical Engineering, Computational Biology, Electrical and Computer Engineering, and Biological Sciences. He received the National Science Foundation CAREER Award, the Beckman Foundation Young Investigators Award, while also being selected as a faculty member for the Sloan Foundation minority Ph.D. Program. He has also been funded by other organizations including the Bill & Melinda Gates Foundation, Office of Naval Research, Department of Energy, National Institute of Health, and Keck Foundation. During his career, he has published articles in many journals, including *Proceedings of the National Academy of Sciences, Nature Nanotechnology, JACS, Applied Physics Letters, Methods in Cell Biology, Advanced Materials, Nano Letters, Nature Protocols, Nature Communications,* and *Nature* and has held seminars across the world including South Africa, India, and Brazil. He has helped organize many scientific meetings including for the National Academy of Engineering, the National Academy of Sciences, the National Academy of Medicine, and the U.S. Congress and was elected to the Science Advisory Council of the Beckman Foundation, the Board of Directors for the Biomedical Engineering Society and the American Institute for Medical & Biological Engineering. He is also a Fellow of the Biomedical Engineering Society, American Society of Mechanical Engineers, International Academy for Medical and Biological Engineering, and American Institute for Medical & Biological Engineering. He and his wife, Rachel have a daughter and two sons. He has also been involved with many philanthropic organizations including raising for non-profit organizations and missions trips to Africa and Armenia.

**Wednesday, 11 May | 0900 – 1000 | Main Salons DE**

### BOB KLEINHAMPLE

*Strategic Account Executive*
Improbable U.S. Defense & National Security

Mr. Robert "Bob" Kleinhample is a Strategic Account Executive for Improbable U.S. Defense & National Security. In this role he leads the vision, strategy, development and knowledge sharing of transformative solutions and capabilities in the synthetic environments market.

With a focus on fostering an agile culture of innovation through research, product development, and technical excellence,

Mr. Kleinhample positions Improbable as a leader in the synthetic environments market serving the U.S. defense and national security community. In this role, Mr. Kleinhample strategically shapes synthetic environment capabilities solving emergent customer problems in the area of virtual worlds demanding high scale and complexity.

He is an active member in the training and simulation community through his involvement and leadership in the Interservice/Industry, Training, Simulation, and Education Conference

(I/ITSEC) committees, including his current role as the I/ITSEC Next Big Thing Committee Chair which is leading the adoption of emerging technologies in the training and simulation market.

He is a 20-year military career veteran as a U.S. Army Field Artillery Officer and earned his Bachelors of Science degree in Engineering Management from the U.S. Military Academy and his Masters of Engineering in Operations Research from the Old Dominion University.

### JOHN BURWELL

*Global Lead, Simulation and Training*
Varjo

Mr. Burwell has over 30 years of experience developing innovative and disruptive technologies used in the simulation and training industry. With a focus on the representation of virtual environments, Mr. Burwell has been involved with development of image generation systems, virtual worlds, and AR/VR/MR solutions.

He currently drives Varjo's Training and Simulation business supporting development of AR/VR/MR solutions leveraging Varjo's human-eye resolution HMDs. Prior to Varjo, Mr. Burwell played a pivotal role in several technology companies including Bohemia Interactive Simulations, Silicon Graphics and Forterra Systems.

Mr. Burwell has a bachelor's degree in Electrical Engineering and Computer Science from the University of Colorado and an MBA in International Management from Thunderbird.

### GASTAO DE FIGUEIREDO

*SVP Strategic Partnerships*
Blackshark.ai

Mr. De Figueiredo leads strategic partnerships for Blackshark.ai, the first company to

create a semantic digital twin of the entire planet, where he oversees alliances to build breakthrough products, capabilities, and joint go-to-market. Prior to Blackshark.ai, Mr. De

Figueiredo held leadership roles at Microsoft, Apple, and Sun Microsystems. Gastao holds a BSEE and an MS in Computer Sciences.

# AR/VR PANEL BIOGRAPHIES

Wednesday, 11 May | 0900 – 1000 | Main Salons DE

## LUKE DEVORE

*Senior Client Partner*
Unity Technologies

Luke DeVore is a Senior Client Partner at Unity Technologies where he works with partners across the Government and Aerospace markets to deliver solutions that leverage the world's most innovative real-time 3D technologies. Prior to joining Unity Technologies, Mr. Devore spent time with SAIC and Design Interactive, Inc., providing him with an appreciation for large-scale digital transformation IDIQs as well as human performance and training system development SBIRs and OTAs. Mr. Devore is excited to see how real-time 3D and XR technologies will blur the lines between learning and performing, and how human machine interfaces will incorporate contextual, sensor, and human data to become increasingly personalized and adaptive.

## CAITLIN DOHRMAN

*General Manager*
Improbable U.S. Defense and National Security

Ms. Dohrman is responsible for the overall growth of Improbable's U.S. Defense and National Security business and enabling our customers' success using Improbable's technology for national security challenges. Ms. Dohrman has worked in technology for 15 years, bringing innovative solutions to bear on U.S. defense and intelligence missions.

Prior to joining Improbable in 2018, Ms. Dohrman was an Enterprise Lead and Product Manager at Palantir Technologies, where she was responsible for the company's national security portfolio. Prior to Palantir, Ms. Dohrman worked at Booz Allen Hamilton and Intergraph as a systems engineer. She studied Computer Engineering at Mississippi State University and Systems Engineering at Virginia Tech.

## TIM WOODARD

*Senior Solutions Architect*
NVIDIA

Mr. Tim Woodard is a Senior Solutions Architect with NVIDIA's Professional Visualization group, working with federal integrators and customers to get the most out of NVIDIA's professional visualization solutions. This includes leveraging NVIDIA's professional GPUs, advanced rendering technology, virtualization, XR, AI, and omniverse for MS&T. Tim has over 25 years of experience designing and developing software architectures for real-time simulation visual systems including medical, driving, and flight. He serves on the I/ITSEC Simulation subcommittee, has received patents for run-time simulator database generation technology, and has published and presented papers at NVIDIA's GPU Technology Conference, I/ITSEC, IMAGE, FSEMC, ASQ, and IT$^2$EC. Mr. Woodard lives in Virginia Beach, Virginia with his wife and two boys, is a mediocre guitar player, amateur painter, and an avid homebrewer.

## NICK DRUCKER | CONFERENCE CHAIR

*Manager, Enterprise Centers of Excellence*
Huntington Ingalls Industries (HII)

Mr. Nick Drucker is the Manager of the Enterprise Centers of Excellence at Huntington Ingalls Industries (HII). In this role Mr. Drucker is responsible for leading the corporate centers of excellence for Analytics, Innovation and Cloud Technologies across HII's three divisions. Prior to taking this role, Mr. Drucker led the Enterprise Architecture and strategy team for Newport News Shipbuilding (NNS), a division of HII, aligning technical capabilities against business needs and establishing strategic plans for the adoption of innovative solutions to meet NNS' performance goals. Mr. Drucker previously held positions leading the Data Analytics and Advanced Technology teams at NNS, served as a Product Manager for the federal energy market space, and served as a Modeling and Simulation Product Owner, focused on the utilization of modeling and simulation applications for multiple shipyard operations. Before joining NNS Mr. Drucker held multiple leadership roles for a small modeling and simulation company in Portsmouth, VA. Mr. Drucker possesses a Master's Degree from Old Dominion University in International Studies with a concentration and certification in Modeling and Simulation as well as a Bachelor's Degree from Christopher Newport University in Political Science with a minor in Psychology.

## STEFANI BRIGHAM | DEPUTY CONFERENCE CHAIR

*Software Engineer*
Newport News Shipbuilding (NNS)

Ms. Stefani Brigham is a Software Engineer in Newport News Shipbuilding's (NNS) Digital Capabilities Lab. Ms. Brigham serves as technical lead, senior software developer, and delivery owner for a software delivery team responsible for creating microservices and cross-platform applications that utilize IIoT, cloud, and other emerging technologies to solve complex NNS problems. Prior to joining the lab, Ms. Brigham developed and implemented change management initiatives in support of the Integrated Digital Shipbuilding Program. Previously she worked as an M&S engineer, developing several simulations for modeling logistics and nuclear operations for the DoD. She has also served as technical lead and senior software developer on multiple nuclear modeling and simulation projects in support of the Department of Energy. Ms. Brigham received degrees from the College of William and Mary including a Bachelor of Science in Mathematics and Computer Science and a Master of Science in Computational Operations Research.

## JULIAN ABICH, IV, PH.D. | PROGRAM CHAIR

*Senior Human Factors Engineer*
Quantum Improvements Consulting

Dr. Julian Abich IV is a Senior Human Factors Engineer at Quantum Improvements Consulting. He has over 15 years of experience applying human factors & ergonomics (HF/E) principles, M&S approaches, and instructional design methodology to assess, predict, and improve human performance. His work focuses on taking a user-centered approach to design, develop, and assess innovative training solutions. He has extensive experience working side-by-side with end-users evaluating training solutions to improve the effectiveness and efficiency of their application. These training solutions span mobile, immersive, and emergent technological platforms, such as augmented, virtual, and mixed reality. He continues to serve the research community through his publications and presentations, journal reviews, and participation in conference program committees. He previously served on the UCF faculty but continues to support the Modeling and Simulation graduate program as a Graduate Faculty Scholar. He also advocates for Science, Technology, Engineering, Arts, and Mathematics (STEAM) outreach efforts by encouraging public support within these domains.

# CONFERENCE LEADERSHIP BIOGRAPHIES

### CLAIRE HUGHES | DEPUTY PROGRAM CHAIR

*Research Associate III, eXtended Reality Division*
Design Interactive, Inc.

Ms. Claire Hughes is a Research Associate III in the eXtended Reality Division at Design Interactive. Her focus is on emerging technology delivery to diverse stakeholders, including the Joint Program Committee, and the Army Futures Command. Her current work is centered around the design and delivery of XR training technologies across the Department of Defense, with a focus on driving user-centered design for scalable adoption of AR/VR/MR training and job aid solutions. She holds a Master of Science in Human Factors and Systems Engineering from Embry-Riddle Aeronautical University and a Bachelor of Science in Mathematics from Hillsdale College.

# TRACK CHAIR BIOGRAPHIES

## COMMUNITY

### LARA BOVE | CHAIR

*Instructional Designer and Customer Experience Lead*
SAIC

Ms. Lara Bove is an Instructional Designer and Customer Experience Lead with SAIC. Ms. Bove has more than twenty years of training development experience, and has worked on training solutions for federal clients, state governments, the Department of Defense, Federal Aviation Administration, and the Department of Veterans Affairs. She holds an MS Ed from James Madison University with a concentration in Adult Learning and Human Resource Development. She is currently working on a Ph.D. in Learning Technologies Design Research. Ms. Bove uses design research principles to address workplace challenges.

### NINA ROTHSTEIN | DEPUTY CHAIR

*Ph.D. Candidate*
Drexel University

Ms. Nina Rothstein is a Ph.D. Candidate at Drexel University in the Applied Cognitive and Brain Sciences Program. She is a member of the CONQUER Collaborative Lab. She has a BS in Psychology from the University of North Florida and an MS in Modeling and Simulation from the University of Central Florida.

## INDUSTRY

### VANCE SOUDERS | CHAIR

*Founder*
Plas.md

Mr. Vance Souders has over 22 years of software engineering, design, and leadership experience focused on creating cutting-edge immersive experiences. He has played a critical role or spearheaded the development of over 40 innovative projects, driving value across various verticals, including health care, defense, and education. He has led diverse teams composed of on-site and remote engineers, artists, designers, clinicians, and scientists across multiple time zones.

His latest project in 2022, for a private healthcare communications company, involves leading a team responsible for the integration of biometric data from wearables and the overall design for a serious game focused on improving retention rates and outcomes for CDC's National Diabetes Prevention Program (DPP). In addition, his experience creating Bionautica Trails gives him direct and relevant insight of how immersive, game-based experiences can be integrated into clinical settings to improve the quality of life for patients.

### JASON BEWLEY  |  DEPUTY CHAIR

*President*
Applied Training Solutions, LLC

Mr. Jason Bewley is the president of ATS, managing all aspects of the business. He is a lifelong entrepreneur, founding and leading four successful companies before joining ATS where he first served as Vice President for Business and Strategic Development. As president, Mr. Bewley's previous leadership experience continues to inspire the company to achieve new heights. Mr. Bewley is a proud Eagle Scout who continues to serve the scouting community.

### JAY GENDRON  |  DEPUTY CHAIR

*Data Scientist*
United Services Automobile Association (USAA)

Mr. Jay Gendron is a data scientist with United Services Automobile Association (USAA). He has worked as a data scientist in industries including software development, management consulting, national defense, and financial services. Mr. Gendron served in the U.S. Air Force for over 20 years as a program manager, educator, and operations research analyst. Mr. Gendron is the author of the book *Introduction to R for Business Intelligence* and a number of chapters in edited titles.

## SECURITY

### HALEIGH BENSON  |  CHAIR

*Systems Engineer*
Newport News Shipbuilding (NNS)

Ms. Haleigh Benson is a Systems Engineer in Newport News Shipbuilding's (NNS) Data Science & Advanced Data Solutions group. In this role, Ms. Benson is responsible for supporting the Data Science team as well as the Robotic Process Automation (RPA) group developing "bots" used to automate workflows. In addition to RPA, Ms. Benson assists the data scientists within the group to create solutions to empower better decision making. Prior to this role, Ms. Benson was a business analyst assisting with the implementation and support of business information systems in order to help achieve the business' goals. Ms. Benson possesses a Bachelor's of Science degree from Old Dominion University in Business Management and Business Analytics as well as a Master's of Science in Business Analytics from the College of William and Mary.

### EMILY GRUBBS  |  DEPUTY CHAIR

*Senior Lead Data Scientist*
Booz Allen Hamilton

Ms. Emily Grubbs spent eight years on active duty in the U.S. Navy as a Surface Warfare Officer, including two deployments to the SEVENTH Fleet Area of Responsibility. In her experience as a SWO, she saw first-hand how predictive analytics could support sailors at sea in areas as diverse as predictive maintenance, supply chain management, and tactical decision support. She currently leverages her mathematical background and operational experience to create innovative solutions for defense-related decision support. Ms. Grubbs holds a double Bachelor of Science with honors in Mathematics and English Literature from the U.S. Naval Academy, and a Master of Science in Operations Research from the Massachusetts Institute of Technology.

### JESSICA JOHNSON

*Director, STEM and Student Engagement and Curriculum Coordinator, Digital Ship*
Old Dominion University's Virginia Modeling, Analysis & Simulation Center (ODU-VMASC)

Ms. Jessica Johnson is the Director for STEM and Student Engagement and Curriculum Coordinator for Digital Ship at Old Dominion University's Virginia Modeling, Analysis & Simulation Center (ODU-VMASC). She is a doctoral candidate in Educational Psychology, with a degree conferral in June 2022 from Regent University. She also holds an Educational Specialist (Ed.S) degree in Educational Psychology and a Master's in Education (M.Ed) for Curriculum Development and Instruction from Regent University. She graduated from Edinboro University of Pennsylvania with a Bachelor of Science (B.S) in Cognitive Psychology. Prior to joining ODU-VMASC, she was a contracted instructional designer for regional community colleges in Pennsylvania. In addition, she held several appointments within K-12 education as an educator, STEM Coordinator, and Differentiated Instruction Lead Coordinator.

As a cognitive and educational psychologist, she has experience in cognitive science, learner analytics, immersive learning design, and adaptive instructional systems. Her research pertains to autonomous learning in simulation education and training, learning experience design in serious games, and learner feedback loops utilizing various mechanisms of artificial intelligence. She has received over $3.2 million in funding for applied research and development from the Department of Education, Systems Engineering Research Center, U.S. Navy, U.S. Air Force, and Epic Games.

# Certified Modeling and Simulation Professional

## CMSP

## THE DISTINCTION OF A TRUE M&S PROFESSIONAL

## EARNING THE CMSP DESIGNATION WILL GIVE YOU:

- **RECOGNITION** from the M&S community as a leader in the profession
- **VALIDATION** of your skills, knowledge, experience, and expertise
- **OPPORTUNITIES** for professional advancement and career growth

Requirements include meeting the education and work experience criteria, professional letters of recommendation, and successful completion of an online examination.

For more information, please visit **NSTA.org/CMSP** or contact Carol Dwyer at **cdwyer@NTSA.org**

## NATIONAL MODELING & SIMULATION COALITION

The National Modeling & Simulation Coalition (NMSC) is an unincorporated, voluntary, nonprofit coalition sponsored by and composed of government, industrial and educational organizations and professional societies having a common interest in promoting and leveraging M&S to better the human condition and to strengthen the National well-being. The mission of the NMSC is to create a unified national community of individuals and organizations around the M&S discipline and professional practice and to be the principal advocate for M&S.

## ECOSYSTEM OF LEARNING

NTSA's EcosySTEM of Learning spans the lifecycle of learning. Opportunities abound for elementary and secondary students, college students, and the workforce to experience modeling and simulation through science, technology, engineering, and mathematics experiences. The four cornerstones of the program provide varying ways to engage with others in the modeling and simulation industry, through focused workshops, industry visits, and outreach encounters, the Discovery Den at I/ISTEC and career investment opportunities to include scholarship and career fairs. These events, occurring throughout the year, support learning at all levels, as well as professional development and workforce engagement.

## PATIENT SAFETY INITIATIVE

Several years ago, NTSA launched an initiative to address the alarming statistics related to active and latent errors in healthcare which affect patient safety. Training through simulation has been shown to minimize errors and improve performance for healthcare workers in high stress environments. A working group was established to delve deeper into ways that simulation can improve patient safety and thus lessen the number of errors in the patient care arena. This working group holds regular meetings and has established a campaign through the Modeling and Simulation Congressional Caucus to raise awareness of this issue, and establish legislation to support the application of modeling and simulation to this critical need.

## 2022 M&S LEADERSHIP SUMMIT –THE METAVERSE

**June 14, 2022**
Orlando, FL

## TRAINING & SIMULATION INDUSTRY SYMPOSIUM (TSIS) 2022

**June 15 – 16, 2022**
Orlando, FL

## 2022 M&S LEADERSHIP SUMMIT – TELE–SIMULATION IN HEALTHCARE

**July 13, 2022**
Washington, DC

## CAPITOL HILL M&S EXPO

**July 14, 2022**
Washington, DC

## IFEST 2022

**August 16 – 18, 2022**
Alexandria, VA

## INTERSERVICE/INDUSTRY TRAINING, SIMULATION & EDUCATION CONFERENCE (I/ITSEC) 2022

**November 29 – December 2, 2022**
Orlando, FL

## MODSIM WORLD 2023

**May 2023**
Norfolk, VA

NTSA.org/Events

**NTSA** | NATIONAL TRAINING & SIMULATION ASSOCIATION

## Discover the many benefits of NTSA corporate membership

Corporate members of NTSA receive early space selection and discounts on exhibits space at I/ITSEC. Whether you are a large or small company, there is an NTSA membership option for you.

## Corporate Membership Options

### Sustaining

- $5,000 in dues
- First choice of booth space (during I/ITSEC)
- 10% discount on booth space for I/ITSEC (Maximum discount = $5,000)
- Seat on Executive Committee and Invitation to M&S Awards Dinner
- Additional exposure at I/ITSEC

### Regular

- $1,250 to $3,750 in dues (depending on # of employees involved in training and/or M&S)
- Second round of booth space selection (in early to mid-February)
- 5% discount on booth space for I/ITSEC (Maximum discount = dues amount paid)

### Associate

- $500 in dues; designed for smaller companies
- Third round of booth space selection (in late February)
- No discount on booth space for I/ITSEC

**All corporate members of NTSA receive these core benefits:**

- Reduced registration fees for all employees for all NTSA & NDIA events
- Member listing with hyperlink on the NTSA website
- NTSA's monthly e-newsletters
- National Defense, NDIA's award-winning magazine
- Opportunity to participate in various NTSA and I/ITSEC initiatives

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## Main Ballroom Pre-Function



service

exit

Main Salon H
Lunch

Main Salon G
Lunch

Main Salon F
Lunch

Main Salon E
General Sessions

Main Salon D
General Sessions

Main Salon C
Paper Sessions

Main Salon B
Paper Sessions

Main Salon A
Paper Sessions

exit

exit

exit

exit

exit

**Main Salon Foyer**

15 14 13 12 11 10 9  7  6 5 4 3 2 1

exit

exit

elevator lobby

registration

Paul D. Fraim Center for Excellence
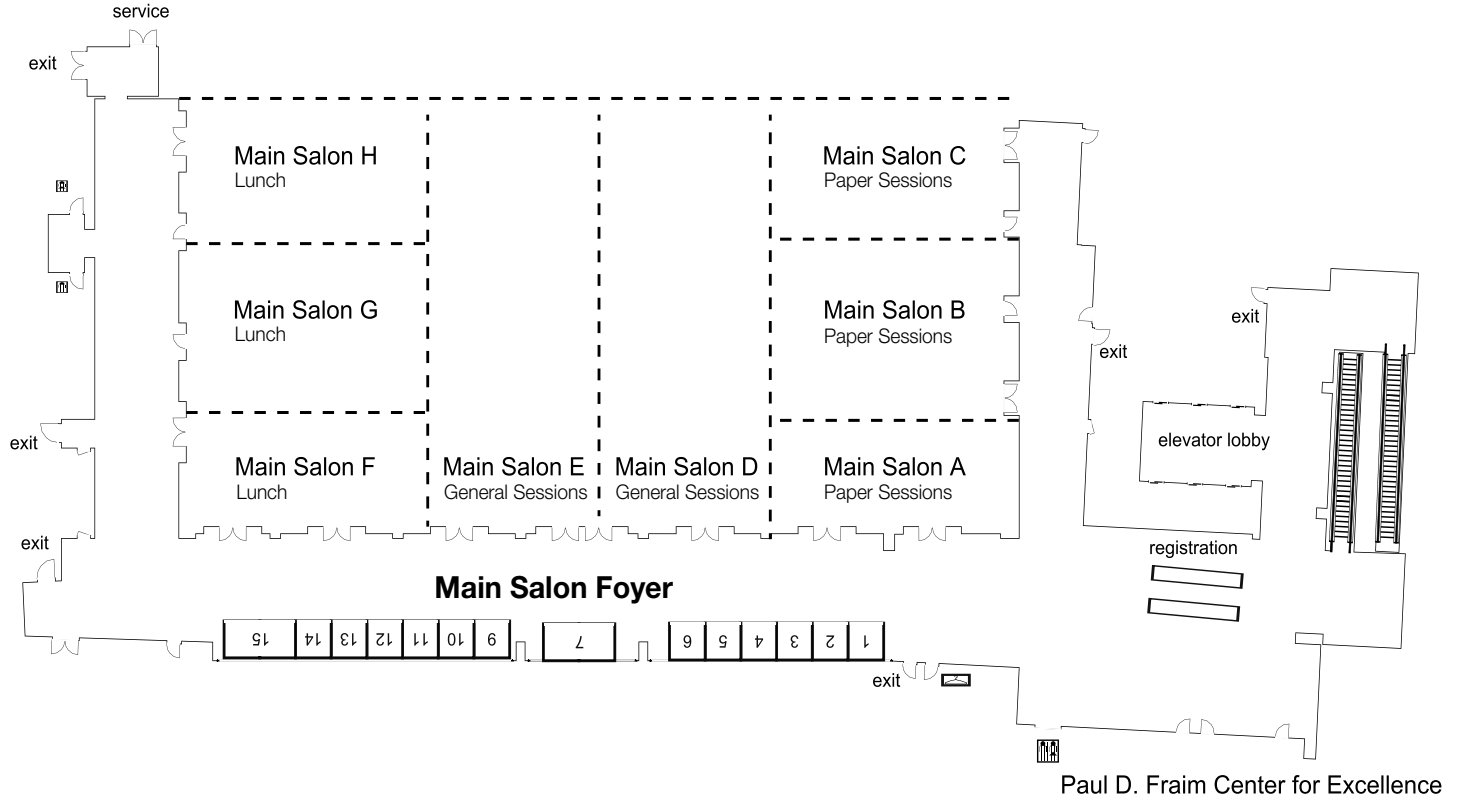
# EXHIBITORS BY COMPANY

## ALLEN & COMPANY – SURVEYING, MAPPING & GEOSPATIAL SERVICES          13

Allen & Company is a technology-driven surveying, mapping and geospatial services company with offices in Orlando and Dallas. Our team of more than 120 professionals is led by licensed land surveyors in multiple states and actively provides Aerial, Land Surface, Subterranean, and Hydrographic surveying solutions. Our Advanced Technologies team specializes in 3D Laser Scanning, Terrestrial and Airborne Photogrammetry, and Aerial LIDAR services. Our data sets are easily integrated into software packages for the development of Digital Twins in use by design teams and MODSIM industry clients. Along with supporting the needs of DoD facilities and MODSIM community locally and nationally, our teams also serve the Architecture, Engineering, Construction, Development, Commercial Real Estate, Healthcare, Resorts and& Hotels, Theme Parks, and Power Generation and Transmission industries. allen-company.com

## BLACKSHARK.AI          11

**NTSA** Corporate Member

The blackshark.ai geospatial platform extracts insights about the planet's infrastructure from current satellite and aerial imagery via machine learning at global scale. Missing attributes are enriched by AI to provide a photorealistic, geo-typical, or asset specific 3D digital twin including terrain data, buildings, vegetation and more. Results can be used for visualization, simulation, mapping, mixed reality environments, and other enterprise solutions. Massive cloud-computing capability enables rapid updates at any time. blackshark.ai

## BMK VENTURES, INC.          6

BMK Ventures, Inc. is a certified Service Disabled Veteran Owned Small Business (SDVOSB) based in Virginia Beach, VA. The company's mission is to provide our customers with innovative products, training services, and procurement options. Our goal is to provide fast, efficient, and dependable service to fulfill our customers' unique needs.

BMKV is a strong team of experienced personnel with different areas of expertise ranging from retired military corpsmen, first responders, project managers, medical simulation trainers, logistics officers, and procurement specialists. With over 200 years of combined industry experience, BMKV is capable of responding to our customers' requirements. BMKV offers multiple procurement options and custom solutions to better serve our warfighters, first responders, and medical personnel. bmkventures.com

## DESIGN MILL, INC.          9

Design Mill is a strategic systems integrator delivering pioneering solutions for the Department of Defense and industry-leading organizations. A three-time recipient of the Intel Software Innovator of the Year award, Design Mill continues to develop cutting-edge hardware and software solutions. designmillinc.com

## FLEXSIM SOFTWARE PRODUCTS, INC.          12

FlexSim is a 3D discrete event simulator used to model production, warehouse, distribution center, hospitals and supply chain systems. By using FlexSim, efficiencies – increased throughput and decreased costs – can be identified, tested, and proved prior to implementing them in the actual system. flexsim.com

## HII          7

**NTSA** Corporate Member

HII is a global engineering and defense technologies provider, and recognized worldwide as America's largest shipbuilder. With a 135-year history of trusted partnerships in advancing U.S. national security, HII delivers critical capabilities ranging from the most powerful and survivable naval ships ever built, to unmanned systems, ISR and AI/ML analytics. HII leads the industry in mission-driven solutions that support and enable an all-domain force. hii.com

## IMPROBABLE U.S. DEFENSE & NATIONAL SECURITY          5

**NTSA** Corporate Member

Based in Washington, DC, Improbable U.S. Defense & National Security is a subsidiary of the London-based technology company, Improbable. Our synthetic environment development platform supports synthetic environments of unprecedented scale, fidelity, and complexity. defense.improbable.io

## QUANTUM3D          4

**NTSA** Corporate Member

Quantum3D, headquartered in Milpitas, CA, in the heart of Silicon Valley, is a leading developer and manufacturer of real-time visual simulation systems and provider of realistic 3D Graphics Solutions for applications requiring low to high-end imagery for Military and Civilian customers. quantum3d.com

## SIMIS, INC.     2

SimIS Inc., founded in 2007, is an innovative information technology Veteran Owned Small Business (VOSB). SimIS is led and managed by industry professionals with career experience, determination, and balanced business insight. We are a Values-driven company specializing in Modeling and Simulation Training, Test and Evaluation, Autonomous Solutions, Information Assurance, and Cyber Security.

SimIS provides clients quality and innovative information technology solutions that will model the future and secure the enterprise, in order to sustain corporate growth and provide a challenging and rewarding environment for employee success.

Our performance standard is "excellence," with outcome-based quality focus in our services and products, guided by our core values of honesty, relationships, teamwork, loyalty, and importance of others. simsinc.com

## SITESCOUT 360     10

SiteScout 360 specializes in rapidly collecting accurate on-site measurement data to produce 360 video walkthroughs, floor plans, and models for indoor and outdoor digital twins for Mod/Sim projects. From simple to complex sites, we capture the data and information you need to complete your projects faster, more efficiently, and at lower cost, increasing your project bottom line.

For the past 15 years, we have provided 3D modeling and rapid on-site data collection support as well as built space management and planning software applications for the US Navy and Architecture & Engineering firms. SiteScout360.com

## TECH WIZARDS, INC.     1

**NTSA** Corporate Member

Tech Wizards, Inc. (TWI) is a small business founded in 2005 and is based in Dahlgren, VA. TWI supplies systems, software, and cyber security services to DOD. TWI is a US Navy Surface Training Advanced Virtual Environment (STAVE) solutions provider. tech-wizards.com

## TOBII     3

Tobii is the global leader in eye tracking and pioneer of attention computing. We are on a mission to improve the world with technology that understands human attention and intent. Creating tech for a better future, our technologies and solutions apply to areas such as pilot training, cabin crew training, maintenance training, and many more. tobii.com

## VIRGINIA MODELING, ANALYSIS AND SIMULATION CENTER (VMASC)     15

**NTSA** Corporate Member

VMASC is a multidisciplinary applied research and enterprise research facility of Old Dominion University, located in Suffolk, VA. We provide modeling & simulation, analytic research, and technological support for partners across industry, government, and community sectors. vmasc.org

## EPIC GAMES     SPONSOR

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Epic Games' Unreal Engine is the world's most open and advanced real-time 3D tool. Creators across games, film and television, architecture, automotive, manufacturing, live events, simulation and other industries choose Unreal to deliver cutting-edge content, interactive experiences, and immersive virtual worlds. Follow @UnrealEngine and download Unreal for free at unrealengine.com.

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SAIC® is a technology integrator offering solutions in engineering, digital, artificial intelligence, and mission solutions. Headquartered in Reston, Virginia, SAIC has approximately 26,000 employees. saic.com



**Virginia Modeling, Analysis & Simulation Center**

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# ABOUT MODSIM WORLD

**MODSIM WORLD** a unique multi-disciplinary conference for the exchange of modeling and simulation knowledge, research and technology. This event joins theory and practice across industry, government and academia; providing for an open interchange of information, knowledge and technology.

**MODSIM WORLD** began in 2007 with the creation of the Center for Public and Private Partnership (CP3), a non-profit corporation that drew membership from the M&S industry and community leaders in Hampton Roads, Virginia. In November 2014 the CP3 changed its name to Virginia Modeling and Simulation Partnership (VMSP), by vote of the Board of Directors. VMSP saw the interest and need to share information about the vast amount of M&S based development occurring in the Hampton Roads area, including work based at Joint Forces Hampton Roads, Virginia Modeling, Analysis and Simulation Center (VMASC), Eastern Virginia Medical School (EVMS), NASA Langley Research Center, and many other regional government, academic, and industry organizations. Now sponsored and managed by the National Training and Simulation Association (NTSA), MODSIM has been held annually since.

Specific focus areas of the conference vary from year to year, based upon current events and interest level. The 2022 conference tracks are Community, Industry, and Security.

## MODSIM VISION
MODSIM World will become the premier international conference and exposition for collaboration and transfer of M&S knowledge, new research, development, and applied technology across all public and private sectors.

## MODSIM MISSION
- To promote the initiation, development and research of M&S among all organizations internationally.

- To share the latest technical expertise, knowledge, applications, and capabilities of simulation technology by academia, industry, and government.

- To promote cooperation among academia, industry, and government, applying M&S technologies to help organizations anticipate and prepare for the future.

- To improve M&S technology to reduce its implementation cost by academia, industry, and government.

- To support planning, decision-making and real time operations management with state-of-the-art computer software and development expertise utilizing modeling and simulation.

- To foster the transfer of leading edge simulation technology and knowledge from the military community to the medical, transportation, homeland security, and other applicable communities.

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## OPENING RECEPTION



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## NATIONAL TRAINING AND SIMULATION ASSOCIATION

The National Training and Simulation Association (NTSA) is America's premier organization representing the interests of the modeling and simulation community worldwide. As such, it serves as a constant point of contact for government, academia, industry, research organizations and the military to exchange information, share knowledge, align business interests and in general stimulate growth and overall advancement of the industry. NTSA pursues these goals through a series of conference, meetings and exhibitions throughout the year. NTSA produces The Interservice/Industry Training, Simulation and Education Conference (I/ITSEC), which is the world's largest conference and exhibition dedicated to modeling and simulation. While NTSA primarily serves the North American community of practice, many of its members and participants are non-US. NTSA is a key member of the International Training and Simulation Alliance (ITSA), a worldwide group of simulation associations that promotes knowledge and information about training and simulation worldwide.

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