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WELCOME ATTENDEES OF I/ITSEC 2023!

Welcome to I/ITSEC 2023! It's been quite a journey to get this amazing conference ready for all attendees. I, along with Program Chair, Dr. Anne Little, the lead service, led by the Program Executive Officer for Simulation, Training and Instrumentation (PEO STRI), Ms. Karen D. H. Saunders, SES, (USA), Service Principal Ms. Debra Dawson (USA), and RADM James Robb, USN (Ret.), President, National Training and Simulation Association (NTSA) have worked diligently with the conference committee to put together a program rich in content and deep in expertise, across a broad range of topics.

There are many other folks who have put in tireless efforts such as service executives Captain Tim James (USN), Colonel Marcus Reynolds (USMC), Colonel Matt Ryan (USAF), and Gregory Knapp (OSD) as well as service principals Mr. Kent Gritton (USN), Ms. Carol Byers-Bendle (USMC), Mr. Heath Morton (USAF), and Mr. Frederick Engle (OSD). I also want to recognize the 300+ volunteers from industry, government, and academia, as well as the incredible staff at the NTSA, led by Ms. Debbie Langelier, who devote their time to put this incredible event together. The work started the day after I/ITSEC 2022 and continued throughout the 2023 calendar year as we moved from reviewing initial submissions for papers, tutorials, workshops, and special events to finalizing the exact days and times of each session and/or event. I can't thank the entire team enough for their tireless efforts and support. All together we have developed a content-rich and engaging program of which I am extremely proud.

This year's theme, *Sustaining a Global Force in a Digital World*, will carry through many of the offerings at the conference. In our current world, technological advancements seem to be coming out almost daily. From Generative Artificial Intelligence (AI) to extended reality (XR), our increasingly connected and digital world seems to be throwing capabilities and challenges at us at breakneck speed. This leads to some difficult questions that the M&S community must rise to answer. How do we keep our warfighters prepared? What are we doing today in testing, training, and information operations that gives us a technological edge over our adversaries? How do we maintain superiority in a multi-domain operational environment? How do we maintain our readiness while simultaneously continuing to modernize? While predicting the future seems absurd in our current time of technological disruptions, it must continue to be done. The actions we take today will influence our results in the future. Even through all the advancements, we must put people first with a focus on technological developments in the context of increasing the capabilities of our warfighters and first responders.

I/ITSEC is the event where the challenges, people, technologies, and innovative methods come together. While much of the focus is on our warfighters and first responders, nothing advances without an effective synergy between people from government, industry, and academia. All of your different perspectives are critical to addressing the challenges in engineering, medicine, manufacturing, education, psychology, etc. for our warfighters, first responders, and society. As you see old friends and make new acquaintances this week, share your knowledge and insights so we can continue pushing modeling and simulation (M&S) to new levels.

Welcome to I/ITSEC 2023!

Eliot Winer, Ph.D.
2023 I/ITSEC Conference Chair

WELCOME ATTENDEES OF I/ITSEC 2023!

Welcome to I/ITSEC – the world's largest modeling and simulation (M&S) event. This year's conference provides a full five-day program. In the pages that follow, you will find opportunities to hear from leaders investigating the latest challenges and developments within our community. As you examine what is offered, I'm sure you will see why I/ITSEC 2023 is the place to be.

This year's lead service, the United States Army, in collaboration with NTSA, the Service Executives and Principals, and the combined total of more than 300 volunteers from industry, government, and academia have worked the last year to prepare this program. Our theme, *Sustaining a Global Force in a Digital World*, directs our community to consider the human within digital environments and how digital technologies support global military readiness. We are challenged to use human-centered approaches to implement digital advancements that improve future training systems. We are also challenged to consider sustainability from multiple perspectives; disruptive technologies that deliver a future capability today must not hinder the capabilities of tomorrow. Our program provides hundreds of opportunities to engage in all aspects of this theme.

Please take some time to create your personal itinerary to maximize your engagement over the week. Monday kicks off with 31 Tutorials. These skill-building sessions are 90-minutes and this year's topics include Learning Engineering, Generative AI, and many others. We also offer Tutorials focusing on foundational topics, so if you are new to our community, you can find value attending Tutorials discussing LVC, M&S Verification and Validation, and xAPI Essentials.

Monday also kicks off the first of 42 special events with the Congressional M&S panel. This is annually a standing-room only event to hear from the Congressional Caucus. Members discuss their perspective on the situation in Washington and how they make the case for timely investments in M&S.

You will not want to miss the opening ceremonies on Tuesday morning to hear from our keynote speakers from the U.S. Army and Dr. Douglas Bowman, the Director of the Center for Human-Computer Interaction at Virginia Tech. This will be followed by our Senior Leader Panel of representatives from U.S. Military Services and OSD. This panel will discuss opportunities and challenges of accelerating technology as our collective services continue to prepare for a wide array of missions from disaster assistance to the return of great power competition.

The 147 Paper Sessions offered Tuesday, Wednesday, and Thursday pack information from a series of topics across six content tracks into 20-minute presentations. Each delivers current findings in critical areas such as cyber, AI, mixed reality, and how they support training and other readiness initiatives. Attendees have a unique opportunity to hear new perspectives on emerging technologies, including what has been uncovered by the latest research or implications to policy. Be sure to attend our Best Paper nominee presentations on Tuesday afternoon.

This year's slate of Special Events includes Signature Events that may be familiar if you have attended the conference before – particularly the Service's Flag and General Officer panels, and the I/ITSEC Fellows presentation. Service acquisition officials will brief opportunities for industry, and we have added a new Senior NCO panel to discuss operational readiness and mission rehearsal. The "Next Big Thing" events will again include a series of panels discussing government CTO's and CLO's visions for the future, 5G and NextG, and accelerating the adoption of AI for MS&T.

Be sure to plan enough time to walk the exhibit hall – approximately 200,000 square feet with over 450 companies, the Cyber Pavilion, Serious Game Showcase, and the EcosySTEM of Learning booths.

I/ITSEC closes with eight Professional Development Workshops on Friday. Each half-day event provides an in-depth treatment of a current, relevant topic. Consider attending to learn about AI for simulation-based training, serious game design, or how to prepare for the Certified Modeling and Simulation Professional exam.

Finally – did you know there is an I/ITSEC 2023 app? The entire program is available there. You can use it to highlight sessions you want to attend, companies you want to see, and network with other members of this great community. It's a great tool to help you see everything of interest to you.

Have a great week!

Anne Little, Ph.D.
I/ITSEC 2023 Program Chair

U.S. ARMY FIRESIDE CHAT

MODERATOR

HON. KATHARINA "KATRINA" G. McFARLAND, PH.D.
Vice Chair, Army Science Board
Former Assistant Secretary of Defense for Acquisition
Former Acting Assistant Secretary of the Army (Acquisition, Logistics & Technology)

SPEAKERS

HON. DOUGLAS R. BUSH
Assistant Secretary of the Army (Acquisition, Logistics and Technology)

THE HONORABLE DOUGLAS R. BUSH was confirmed by the United States Senate as the Assistant Secretary of the Army for Acquisition, Logistics, and Technology (ASA(ALT)) on February 9, 2022. He took office on February 11, 2022. In this position, he serves as the Army Acquisition Executive, the Senior Procurement Executive, the Science Advisor to the Secretary of the Army, and the Army's Senior Research and Development official. He also has principal responsibility for all Department of the Army matters related to logistics. Mr. Bush leads the execution of the Army's acquisition function and the acquisition management system. His responsibilities include providing oversight for the life cycle management and sustainment of Army weapon systems and equipment from research and development through test and evaluation, acquisition, logistics, fielding, and disposition. He is also responsible for appointing, managing, and evaluating program executive officers and managing the Army Acquisition Corps and Army Acquisition Workforce. In addition, he oversees the Elimination of Chemical Weapons program. From March 8, 2021 to September 24, 2021, Mr. Bush served as the Acting Assistant Secretary of the Army for Acquisition, Logistics and Technology (ASA(ALT)) following his appointment as the Principal Deputy Assistant Secretary of the Army for Acquisition, Logistics and Technology. From 2019-2020, Mr. Bush served as the Deputy Staff Director of the House Armed Services Committee (HASC). In this position, he managed all aspects of HASC administrative and legislative operations, including committee personnel and operations, emergency and safety procedures, the committee's budget, member and staff travel, and classified information management. He oversaw operations of 70 members of House Armed Services Committee staff working in support of 57 members of Congress serving on committee responsible for oversight of the Department of Defense. From 2007-2019, as a Professional Staff Member of the HASC, Mr. Bush was the lead staff member responsible for analysis and oversight of a wide range of Army, Marine Corps, Air Force, and Navy combat system acquisition programs, with a focus on minimizing cost growth, delays, and shortfalls in delivered capability. Aviation programs overseen included fighter and reconnaissance aircraft, unmanned aerial systems, and air-launched missiles and munitions. Ground systems overseen included tanks, infantry fighting vehicles, amphibious systems, ammunition, small arms, and communications/network equipment programs.

GENERAL GARY M. BRITO, USA
Commanding General, U.S. Army Training and Doctrine Command (TRADOC)

GENERAL GARY M. BRITO assumed duties as the 18th Commanding General, United States Army Training and Doctrine Command (TRADOC), on September 8, 2022. He is responsible for building and sustaining a highly trained, disciplined, and fit Army by: acquiring the best people, training the most lethal Soldiers, developing the most professional leaders, guiding the Army's culture, and shaping the future force. General Gary M. Brito is a native of Hyannis, Massachusetts, commissioned as an Infantry Officer through Penn State University, and entered active duty in March 1987. He is a graduate of the Infantry Officer Basic and Advanced courses, Airborne and Ranger Schools, Combined Arms Staff Services School, Command and General Staff Officers Course, and Senior Service College at the Joint Advanced Warfighting School (JAWS), Norfolk, Virginia. He holds a Bachelor of Science degree in Community Studies from Penn State University, a master's degree in Human Resource Management from Troy State University, and a second master's degree in Joint Strategy and Campaign Planning from the Joint Advanced Warfighting School. He is also a graduate of the MIT Seminar XXI Program. General Brito has served in a variety of command and staff assignments throughout his career. Previous assignments include: U.S. Army's 49th Deputy Chief Staff, G-1; Commanding General, Joint Readiness Training Center (JRTC) and Fort Polk; Deputy Commanding General for Sustainment, then later Operations, 25th Infantry Division; Director, Force 2025 and Beyond, US Army Capabilities and Integration Center (ARCIC), TRADOC; and Operations Officer (G3) for III Corps, Fort Hood, Texas. In that capacity, he deployed and served as the Deputy Director, Afghanistan National Security Forces (ANSF) Development, International Security Assistance Force (ISAF) Joint Command in Kabul, Afghanistan; Commander, 120th Infantry Brigade, First Army; Commander, 1st Battalion, 15th Infantry Regiment, 3d Brigade, 3d Infantry Division; Operations Officer (S3), 2d Battalion, 8th Infantry Regiment; and later as the Brigade Operations Officer (S3), 2d Brigade, 4th Infantry Division. Additionally, he served as the Aide-de-Camp to the III Corps Commanding General, Fort Hood, Texas; and Chief, Commander's Planning Group (CPG) and interim Executive Officer to the Commanding General, TRADOC. He has twice served at the National Training Center, Fort Irwin, California: first as a Company/Team and Battle Staff Observer/ Controller and later as a Senior Battalion and Brigade Combat Team Trainer. He served in multiple company grade positions at Fort Benning, Georgia, and has deployed to both Iraq and Afghanistan. His awards and decorations include the Distinguished Service Medal (with 1 Bronze Oak Leaf Cluster), Legion of Merit (with Silver Oak Leaf Cluster), Bronze Star Medal (with 1 Bronze Oak Leaf Cluster), Defense Meritorious Service Medal, Army Commendation Medal for Valor, Army Commendation Medal (with 4 Bronze Oak Leaf Clusters), Combat Infantryman Badge, and the Expert Infantryman Badge.

INDUSTRY KEYNOTE

**DOUG A.
BOWMAN, PH.D.**
Frank J. Maher
Professor of Computer
Science, Virginia Tech

DOUG A. BOWMAN, PH.D., is the Frank J. Maher Professor of Computer Science and Director of the Center for Human-Computer Interaction at Virginia Tech, where he has served as a faculty member since 1999. He is the principal investigator of the 3D Interaction Group, which performs fundamental research on the topics of three-dimensional user interfaces, user experience in virtual reality (VR) and augmented reality (AR), and the benefits of immersion in virtual environments, in addition to projects applying VR/AR to domains as diverse as construction, history, education, and military training/operations. His work has been supported by grants from the Office of Naval Research, National Science Foundation, National Endowment for the Humanities, Defense Advanced Research Projects Agency, and companies including Microsoft, Adobe, Google, and Facebook. He and his students (including 22 Ph.D. graduates) have contributed over 200 peer-reviewed papers to the scholarly literature, and these papers have been cited nearly 20,000 times.

Doug's most widely-cited work is the book 3D User Interfaces: Theory and Practice, which grew out of a series of tutorials and short courses on 3D UIs organized by Doug and his co-authors. The book is in its second edition (2017) , and is still considered one of the go-to reference books in the field. Other notable contributions include the HOMER interaction technique, the fidelity framework for describing the realism of VR systems, the progressive refinement approach to 3D selection, the AR simulation methodology for studying future augmented reality systems, and the Glanceable AR concept. He is the recipient of numerous research awards, including membership in the inaugural class of the Virtual Reality Academy, the ISMAR Career Impact Award, the IEEE VGTC Technical Achievement Award in VR, ACM Distinguished Scientist recognition, and an NSF CAREER Award.

Service to his professional and university community is also an important part of Doug's career. He has been deeply involved with the IEEE Conference on Virtual Reality and 3D User Interfaces (IEEE VR) for his entire career, serving as program chair, general chair, steering committee member and chair, and co-founder of the 3D UI Symposium. He has also served as Associate Editor and Associate Editor-in-Chief of IEEE Transactions on Visualization and Computer Graphics, one of the top journals in the field, and chair of the IEEE VGTC Virtual Reality Best Dissertation Committee. At Virginia Tech, his primary service role since 2011 has been as Director of the Center for Human-Computer Interaction, a research center facilitating interdisciplinary research on the human aspects of technology design and use. CHCI serves faculty members and students from computing, human factors engineering, art, and design disciplines, as well as a wide variety of application domains.

Doug's undergraduate degree in mathematics and computer science is from Emory University, and his master's and Ph.D. are from Georgia Tech. In addition to his work at Virginia Tech, Doug completed sabbatical years at UC Santa Barbara and at Apple, and has consulted for Walt Disney Imagineering R&D. He and his wife Dawn have five children, who are rapidly starting to leave the nest. They are looking forward to future opportunities for service at their church, travel, and competitive pickleball.

SENIOR LEADER PANEL

**BRIGADIER GENERAL
GUY WALSH, USAF (RET.)**
Executive Vice President and
Chief Operating Officer, NDIA

YOUNG BANG, SES
Principal Deputy, Assistant
Secretary of the Army,
Acquisition, Logistics and
Training ASA (ALT)

**LIEUTENANT GENERAL
KEVIN M. IIAMS, USMC**
Commanding General, Training
and Education Command,
USMC

CAROLINE BAXTER
Deputy Assistant Secretary of
Defense (DASD) for Force
Education and Training,
USD P&R

**BRIGADIER GENERAL
ANDREW J. LEONE, USAF**
Mobilization Assistant to the
Military Deputy, Office of
the Assistant Secretary of the
Air Force for Acquisition,
Technology and Logistics

**REAR ADMIRAL DOUGLAS
VERISSIMO, USN**
Commander, Naval Air Force
Atlantic

Global forces continue to be challenged by erratic budgets and complex threats. Services continue to prepare for a wide array of missions that range from disaster assistance to the return of great power competition. Additionally, nations continue to deal with the opportunities and challenges of accelerating technology and cybersecurity. Our Senior Leader Panel will address current and future environments within the context of this year's conference theme, *Sustaining a Global Force in a Digital World*. This year's panel will include senior representatives from U.S. Military Services and OSD. Following opening remarks, the audience will interact with the panel through Q&A. All attendees will also have the chance to submit questions in advance. Don't miss the opportunity to hear from national leaders on the way ahead.

CONFERENCE LEADERSHIP

CONFERENCE CHAIR

ELIOT WINER, PH.D.
Iowa State University

I/ITSEC 2023
Conference Chair

ELIOT WINER, PH.D., is currently director of the VRAC – Visualize • Reason • Analyze • Collaborate (www.vrac.iastate.edu), a professor in the Departments of Mechanical Engineering (main), Electrical and Computer Engineering (courtesy), the Department of Aerospace Engineering (courtesy), and a faculty member of the Human Computer Interaction Graduate Program at Iowa State University. He received a B.S. in Aerospace Engineering from The Ohio State University in 1992 and M.S. and Ph.D. degrees in Mechanical Engineering from the University at Buffalo in 1994 and 1999. He teaches courses on mechanical systems design, optimization, and professional ethics. Dr. Winer has over 25 years of experience working in modeling, simulation, and training (MS&T). His research interests include large-scale collaborative design methods; machine learning, visualization, and interaction with large data sets (i.e., "Big Data"); multidisciplinary design analysis and optimization; computer-aided design and 3D graphics; and extensive application of extended reality (XR) technologies. Dr. Winer is a proven leader in this field having served in leadership positions in academia, major conferences, and multiple startup companies.

PROGRAM CHAIR

ANNE LITTLE, PH.D.
SAIC

I/ITSEC 2023
Program Chair

ANNE LITTLE, PH.D., is the Director of Customer Experience Solutions at SAIC in Reston, VA. Anne joined SAIC in 2017 and during her first six months of employment, she developed an innovative internal training approach that used microlearning videos and adaptive performance assessments to transform the annual compliance training. The program was launched across the enterprise, saving training cost, as well as learner sanity, by reducing the training time by 70%. This solution earned the "Most Innovative Product" award from MS&T Magazine. Anne has also led internal research and design (IRAD) efforts for a variety of product development efforts, most recently a cloud-native video hosting platform for organizational knowledge sharing. Anne has been a member of the I/ITSEC community since 2010, serving as Subcommittee Chair for HSE and ECIT. She also chaired the Knowledge Management subcommittee for four years, supporting NTSA in the selection and launch of a conference management system. She has authored several I/ITSEC papers and was a Best Paper nominee in 2018. She earned her bachelor's degree in mathematics from Purdue University, and her Master of Education and Ph.D., both in instructional technology, from George Mason University.

CONFERENCE SPONSOR

REAR ADMIRAL JAMES ROBB, USN (RET.)
President, National Training and Simulation Association

Following graduation from Rensselaer Polytechnic Institute, designation as a Naval Aviator and training in the F-14 Tomcat, Admiral Robb deployed nine times across the globe accumulating over 5,000 hours and 1,000 carrier landings. Following a tour flying Russian fighters in the Nevada desert, he commanded Fighter Squadron Fifty One, Carrier Air Wing Nine, the Navy Fighter Weapons School (TOPGUN) and Carrier Strike Group Seven. As a Flag Officer he managed all Naval Aviation Programs (N980) and was the Director of Navy Readiness (N43). Following 9/11, he joined US-CENTCOM as the Director of Plans (J5), deploying to the Middle East in support of combat operations. Retiring in 2006, he built a successful small consulting business before joining the National Training and Simulation Association as President in June 2012.

HON. DAVID L. NORQUIST
President and Chief Executive Officer, National Defense Industrial Association

The Hon. David L. Norquist is the President and Chief Executive Officer of the National Defense Industrial Association (NDIA). He has over 30 years of public and private sector experience in national security and federal financial management. This includes serving in three Senate confirmed positions: the Chief Financial Officer (CFO) of the Department of Homeland Security, the Under Secretary of Defense Comptroller/CFO and most recently the 34th Deputy Secretary of Defense. He began his career as a civil servant, supporting Army intelligence as a program/budget analyst with assignments on the Army staff, a major command, a defense agency, and at an overseas field site. Following his time with the Army, Mr. Norquist served for six years with the House Appropriations Subcommittee on Defense as a professional staff member. He later served for eight years as partner with Kearney and Company, a certified public accounting firm focused exclusively on the federal government. Mr. Norquist is a graduate of the University of Michigan, where he received a Bachelor of Arts in Political Science and a Master's Degree in Public Policy. He also holds a Master's Degree in National Security Studies from Georgetown University.

U.S. ARMY SERVICE EXECUTIVE

KAREN D. H. SAUNDERS, SES, is the Program Executive Officer for Simulation, Training and Instrumentation (PEO STRI). She previously served as the Chief of Staff for the Undersecretary of Defense for Acquisition and Sustainment (USD(A&S)). Prior to that, Ms. Saunders served as the Department of Defense's (DoD) Executive Director, Defense Science Board (DSB). In December 2014, Ms. Saunders culminated a 30 year honorable career in the U.S. Army as a Colonel serving as the Chief of Staff for the Assistant Secretary of the Army for Acquisition, Logistics and Technology. Prior to this, she served on the Office of the Secretary of Defense's (OSD) staff as the Military Assistant to the Principal Deputy to the Assistant Secretary of Defense for Research and Engineering. Prior to serving on the OSD staff, she was assigned to the NATO Training Mission – Afghanistan, Combined Security Transition Command – Afghanistan serving as the Chief, Security Cooperation Division; Security Assistance Office. She also served as the Senior Advisor to the Afghan National Army Ministry of Defense Acquisition, Technology, and Logistics Deputy Minister. Ms. Saunders has held command and staff assignments in Military Intelligence and Operations Research and Systems Analysis to include Strategic Intelligence Research Analyst, U.S. Army Concepts Analysis Agency, Bethesda, Maryland; Chief, Intelligence Systems Division, Battle Command Battle Lab – Huachuca; Battalion Executive Officer and Operations Officer, 304th Military Intelligence Battalion and 305nd Military Intelligence Battalion, Fort Huachuca, Arizona.

U.S. NAVY SERVICE EXECUTIVE

CAPTAIN TIM JAMES, USN, assumed command of NAWCTSD/NSA Orlando on 15 June 2023 after serving two years as Executive Officer. Before reporting to NAWCTSD, Tim served 14 years as an Aerospace Engineering Duty Officer (AEDO) leading a variety of acquisition programs and performing executive roles within NAVAIRSYSCOM and USSOCOM. Previous assignments include Deputy Program Manager for Unmanned Carrier Aviation Mission Control System (DPM for UMCS) for PEO(U&W)/PMA-268, Lead Systems Integrator responsible for cross-IPT / cross-program / test / training / advanced development / SYSCOM efforts for PMA-268 Unmanned Carrier Aviation, Military Deputy Director (MilDep) for Cross Warfare Programs (PDX) and Program Manager of Ready Relevant Learning (RRL) overseeing the Sailor 2025 Content Reengineering programs and Naval Service Training Center programs, and for Aviation Programs (PDA) at NAWCTSD helping lead the man-

agement of a $650M portfolio spanning 29 aviation programs, Executive Officer (XO) for the Acquisition Executive (AE) at USSOCOM analyzing the execution of a $3.2B portfolio, Program Manager for twelve Group 1-3 Unmanned Arial Systems for USSOCOM Fixed Wing Program Executive Office, and Assistant Program Manager for Sensitive Activities for Special Operations Forces Warrior Systems (PEO(SW)). Prior to his AEDO designation, CAPT James served as a Flag Aide, an Officer in Charge of a Maritime Expeditionary Security Detachment, and a pilot for the S-3 Viking Anti-submarine Warfare aircraft.

U.S. MARINE CORPS SERVICE EXECUTIVE

COLONEL MARCUS J. REYNOLDS is the Program Manager for Training Systems (PM TRASYS) where he serves as Marine Corps Systems Command's executive agent assigned to manage acquisition and life-cycle support of Marine Corps ground training systems, devices, and training support services. Colonel Reynolds commands a staff of nearly 180 personnel, including Marines, civilians and support contractors located globally with professional expertise across the areas of program management, engineering, training facilities engineering, logistics, instructional systems design, procurement, contract management, cost estimation, budget and financial management, live, virtual, constructive integration, and business operations. In addition to multiple combat deployments in support of Operation Iraqi Freedom and Operation Enduring Freedom, Colonel Reynolds served a year as an Executive Fellow at Microsoft Corporation in Washington, D.C., through the Secretary of Defense Executive Fellowship Program. His research papers on mixed reality were published in the Marine Corps Gazette and in the U.S. Naval Institute's Proceedings Magazine. He holds an Associate of Science in Drafting & Design Technology, a Bachelor of Science in Industrial Technology from West Virginia Institute of Technology, and a Master of Science in Project Management from Colorado Technical University. His personal decorations include the Bronze Star Medal, Meritorious Service Medal with one gold star, Joint Commendation Medal, Navy Commendation Medal with one gold star, Navy & Marine Corps Achievement Medal, and the Combat Action Ribbon.

U.S. AIR FORCE SERVICE EXECUTIVE

COLONEL MATT "T2" RYAN, USAF, is the Senior Materiel Leader, Simulators Division. In this role, he leads a team of 600 members, executes a $5.8B portfolio, and is responsible for developing and maintaining 70+ simulator and training systems for nine Major Commands

(MAJCOMs) and multiple FMS partner nations. Col Ryan received his commission from the University of Oklahoma in 1999, completed an M.S. degree in Aerospace Engineering from the University of Dayton, and an M.S. degree in Systems Engineering from the Air Force Institute of Technology at Wright-Patterson. He is a graduate of Air Force Test Pilot School and has served as a Lead Test Flight Engineer, Flight Commander, Director of Operations, and Squadron Commander; program office tours include the Department of the Air Force Rapid Capabilities Office and the Life Cycle Management Center's Special Projects program office; and served in a staff position at Global Reach Programs, Office of the Assistant Secretary of the Air Force for Acquisition, Technology and Logistics.

OSD EXECUTIVE

GREGORY KNAPP supports the U.S. Army Threat Systems Management Office (TSMO), the Office of the Under Secretary of Defense for Research and Engineering and the Office of the Under Secretary of Defense for Personnel and Readiness performing program management, technology and acquisition functions. He provides leadership and expertise in DoD 5G implementation, spectrum research and EW programs, coalition training programs, training infrastructure, and a wide variety of DoD training and technology issues including the air combat training system (ACTS). He provided critical support for the fielding of the Defense Readiness Reporting System and the conduct of the SecDef Nuclear Review. He served as the Vice Deputy Director for Future Joint Force Development, J7, Joint Staff, overseeing Operational Analysis, Chairman's Wargaming, Doctrine Development, Joint Concepts and Experimentation. He was also the Executive Director of the Joint Warfighting Center supporting USJFCOM and was instrumental in establishing the Joint National Training Capability and the Combatant Command Engagement and Training Transformation Program. Mr. Knapp has been a leader in training and technology for over 30 years, leading the development of numerous combat systems, combat system training systems and Navy test programs and is widely recognized as a leader in distributed simulation training technology implementation. He has managed over 50 programs affecting all Combatant Commands, Services, Interagency and Coalition partners.

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MOBILE APP

SERVICE PRINCIPALS

DEBRA DAWSON
U.S. ARMY
Director, Strategic Communications and
Industry Engagement
U.S. Army Program Executive Office
Simulation, Training and Instrumentation
(PEO STRI)

KENT GRITTON
U.S. NAVY
Director, Special Projects
Naval Air Warfare Center Training Systems
Division (NAWCTSD)
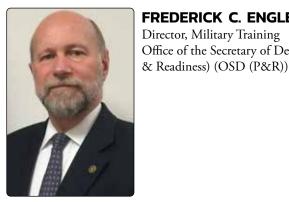
CAROL BYERS–BENDLE
U.S. MARINE CORPS
Future Technology Integrator
Program Manager for Training Systems (PM
TRASYS), Marine Corps Systems Command
(MARCORSYSCOM)

HEATH MORTON
U.S. AIR FORCE
Training Systems Technical Advisor
Air Force Materiel Command (AFMC)

OSD PRINCIPAL

FREDERICK C. ENGLE
Director, Military Training
Office of the Secretary of Defense (Personnel
& Readiness) (OSD (P&R))

SERVICE BOOTHS

USAF	1533
U.S. Army PEO STRI	1539 & 3235
PM TRASYS/TECOM	1433
NAWCTSD/U.S. Navy	1439/349
U.S. Army DEVCOM	3449

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COMMANDS

U.S. ARMY

Army Contracting Command-Orlando	ACC-ORL
Army Modeling and Simulation Office	AMSO
Assistant Secretary of the Army (Acquisition, Logistics and Technology)	ASA (ALT)
Combined Arms Center – Training	CAC-T
Defense Health Agency	DHA
Program Executive Office for Command, Control and Communications – Tactical	PEO C3T
Program Executive Office – Aviation	PEO AVN
Program Executive Office Ground Combat Systems	PEO GCS
Program Executive Office – Intelligence, Electronic Warfare and Sensors	PEO IEWS
Simulation & Training Technology Center	STTC
Synthetic Training Environment Cross Functional Team	STE CFT
Training and Doctrine Command	TRADOC
U.S. Army Combat Capabilities Development Command - Soldier Center	DEVCOM SC
U.S. Army Program Executive Office, Simulation, Training and Instrumentation	PEO STRI
U.S. Army Threat Systems Management Office	TSMO

U.S. MARINE CORPS

Marine Air Ground Task Force Training Command	MAGTFTC
Marine Corps Air Ground Combat Center	MCAGCC
Marine Corps Systems Command	MARCORSYSCOM
Program Manager, Training Systems	PM TRASYS
Training and Education Command	TECOM

U.S. NAVY

Assistant Secretary of the Navy for Research Development and Acquisition	ASN (RD&A)
Center for Naval Aviation Technical Training	CNATT
Commander, Fleet Readiness Centers	COMFRC
Commander, Naval Air Forces	AIRFOR
Commander, Naval Air Atlantic	AIRLANT
Commander, Naval Air Pacific	AIRPAC
Commander, Naval Air Training	CNATRA
Commander, Naval Surface Forces	SURFFOR
Commander, Regional Maintenance Center	CRMF
Naval Air Systems Command	NAVAIR
Naval Air Warfare Center Aircraft Division	NAWCAD
Naval Air Warfare Center Training Systems Division	NAWCTSD
Naval Air Warfare Center Weapons Division	NAWCWD
Naval Air Warfare Development Center	NAWDC
Naval Education and Training Command	NETC
Naval Information Warfare Command	NAVIFOR
Naval Sea Systems Command	NAVSEA
Naval Warfare Systems Command	NAVWAR
Office of Naval Research	ONR
Office of the Chief of Naval Operations	OPNAV

U.S. AIR FORCE

Air Force Agency for Modeling & Simulation	AFAMS
Air Force Life Cycle Management Center	AFLCMC
Air Force Life Cycle Management Center – Simulator Division	AFLCMC/WNS
Air Force Major Commands	MAJCOMs
Air Force Materiel Command	AFMC
Air Force Research Laboratory	AFRL
Department of the Air Force	DAF

U.S. SPACE FORCE

Chief of Space Operations	CSO
Space Operations Command	SPOC
Space Training and Readiness Command	STARCOM
Space Systems Command	SSC
United States Space Force	USSF

OTHERS

Adaptive Instructional Systems Consortium	AIS Consortium
Cybersecurity and Infrastructure Security Agency	CISA
Defense Acquisition University	DAU
Defence Science and Technology Laboratory	DSTL
Department of Homeland Security	DHS
Deputy Assistant Secretary of Defense	DASD
Industry & Standards Organization	ISTO
Institute for Defense Analyses	IDA
Institute of Electrical and Electronics Engineers	IEEE
National Defense University	NDU
NATO Modelling and Simulation Group	NMSG
North Atlantic Treaty Organization	NATO
Secretary of Defense	OSD
Undersecretary of Defense for Acquisition and Sustainment	USD(A&S)
U.S. Special Operations Command	USSOCOM

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WEDNESDAY • 22 NOVEMBER 2023

TIME	SESSION	LOCATION
0800	**EXHIBITOR REGISTRATION OPEN**	WEST CONCOURSE
1700	**EXHIBITOR REGISTRATION CLOSE**	

THURSDAY • 23 NOVEMBER 2023 • CLOSED FOR THANKSGIVING

FRIDAY • 24 NOVEMBER 2023 AND SATURDAY • 25 NOVEMBER 2023

0800	**EXHIBITOR REGISTRATION OPEN**	WEST CONCOURSE
1700	**EXHIBITOR REGISTRATION CLOSE**	

SUNDAY • 26 NOVEMBER 2023

0800	**EXHIBITOR REGISTRATION OPEN**	WEST CONCOURSE
1200	**CONFERENCE REGISTRATION OPEN**	WEST CONCOURSE
1200	**SATELLITE REGISTRATION OPEN**	HYATT REGENCY MAIN LOBBY
1800	**ALL REGISTRATIONS CLOSE**	

MONDAY • 27 NOVEMBER 2023

0700	**CONFERENCE AND EXHIBIT REGISTRATION OPEN**	WEST CONCOURSE
0730	**SATELLITE REGISTRATION OPEN**	HYATT REGENCY MAIN LOBBY
0830 – 1000	**TUTORIALS** (SYNOPSES BEGIN ON PAGE 69)	
	BEST: A History of Games for Military Training: From Sheep Knuckles to the Metaverse	W300 – THEATRE
	TUT 1: Illuminating the ATO Process – Lessons Learned the Hard Way	W307B
	TUT 2: Introduction to Defense Modeling and Simulation	W305AB
	TUT 3: Machine Learning and the Benefits of Applying it to XR Training Systems	W306AB
	TUT 4: IEEE 1278TM Standard for Distributed Interactive Simulation (DIS): Concepts and Techniques	W307C
	TUT 5: Modernize Your Training by Migrating Legacy SCORM Content to cmi5	W307D
	TUT 6: Transportation Systems: A Survey of M&S Applications in Mobility, Sustainability, and Logistics	W308A
	TUT 7: Simulation Conceptual Modeling Theory and Application	W308B
	TUT 8: Machine Learning: An Introduction for Humans	W308C
	TUT 9: Digital Engineering Basic Principles	W308D
	TUT 10: Practical Guide to Learning Engineering	W307A
1030 – 1200	**SIGNATURE EVENT:** Congressional Modeling and Simulation Caucus	W304A-H
1030 – 1200	**TUTORIALS** (SYNOPSES BEGIN ON PAGE 73)	
	BEST: Behind the Screams: M&S Anatomy and Decomposition of a Contemporary Ride System Attraction	W300 – THEATRE
	TUT 1: Keeping Up With U.S. Export Controls in 2023	W307B
	TUT 2: Live, Virtual and Constructive (LVC) Interoperability 101	W305AB
	TUT 3: How to Build at War Time Resilient Online Learning System	W306AB
	TUT 4: Introduction to HLA 4	W307C
	TUT 5: Implementation Strategies for Creating a Sustainable xAPI Data Strategy	W307D
	TUT 6: Evolution of RF Signal Visualization from Spectrum Analyzers to Augmented Reality	W308A
	TUT 7: Making the Case: Building Strong M&S Verification and Validation Evidence	W308B
	TUT 8: Building Trusted AI: An Introduction to Human-AI Trust	W308C
	TUT 9: Finding Fidelity: When You Need It, When It's Too Much, and How to Optimize Simulations for High Training Effect and Low Cost	W308D
	TUT 10: Managing Learning Resources Through Use of Metadata Standards	W307A

1230 – 1400	**COMMUNITY OF INTEREST:** Breaking Into GovCon From a DCAA Perspective	W307B
1245 – 1415	**TUTORIALS** (SYNOPSES BEGIN ON PAGE 77)	
	BEST: Putting the When and Where into Simulations	W300 – THEATRE
	TUT 2: A Process for Distributed LVC Integration and Execution	W305AB
	TUT 3: Getting UX – Understanding UX and How to Acquire It	W306AB
	TUT 4: Using OMG DDS for Secure Interoperability Between Multiple Distributed LVC Simulators	W307C
	TUT 5: Creating a Data Strategy and Learning Analytics	W307D
	TUT 6: Driving Proficiency through Mobile, Immersive, Hands-on eXtended Reality (XR) Training	W308A
	TUT 7: Accreditation of Simulation-Based Experiments: Beyond the M&S	W308B
	TUT 8: Generative AI Applied to Rapid Development of Simulation and Modeling Assets	W308C
	TUT 9: Introduction to Design of Experiments	W308D
1400	**EXHIBITS OPEN**	EXHIBIT HALL
1400 – 1530	**FOCUS EVENT:** Certified Modeling and Simulation Professional 3.0	W307A
1415 – 1545	**FOCUS EVENT:** Black Swan – Dawn of the Super Soldier	W304CDGH
1430 – 1600	**COMMUNITY OF INTEREST:** Human Readiness Levels	W305AB
1600 – 1730	**SIGNATURE EVENT:** 2023 I/ITSEC Fellows Presentation	W300 – THEATRE
1800	**EXHIBITS CLOSE**	
1800	**ALL REGISTRATION STATIONS CLOSE**	

TUESDAY • 28 NOVEMBER 2023

0700	**CONFERENCE AND EXHIBIT REGISTRATION OPEN**	WEST CONCOURSE
0730	**SATELLITE REGISTRATION OPEN**	HYATT REGENCY MAIN LOBBY
0815 – 1000	**OPENING CEREMONIES** Call to Order Presentation of Colors National Anthem Invocation	HYATT WINDERMERE BALLROOM

OPENING REMARKS
Eliot Winer, Ph.D., 2023 Conference Chair

U.S. ARMY FIRESIDE CHAT		**INDUSTRY KEYNOTE**
The Honorable Douglas R. Bush Assistant Secretary of the Army (Acquisition, Logistics, and Technology)	General Gary M. Brito, USA Commanding General U.S. Army Training and Doctrine Command (TRADOC)	Doug A. Bowman, Ph.D. Frank J. Maher Professor of Computer Science Virginia Tech

1030 – 1200	**SIGNATURE EVENT:** Senior Leader Panel	HYATT WINDERMERE BALLROOM
1200	**EXHIBITS OPEN**	EXHIBIT HALL
1200 – 1330	**LUNCH** (Opening of Exhibits and Lunch will occur at 1200 or upon adjournment of the Senior Leader Panel)	EXHIBIT HALL
1400 – 1530	**PAPER SESSIONS** (TITLE/AUTHOR LIST BEGINS ON PAGE 85. SESSION SCHEDULES FOR THIS TIME FRAME ARE ON PAGE 81.)	ROOMS W300 – THEATRE; W307ABC; W308AB
1400 – 1530	**SIGNATURE EVENT:** Army General Officer Panel	W304CDGH
1400 – 1530	**FOCUS EVENT:** Fast-Tracking DoD's Test Capability Development: Connecting the I/ITSEC Community	W304EF
1400 – 1530	**FOCUS EVENT:** Human-Centered Successes and Challenges in AR/VR Development and Implementation	W306AB
1400 – 1530	**FOCUS EVENT:** Best from Around the Globe	W305AB
1600 – 1730	**PAPER SESSIONS** (TITLE/AUTHOR LIST BEGINS ON PAGE 85. SESSION SCHEDULES FOR THIS TIME FRAME ARE ON PAGE 81.)	ROOMS W300 – THEATRE; W307AB; W308AB
1600 – 1730	**SIGNATURE EVENT:** How the Marine Corps is Using the Digital World to Support Training Today and into the Future	W306AB

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Time	Event	Location
1600 – 1730	**SIGNATURE EVENT:** Department of the Air Force General Officer Panel	W304CDGH
1600 – 1730	**SIGNATURE EVENT:** Joint & Multi-National Constructive Training Exercises	W304EF
1600 – 1730	**FOCUS EVENT:** DoD's Real World Digital Twins	W304AB
1600	**SATELLITE REGISTRATION STATION AT HYATT REGENCY CLOSES**	
1700 – 1830	Exhibitor Networking Event	EXHIBIT HALL
1800	**CONVENTION CENTER REGISTRATION CLOSES**	
1800	Senior Leaders Networking Hour and M&S Awards Dinner (INVITATION ONLY)	HYATT REGENCY
1830	**EXHIBITS CLOSE**	

WEDNESDAY • 29 NOVEMBER 2023

Time	Event	Location
0630	5K Walk, Run or Roll Charity Race	OCCC – WEST HALL D
0700	**CONFERENCE AND EXHIBIT REGISTRATION OPEN**	WEST CONCOURSE
0830 – 1000	**PAPER SESSIONS** (TITLE/AUTHOR LIST BEGINS ON PAGE 85. SESSION SCHEDULES FOR THIS TIME FRAME ARE ON PAGE 82.)	ROOMS W307ABCD; W308C
0830 – 1000	**SIGNATURE EVENT:** The Joint M&S Data Initiative	W304EF
0830 – 1000	**SIGNATURE EVENT:** The TalX – 5G and NextG	W304CDGH
0830 – 1000	**FOCUS EVENT:** Fleet Training Officers Panel	W304AB
0830 – 1000	**COMMUNITY OF INTEREST:** Simulation Standards: Delivering Multi-National Interoperability	W305AB
0830 – 1000	**PROGRAM BRIEF:** PM TRASYS – Range Training Systems – Acquisition Update	W306AB
0930	**EXHIBITS OPEN**	EXHIBIT HALL
1030 – 1200	**PAPER SESSIONS** (TITLE/AUTHOR LIST BEGINS ON PAGE 85. SESSION SCHEDULES FOR THIS TIME FRAME ARE ON PAGE 82.)	ROOMS W307ABCD; W308ABC
1030 – 1200	**SIGNATURE EVENT:** Navy Flag Officer Panel	W304AB
1030 – 1200	**SIGNATURE EVENT:** Digital Materiel Management	W305AB
1030 – 1200	**SIGNATURE EVENT:** Train While You Fight: Ukraine as a Touchstone for Training in Future Wars	W300 - THEATRE
1030 – 1200	**SIGNATURE EVENT:** The TalX – Industry Leaders Perspectives on Adoption of Artificial Intelligence	W304CDGH
1030 – 1200	**FOCUS EVENT:** Senior NCO Perspective: Operational Readiness Leveraging Simulations for Training & Mission Rehearsal	W304EF
1030 – 1200	**PROGRAM BRIEF:** PM TRASYS – Synthetic Training Systems – Acquisition Update	W306AB
1200 – 1330	**LUNCH**	EXHIBIT HALL
1300 – 1700	**COMMUNITY OF INTEREST:** NTSA Career Fair At I/ITSEC	W110A
1330 – 1500	**PAPER SESSIONS** (TITLE/AUTHOR LIST BEGINS ON PAGE 85. SESSION SCHEDULES FOR THIS TIME FRAME ARE ON PAGE 83.)	ROOMS W307ABCD; W308ABC
1330 – 1500	**SIGNATURE EVENT:** The Evolution into a Digital Battlefield (Army Digital Transformation)	W304EF
1330 – 1500	**SIGNATURE EVENT:** The TalX – Government Perspectives on Adoption of Artificial Intelligence	W304CDGH
1330 – 1500	**FOCUS EVENT:** Joint Medical Training – Leadership Perspective on Current and Future Capabilities	W305AB
1530 – 1700	**PAPER SESSIONS** (TITLE/AUTHOR LIST BEGINS ON PAGE 85. SESSION SCHEDULES FOR THIS TIME FRAME ARE ON PAGE 83.)	ROOMS W307ABCD; W308ABC
1530 – 1700	**SIGNATURE EVENT:** The TalX – Government CTO/CLO Future Vision	W304CDGH
1530 – 1700	**SIGNATURE EVENT:** Cyberspace – Future Multi-Domain Challenge Perspectives	W300 – THEATRE
1530 – 1700	**PROGRAM BRIEF:** Air Force Acquisition Update	W304AB
1600 – 1730	**FOCUS EVENT:** Digital Transformation & Model Based Systems Engineering (MBSE)	W304EF
1600 – 1730	**FOCUS EVENT:** Army Science Board FY23 Study Findings and Recommendations	W306AB
1800	**ALL REGISTRATIONS CLOSE**	
1800	**EXHIBITS CLOSE**	

THURSDAY • 30 NOVEMBER 2023

Time	Event	Location
0700	**CONFERENCE AND EXHIBIT REGISTRATION OPEN**	WEST CONCOURSE
0830 – 1000	**PAPER SESSIONS** (TITLE/AUTHOR LIST BEGINS ON PAGE 85. SESSION SCHEDULES FOR THIS TIME FRAME ARE ON PAGE 84.)	ROOMS W307ABD; W308AB
0830 – 1000	**FOCUS EVENT:** Revolutionizing Training with Generative AI	W300 – THEATRE

Time	Event	Location
0830 – 1000	**FOCUS EVENT:** Wargaming to Warfighting – Training for the Right Fight Across the Learning Continuum	W306AB
0830 – 1100	**PROGRAM BRIEF:** Army Acquisition Update (TSIS Updates)	W304EF
0830 – 1000	**PROGRAM BRIEF:** Navy Training Systems Program Managers – Program Brief	W305AB
0930	**EXHIBITS OPEN**	EXHIBIT HALL
1030 – 1200	**PAPER SESSIONS** (TITLE/AUTHOR LIST BEGINS ON PAGE 85. SESSION SCHEDULES FOR THIS TIME FRAME ARE ON PAGE 84.)	ROOMS W307ABCD; W308AB
1030 – 1200	**FOCUS EVENT:** Department of the Air Force MAJCOM	W304AB
1030 – 1200	**FOCUS EVENT:** Medical IGNITE: The Latest Innovations in Medical Simulation Across Industry, Academia, and Government	W300 – THEATRE
1030 – 1200	**COMMUNITY OF INTEREST:** Cognitive Augmentation for Military Applications	W306AB
1030 – 1200	**PROGRAM BRIEF:** Navy Training Programs Vision – Program Brief	W305AB
1200 – 1330	**LUNCH**	EXHIBIT HALL
1300	**SERIOUS GAMES SHOWCASE & CHALLENGE AWARDS CEREMONY**	BOOTH 2588
1330 – 1500	**PAPER SESSIONS** (TITLE/AUTHOR LIST BEGINS ON PAGE 85. SESSION SCHEDULES FOR THIS TIME FRAME ARE ON PAGE 84.)	ROOMS W307A; W308AB
1500	**EXHIBIT HALL AND REGISTRATION CLOSE**	
1800	**Hosted Reception** Sponsored by Lockheed Martin Corporation and The Boeing Company	HYATT WINDERMERE BALLROOM
1900	**Conference Awards Banquet** *Reception & Awards*	I/ITSEC 2023 Scholarship Presentations • RADM Fred Lewis Postgraduate Scholarships • Leonard P. Gollobin Postgraduate Scholarships • CMSP Postgraduate Scholarship • Barbara McDaniel Undergraduate Scholarships Best Tutorial Award Presentation Best Paper Award Presentation Passing of the Flag for I/ITSEC 2024 Post Dinner Entertainment and Networking	HYATT WINDERMERE BALLROOM

FRIDAY • 1 DECEMBER 2023

0800 – 1200	**PROFESSIONAL DEVELOPMENT WORKSHOPS** (SYNOPSES ON PAGES 94 – 96)	LOCATION
	PDW 1: Fundamentals of Artificial Intelligence for Simulation-Based Training	W308A
	PDW 2: Certified Modeling and Simulation Professional 3.0	W308B
	PDW 3: Serious Game Design Workshop	W308D
	PDW 4: From the Last of Us to the First of Us: Rebuilding after a Zombie Crisis	W207C
	PDW 5: Demystifying Learning Engineering and Immersive Design: The Workshop	W208A
	PDW 6: Cognitive Load Assessment During Training in Immersive Environments	W208B
	PDW 7: Using DDS for Distributed Training Simulators	W308C
	PDW 8: Disrupt, Design, Deploy: A Human-Centered Approach to Learning and Development	W208C

DRESS CODE

BRANCH	CONFERENCE AND GENERAL SESSIONS	BANQUET
Air Force	Blues *(Short or Long Sleeve)*	Mess Dress or Semi-Formal
Army	Exhibit Floor/Attendees – ACUs or Duty Uniform Panelist/Speakers – ASUs, Class A's	Army Blue *(Army Evening Mess Optional)*
Marine Corps	Service "C"	Evening Dress *(Dress Blue "B" or Service "A" Optional)*
Navy	Service Khaki, Navy Service Uniform	Dinner Dress White *(Service Dress White Optional)*
Space Force	Blues *(Short or Long Sleeve)*	Mess Dress or Semi-Formal
Coast Guard	Tropical Blue Long	Dinner Dress White *(Service Dress White Optional)*
Civilian	Business Attire	Black Tie/Business *(Optional)* or International Traditional Costume

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I/ITSEC SUPPORTS OUR WARFIGHTERS, FIRST RESPONDERS, AND FAMILIES

For more information visit https://www.iitsec.org/attend/charities-at-iitsec

TUNNEL TO TOWERS

Since 9/11, Tunnel to Towers has been helping America's heroes by providing mortgage-free homes to Gold Star and fallen first responder families with young children and by building custom-designed smart homes for catastrophically injured veterans and first responders. They are also committed to eradicating veteran homelessness and aiding the victims of major U.S. disasters.

• 450+ mortgage free homes (delivered or in progress).
• Educating 600,000+ through their 9/11 Never Forget Mobile Exhibit.
• 250+ million raised in support of our nation's greatest heroes and their families.
• 95 cents of every dollar donated goes directly to programs.

The I/ITSEC 5K Run/Walk/Roll supports Tunnel to Towers with proceeds from the race going to the Orlando Chapter of Tunnel to Towers. In 2022, the I/ITSEC community was able to contribute over $8,000 to help our service members and we hope to contribute even more this year! The I/ITSEC 5K will be held Wednesday, 29 November at 0630 in front of the OCCC West Concourse, Hall D.

JUST OUR SOLDIERS' HELPERS (JOSH)

Just Our Soldiers' Helpers (JOSH), is a woman-founded and led IRS-approved non-profit founded in 2011. The JOSH mission is to increase the morale of deployed U.S. service members from all branches of the military. They do this by providing care packages containing name brand items that are not readily available during deployment.
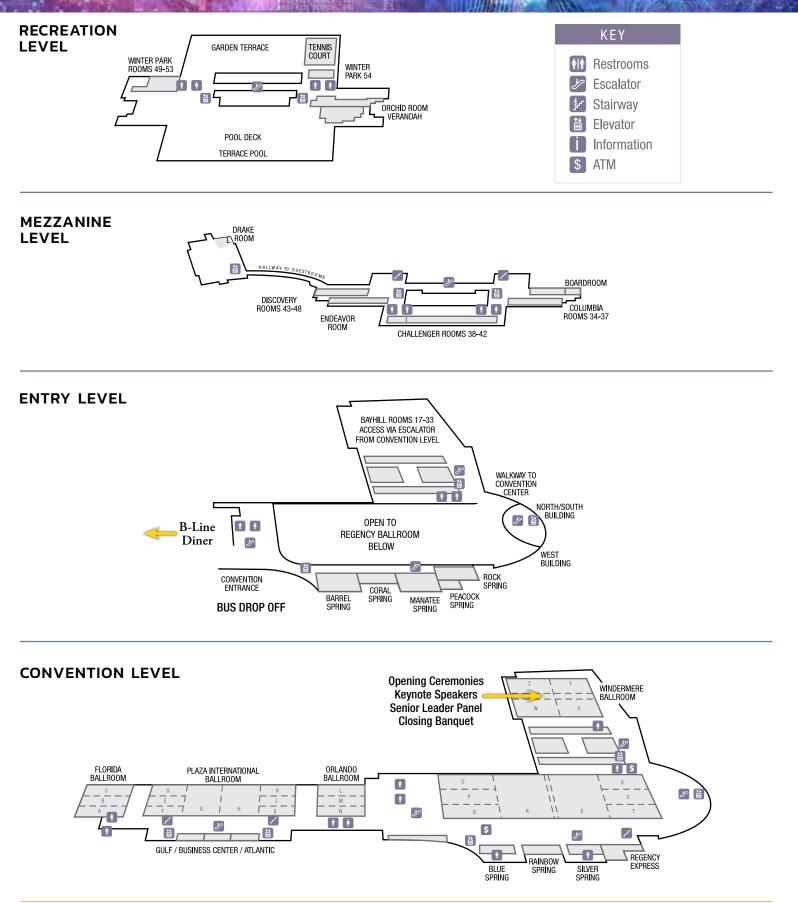
• JOSH is an all-volunteer organization; 87% of all funds go directly towards program-related expenses. less than 3% goes towards administrative costs.
• JOSH ships only full-size name-brand products.
• JOSH ships every month of the year to all the warfighters on their list.
• JOSH has shipped over 150,000 pounds of products to our warfighters since 2011.

I/ITSEC 2022 was the inaugural year that the I/ITSEC community helped support JOSH. Onsite at the OCCC, during I/ITSEC 2023, volunteers and attendees will sort, pack, and ship 140 care packages to our service members around the world. We can accomplish this with help from our industry partners, we have made several support levels available so all can support. Packing will happen before I/ITSEC opens on Sunday, 26 November at approximately 0830 in Room 110A at the OCCC West Concourse.

RECREATION LEVEL

WINTER PARK ROOMS 49-53
GARDEN TERRACE
TENNIS COURT
WINTER PARK 54
ORCHID ROOM VERANDAH
POOL DECK
TERRACE POOL

KEY

- 🚻 Restrooms
- Escalator
- Stairway
- Elevator
- Information
- $ ATM

MEZZANINE LEVEL

DRAKE ROOM
HALLWAY TO GUESTROOMS
DISCOVERY ROOMS 43-48
ENDEAVOR ROOM
CHALLENGER ROOMS 38-42
BOARDROOM
COLUMBIA ROOMS 34-37

ENTRY LEVEL

BAYHILL ROOMS 17-33 ACCESS VIA ESCALATOR FROM CONVENTION LEVEL

WALKWAY TO CONVENTION CENTER

NORTH/SOUTH BUILDING

B-Line Diner

OPEN TO REGENCY BALLROOM BELOW

WEST BUILDING

CONVENTION ENTRANCE

ROCK SPRING

BUS DROP OFF

BARREL SPRING
CORAL SPRING
MANATEE SPRING
PEACOCK SPRING

CONVENTION LEVEL

**Opening Ceremonies
Keynote Speakers
Senior Leader Panel
Closing Banquet**

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WINDERMERE BALLROOM

FLORIDA BALLROOM
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BLUE SPRING
RAINBOW SPRING
SILVER SPRING
REGENCY EXPRESS

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LEVEL 1 (Entry Level)

First Aid

Onsite Registration
Property Check
Lost & Found

Self-Badging

I/ITSEC Shuttle Bus
Pick-up/Drop-off

Entrance/Exit

WEST A LOBBY

Food Court

Food Court

WEST A/B LOBBY

LEVEL 2

WEST HALL A

W A1 W A2 W A3 W A4 W B1 W B2 W B3

WEST HALL B

Conference Lunch (Ticketed)

W201
W202 A B C W203 A B C W204 A B C
W205 W206 W207 W208

NTSA Show Management

LEVEL 3 (Presentations/Events/Practice Rooms)

W300 – Theatre

W303 W304 (A B C D / E F G H) W306 W305 W307 (A B C D) W308 (A B C D) W310 W309 W311 (A B C D / E F G H)

SIGNATURE EVENTS

CONGRESSIONAL MODELING AND SIMULATION CAUCUS

STRONG ADVOCACY FOR TRAINING AND READINESS

MODERATOR

LINDA BRENT, ED.D.
Congressional Coordinator/Strategic Planning, NTSA

PANELISTS

CONGRESSMAN BOBBY SCOTT
3rd District, Virginia

CONGRESSMAN JACK BERGMAN
1st District, Michigan

CONGRESSMAN JOHN RUTHERFORD
5th District, Florida

CONGRESSMAN ERIC SORENSEN
17th District, Illinois

NTSA and the I/ITSEC Conference 2023 are excited to host the Modeling and Simulation Congressional Caucus Special Event. All attendees and exhibitors are invited to hear first hand from our leaders in Congress who are committed to the success of our industry.

It is a great opportunity for you to interact with Congressional Members on issues of importance to you or your organization and to impress upon them the priorities of the modeling, simulation and training industry. With defense budgets and other Government budgets constantly in flux, this forum provides you a voice to advocate for the value of simulation for training in support of national security and resiliency.

CONGRESSIONAL MODELING AND SIMULATION CAUCUS MEMBERS

BOBBY SCOTT
Caucus Co-Chair
3rd District, Virginia

JOHN RUTHERFORD
Caucus Co-Chair
4th District, Florida

JACK BERGMAN
Caucus Co-Chair
1st District, Michigan

ROBERT ADERHOLT
4th District, Alabama

GUS BILIRAKIS
12th District, Florida

VERN BUCHANAN
16th District, Florida

KEN CALVERT
42nd District, California

VIRGINIA FOXX
5th District, North Carolina

BRETT GUTHRIE
2nd District, Kentucky

JENN KIGGANS
2nd District, Virginia

DOUG LAMBORN
5th District, Colorado

SCOTT PETERS
52nd District, California

BILL POSEY
8th District, Florida

C.A. DUTCH RUPPERSBERGER
2nd District, Maryland

ERIC SORENSEN
17th District, Illinois

DARREN SOTO
9th District, Florida

MIKE TURNER
10th District, Ohio

JOE WILSON
2nd District, South Carolina

ROBERT WITTMAN
1st District, Virginia

MONDAY, 27 NOVEMBER • 1600 – 1730 • ROOM W300-THEATRE

2023 I/ITSEC FELLOWS PRESENTATION

BEING ELECTED A FELLOW IS THE HIGHEST HONOR BESTOWED BY THE NTSA ON BEHALF OF THE WORLD-WIDE MS&T COMMUNITY!

I/ITSEC FELLOWS

2023 I/ITSEC FELLOW

JAMES WALL, PH.D.
Executive Director, Texas A&M
Center for Applied Technology
(Retired)

THE I/ITSEC 2023 FELLOW

With nearly four decades of indelible contributions to Modeling and Simulation (M&S), Dr. James A. (Jim) Wall is a technical leader, M&S textbook co-author, and iconic visionary whose work has fundamentally shaped simulation capabilities being delivered and used today. Dr. Wall's work has enabled the transformation of operations, training, and testing across multiple communities that safeguard our national and personal security. Prior to retirement, Dr. Jim Wall served as the Executive Director of the Texas A&M Center for Applied Technology and the inaugural Director of the Innovation Proving Ground, a component of the Bush Combat Development Complex located on the RELLIS Campus of Texas A&M University. Early on, as a researcher in the newly formed Uniformed Army Scientist Program at the Army Research Laboratory, Dr. Wall led development of the Virtual Sand Table, which was the first 3D tabletop environment used to virtually represent military systems being driven by constructive simulations.

Later, at Texas A&M, he and his team developed the Emergency Management Exercise System that has been used to train more than 20,000 emergency responders across the nation. Additionally, he was the Co-Principal Investigator for the highly successful Digital Emergency Medical System program that connects an ambulance with the receiving emergency room and transmits real-time video and physiological telemetry while on the move. His team's bio-surveillance common operational picture developed for the Department of Homeland Security's National Bio-surveillance Integration Center won the 2010 Department of Homeland Security Science & Technology Impact Award. In 2010, he served as the I/ITSEC Conference Chair, the first from an academic institution to serve in this capacity. He supported a Defense Science Board Task Force on a year-long study related to gaming, exercising, modeling, and simulation (GEMS) in 2021. Dr. Wall was commissioned as an Armor officer in the U.S. Army and retired as an Army Acquisition Corps officer with twenty-two years of service. His last Army assignment was as a Senior Computer Scientist with the Army Research Laboratory at Aberdeen Proving Grounds, Maryland. He has a Ph.D. in Computer Science (2003) from Texas A&M University and an M.S. in Systems Technology (Command, Control, and Communications; 1986) from the Naval Postgraduate School in Monterey, CA. In 2009, Dr. Wall was designated as a Regents Fellow by The Texas A&M University System Board of Regents. He was inducted into the National Center for Simulation Modeling and Simulation Hall of Fame in October of 2022.

WHAT YOU WILL LEARN FROM THE I/ITSEC 2023 FELLOW

Dr. James A. (Jim) Wall's I/ITSEC Fellows paper focuses on his 39 years of M&S experience as a staunch advocate for promoting modeling and simulation as a National Critical Technology among military, government, academic, and industry leaders and the opportunities for its use in more diverse application environments. His experience includes work across multiple U.S. Government Departments including Defense, Homeland Security, Energy, and Agriculture. His presentation will cover some of the commonalities and differences in applying M&S across the departments. His reflections relate his efforts as a developer of M&S requirements, a user, and an M&S developer and highlights observations and lessons learned along the way. Dr. Wall will highlight some emerging trends in M&S and discuss how advances in other supporting technologies such as artificial intelligence, machine learning, and cloud architectures present both opportunities and challenges that M&S practitioners will need to address to realize the full potential of new and powerful applications. Such applications will be more commonplace and serve as an enabler to a broader, more diverse user community by providing greater access and utility at more levels to support problem-solving, decision making, and training.

SIGNATURE EVENTS

SENIOR LEADER PANEL

SUSTAINING A GLOBAL FORCE IN A DIGITAL WORLD

MODERATOR

BRIGADIER GENERAL GUY WALSH, USAF (RET.)
Executive Vice President and Chief Operating Officer, NDIA

PANELISTS

YOUNG BANG, SES
Principal Deputy, Assistant Secretary of the Army, Acquisition, Logistics and Training ASA (ALT)

LIEUTENANT GENERAL KEVIN M. IIAMS, USMC
Commanding General, Training and Education Command, USMC

CAROLINE BAXTER
Deputy Assistant Secretary of Defense for Force Education and Training, Office of the Secretary of Defense

BRIGADIER GENERAL ANDREW J. LEONE, USAF
Mobilization Assistant to the Military Deputy, Office of the Assistant Secretary of the Air Force for Acquisition, Technology and Logistics

REAR ADMIRAL DOUGLAS VERISSIMO, USN
Commander, Naval Air Force Atlantic

BRIG GEN WALSH, USAF (RET.)

MR. BANG, SES

LTGEN IIAMS, USMC

DASD BAXTER

BRIG GEN LEONE, USAF

RADM VERISSIMO, USN

Global forces continue to be challenged by erratic budgets and complex threats. Services continue to prepare for a wide array of missions that range from disaster assistance to the return of great power competition. Additionally, nations continue to deal with the opportunities and challenges of accelerating technology and cybersecurity. Our Senior Leader Panel will address current and future environments within the context of this year's conference theme, *Sustaining a Global Force in a Digital World*. This year's panel will include senior representatives from U.S. Military Services and OSD. Following opening remarks, the audience will interact with the panel through Q&A. All attendees will also have the chance to submit questions in advance. Don't miss the opportunity to hear from national leaders on the way ahead.

TUESDAY, 28 NOVEMBER • 1400 – 1530 • W304CDGH

ARMY GENERAL OFFICER PANEL

MODERATOR

BRIGADIER GENERAL CHARLES T. LOMBARDO, USA

Director of Training, Office of the Deputy Chief of Staff, G-3/5/7

PANELISTS

MAJOR GENERAL STEPHEN G. SMITH, USA

Chief of Staff, U.S. Army Pacific

BRIGADIER GENERAL MICHAEL J. SIMMERING, USA

Armor School Commandant, U.S. Army Maneuver Center of Excellence

BRIGADIER GENERAL WILLIAM R. GLASER, USA

Director, Synthetic Training Environment (STE), U.S. Army Futures Command

COLONEL SCOTT WOODWARD, USA

Commander, USA U.S. Army CAC-T, Fort Leavenworth

BG LOMBARDO, USA

MG SMITH, USA

BG SIMMERING, USA

BG GLASER, USA

COL WOODWARD, USA

This panel brings together Senior Army leaders to provide operational concepts for the Army's simulation, training, and instrumentation community. The panel members will provide insight and perspectives from their broad operational backgrounds to the challenges facing simulation, training, and instrumentation to meet the emerging Army operational concepts. This panel provides an opportunity for I/ITSEC participants to engage with Army leaders involved with developing the models, training, and processes to sustain the global force in a digital world.

SIGNATURE EVENTS

TUESDAY, 28 NOVEMBER • 1600 – 1730 • ROOM W306AB

HOW THE MARINE CORPS IS USING THE DIGITAL WORLD TO SUPPORT TRAINING TODAY AND INTO THE FUTURE

MARINE CORPS TACTICAL SYSTEMS SUPPORT ACTIVITY'S (MCTSSA) OVERVIEW OF THEIR CONTRIBUTIONS

MODERATOR

COLONEL CRAIG CLARKSON, USMC
Commanding Officer, Marine Corps Tactical Systems Support Activity

PANELISTS

THOMAS JOHNSON
Senior Principal Engineer, Joint/ Coalition C2, Marine Corps Tactical Systems Support Activity

JENNIFER KAYS
Senior Principal Engineer, Software Engineering, Marine Corps Tactical Systems Support Activity

RICK BOBST
Warfighter Support Officer, Marine Corps Tactical Systems Support Activity

COL CLARKSON, USMC   MR. JOHNSON   MS. KAYS   MR. BOBST

Senior members of MCTSSA will provide an overview of their efforts in testing, engineering, integration, and experimentation on Command, Control, Computers, Communications, Cyber, Intelligence, Surveillance, Reconnaissance, and Targeting (C5ISRT) systems in support of USMC Force Design 2030 objectives. A specific focus will be on leveraging partnerships across the Department of Defense and the defense industrial base to accelerate the incorporation of new ideas and emerging technologies into future warfighting systems.

DEPARTMENT OF THE AIR FORCE GENERAL OFFICER PANEL

MODERATOR

ROWAYNE A. "WAYNE" SCHATZ, JR., SES
Director for Studies and Analysis, Office of the Secretary of the Air Force

PANELISTS

LIEUTENANT GENERAL RICHARD G. MOORE, JR., USAF
Deputy Chief of Staff for Plans and Programs, Headquarters U.S. Air Force

LIEUTENANT GENERAL BRIAN S. ROBINSON, USAF
Commander, Air Education and Training Command

MAJOR GENERAL ADRIAN L. SPAIN, USAF
Director of Training and Readiness, Deputy Chief of Staff for Operations at Headquarters U.S. Air Force

BRIGADIER GENERAL TODD R. MOORE, USSF
Deputy Commander, Space Training and Readiness Command

MR. SCHATZ, JR., SES

LT GEN MOORE, JR., USAF

LT GEN ROBINSON, USAF

MAJ GEN SPAIN, USAF

BRIG GEN MOORE, USSF

This panel brings together Air Force leaders and organizations to provide operational imperatives as they relate to the training community. Panelists will provide insight from their acquisition, research and technology, and mission readiness perspectives for employing Modeling & Simulation technology across the enterprise to meet readiness and lethality challenges. This panel provides an opportunity for I/ITSEC participants to engage with DAF leaders involved with sustaining a global force in training technology.

TUESDAY, 28 NOVEMBER • 1600 – 1730 • ROOM W304EF

JOINT & MULTI–NATIONAL CONSTRUCTIVE TRAINING EXERCISES

OVERCOMING THE TECHNICAL CHALLENGES FOR MULTI-DOMAIN OPERATIONS

MODERATOR

COLONEL SCOTT WOODWARD
Commander, USA
U.S. Army CAC-T, Fort Leavenworth

PANELISTS

MAJOR GENERAL STEPHEN G. SMITH, USA
Chief of Staff, U.S. Army Pacific

BRIGADIER GENERAL WILLIAM R. GLASER, USA
Director, Synthetic Training Environment (STE), U.S. Army Futures Command

BRIGADIER DAMIAN HILL
Director, General Joint Collective Training Branch (J7), Joint Operations Command

SAMUEL CHAMBERS
Scientist, Environment Operations Division (EOD), Deputy Directorate Joint Training, Joint Staff J-7

COL WOODWARD, USA

MG SMITH, USA

BG GLASER, USA

BG HILL

MR. CHAMBERS

The operational environment our joint and multi-national partners operate within is becoming more complex and congested requiring a persistent training environment to rapidly train and build coalitions to achieve objectives. The Army delivers theater specific warfighter exercises (WFXs) for Corps and Divisions to conduct collective training, at scale, across multiple domains while also advancing and assessing Multinational Interoperability. The annual execution of multinational warfighters lacks joint force participation and uses an industrial age planning and preparation process for each event.

Examine the challenges to support the requirements and overcome the technical difficulties to establish a persistent Mission Partnered Environment that incorporates joint and multi-national partners into future constructive exercises across all domains.

TUESDAY, 28 NOVEMBER • 1600 – 1730 • ROOM W304AB

DOD'S REAL WORLD DIGITAL TWINS
DOD SENIOR LEADER APPLICATIONS TO THE MISSION

MODERATOR

JENNIFER ARNOLD
Professional Visualization Executive,
NVIDIA

PANELISTS

YOUNG BANG, SES
Principal Deputy, ASA (ALT)

LISA COSTA, SES, PH.D.
Chief Technology Innovation
Officer, USSF

NELSON LERMA, PH.D.
Senior Data Science Manager,
NAWCTSD

MS. ARNOLD   **MR. BANG, SES**   **DR. COSTA, SES**   **DR. LERMA**

Digital twin simulations have been simmering for half a century. But the past decade's advances in GPUs, AI and software platforms are heating up their adoption amid this higher-fidelity era of more immersive experiences. A digital twin is a virtual representation — a true-to-reality simulation of physics and materials — of a real-world physical asset or system, which is continuously updated.

Digital twins aren't just for inanimate objects and people. They can be a virtual representation of computer networking architecture used as a sandbox for cyberattack simulations. They can replicate a fulfillment center process to test out human-robot interactions before activating certain robot functions in live environments. Digital Twins can help maintain a healthy supply chain to ensure optimal performance, predict climate change by accurately mapping climate development as well as extreme weather, and even prepare the warfighter for the future fight. We're right at the beginning of this transition into reality, much as AI became viable and created an explosion of possibilities. The applications are as wide as the imagination.

Join these senior leaders to discuss their vision and real world application of digital twins to enable their missions.

WEDNESDAY, 29 NOVEMBER • 0830 – 1000 • ROOM W304EF

THE JOINT M&S DATA INITIATIVE

MODERATOR

GENE DAVIS
Data Standards and Acquisition Officer, AMSO

PANELISTS

SAMUEL CHAMBERS
Scientist with the Environment Operations Division (EOD), Deputy Directorate Joint Training, Joint Staff J-7

CHRIS McGROARTY
Chief Engineer, U.S. Army DEVCOM SC STTC

CHARLES SANDERS, PH.D.
Technical Advisor, AMSO

RYAN BARKER
Analyst, U.S. Army DEVCOM DAC

LORI MONGOLD
Global Force Information Management Capability Management Officer (GFIM CMO), HQDA G3/5/7

ANDREW ST. LAURENT
Deputy Division Chief, HQDA G3/5/7 DAMO-SOE

MR. DAVIS   MR. CHAMBERS   MR. McGROARTY   DR. SANDERS

MR. BARKER   MS. MONGOLD   MR. ST. LAURENT

The demand signal for rapid decision-making support has increased. Thus, access to authoritative sim-ready data supporting an agile decision cycle is a critical requirement. Collecting and reformatting force structure, threat representation, systems performance data, and geospatial data for scenario development is manpower and time intensive. This led to a collaboration between the Army (AMSO) and Joint Staff to expand the scope of ongoing data efforts in order to drive the ability to access, retrieve, use, and reuse sim-ready data. The Joint M&S Data Initiative supports the National Defense Strategy by providing the overarching vision, focus, guiding principles, essential capabilities, and goals necessary to transform not only the Army's M&S Enterprise but sync with Joint Services into a common data framework.

WEDNESDAY, 29 NOVEMBER • 0830 – 1000 • ROOM W304CDGH

THE TALX – 5G AND NEXTG

MODERATOR

JENNIFER SWANSON, SES
Deputy Assistant Secretary of the Army (Data, Engineering & Software), Office of the ASA (ALT)

PANELISTS

YOUNG BANG, SES
Principal Deputy, ASA (ALT)

PAUL E. JACOBS
Chairman and Chief Executive Officer, XCOM

CHRIS CHRISTOU
Senior Vice President, Chief Technology Officer, Booz Allen Hamilton

STEVE VOGELSANG
Vice President, Business Strategy and Networks, Nokia

MS. SWANSON, SES

MR. BANG, SES

MR. JACOBS

MR. CHRISTOU

MR. VOGELSANG

Join us for the kick off event for the NTSA Next Big Thing series of special events, where we'll dive into the rapidly evolving world of emerging technologies. The NTSA Next Big Thing series of special events are addressing this pace of change with this event kicking off the collaboration for the day. Where will 5G and NextG take us in the near future? Presenters will discuss current gaps in 5G technology for addressing next generation applications such as immersive training; what advances are expected and what will they bring; what is the vision for how next gen wireless will enhance training and operations? Many organizations can benefit by the understanding where the technologies are heading as well as how to be part of the ecosystem leveraging this technology.

This event features TED Talk style presentations, ensuring an engaging and enlightening experience. Be sure to return at the end of the day for the Next Big Thing social to connect with speakers and like-minded professionals. Shape the future of technology with us — one talk at a time. Your journey begins here.

SIGNATURE EVENTS

WEDNESDAY, 29 NOVEMBER • 1030 – 1200 • ROOM W304AB

NAVY FLAG OFFICER PANEL

ENACTING CNO'S NAVPLAN

MODERATOR

REAR ADMIRAL PAUL A. SOHL, USN (RET.)
Chief Executive Officer, Florida High Tech Corridor

PANELISTS

REAR ADMIRAL MICHAEL DONNELLY, USN
Director, Air Warfare Division, OPNAV N98

REAR ADMIRAL JEFFREY CZEREWKO, USN
Commander, Naval Education and Training Command

REAR ADMIRAL RICHARD T. BROPHY, USN
Chief of Naval Air Training

RADM SOHL, USN (RET.)   RDML DONNELLY, USN   RDML CZEREWKO, USN   RDML BROPHY, USN

"The U.S. Navy will build, maintain, train, and equip a combat-credible, dominant naval force to keep the sea lanes open and free, deter conflict, and when called upon, decisively win our Nation's wars."

The above words from the CNO's NAVPLAN highlight I/ITSEC 2023's theme: *Sustaining A Global Force in a Digital World*. In this special event, senior Navy leadership will discuss the successes and challenges of training across multiple domains, to include the need for acquisition urgency based on real world pressures.

The U.S. Navy looks to ensure our Sailors can out-think and outfight any adversary while remaining the best trained and educated naval force. Deterrence is our duty and to accomplish that we must demonstrate and sustain the skill and will to win the fight. Making sure that both lethality and readiness are maintained as part of our core training goals is critical to this ability. We must do this while maintaining a responsible plan for acquiring and sustaining these capabilities.

The Sailors who serve today are the most well-trained naval force in history and are critical to the Navy's ability to meet its mission. This panel of senior Navy leaders will provide insight into how to optimize the human performance of U.S. Navy Sailors to succeed in a digital world. ADM Michael Gilday, Chief of Naval Operations reminds us, "Decisive naval power is essential in this security environment; America cannot cede the competition for influence. This is a uniquely naval mission. A combat-credible U.S. Navy—forward deployed and integrated with all elements of national power—remains the Nation's most potent, flexible, and versatile instrument of military influence. As the United States responds to the security environment through integrated deterrence, our Navy must deploy forward and campaign with a ready, capable, combat-credible fleet."

SIGNATURE EVENTS

DIGITAL MATERIEL MANAGEMENT

MODERATOR

BRIGADIER GENERAL JASON E. BARTOLOMEI, USAF
Program Executive Officer for Weapons and Director of the Armament Directorate, AFLCMC, AFMC

PANELISTS

LISA COSTA, SES, PH.D.
Chief Technology and Innovation Officer, USSF

CHRIS GARRETT, SLS USAF
Technical Advisor for Systems Engineering, AFLCMC/EN-EZ

LENNY DELLIGATTI
Chief Operation Officer and System Architect, Delligatti Associates

KEVIN TORRES
Mobility and Training Directorate (WL), Digital Architect, AFLCMC

KYLE HURST
Digital Transformation Lead, AFMC

BRIG GEN BARTOLOMEI, USAF

DR. COSTA, SES

MR. GARRETT, SLS USAF

MR. DELLIGATTI

MR. TORRES

Digital Materiel Management is the concept of Digital Transformation applied to the Organize, Train, and Equip mission of AFMC. Regardless of the domain, Digital Transformation is the disruptive enabler the DAF needs to maintain its competitive edge. This panel will provide insights into the digital engineering advantages and the efforts of the Air Force to unify disjointed modernization efforts, enable discovery of cross-cutting opportunities, and catapult the delivery of new capabilities to the field faster.

WEDNESDAY, 29 NOVEMBER • 1030 – 1200 • ROOM W300 – THEATRE

TRAIN WHILE YOU FIGHT: UKRAINE AS A TOUCHSTONE FOR TRAINING IN FUTURE WARS

MODERATOR

AARON PRESNALL, PH.D.
President, Jefferson Institute

PANELISTS

CAROLINE BAXTER
Deputy Assistant Secretary of Defense for Force Education and Training, Office of the Secretary of Defense

CELESTE WARD GVENTER, PH.D.
President, Defense and Security Cooperation University

MAJOR GENERAL SERHII SALKUTSAN
Ukraine, Military Representative to NATO

BRIGADIER GENERAL ROLF WAGNER (DEU RET.)
Deputy Director, George C. Marshall Center

REAR ADMIRAL PETER G. VASELY, USN
Deputy Director, Joint Training, Joint Staff J7

MAJOR GENERAL CURTIS A. BUZZARD, USA
Commander, U.S. Army Maneuver Center of Excellence and Fort Moore

DR. PRESNALL	DASD BAXTER	DR. GVENTER	MAJ GEN SALKUTSAN

B GEN WAGNER, (DEU RET.)	RADM VASELY, USN	MG BUZZARD, USA

The ongoing conflict in Ukraine demonstrates that victory in modern warfare requires us to train and educate while we fight, helping our forces to adapt to meet changing needs in complex environments. This roundtable will discuss how allies and partners can take a more dynamic approach to training and education to generate effects both inside and outside of the classroom. In the context of NATO's 75th anniversary summit in 2024, the roundtable will explore how this approach can guide education and training to enhance security cooperation in a time of strategic competition.

DOWNLOAD
MOBILE APP

THE TALX – INDUSTRY LEADERS PERSPECTIVES ON ADOPTION OF ARTIFICIAL INTELLIGENCE

MODERATOR

ELIOT WINER, PH.D.
Director, VRAC; Professor, Mechanical Engineering, Iowa State University

PANELISTS

RICHARD BOYD
Chief Executive Officer, Ultisim, Inc.

BOB PETTE
Head of Visualization, NVIDIA

WILLIAM CHAPPELL, PH.D.
Vice President, Chief Technical Officer of Strategic Missions and Technologies, Microsoft Corporation

GASTAO DE FIGUEIREDO
Senior Vice President, General Manager, Geospatial Intelligence, Blackshark.ai

DR. WINER　　　MR. BOYD　　　MR. PETTE

DR. CHAPPELL　　　MR. DE FIGUEIREDO

Industry leaders provide thought provoking perspectives on leading and accelerating the adoption of artificial intelligence (AI) in the modeling, simulation and training community. AI is being introduced and embraced in our solutions at an accelerated pace, from methods that control virtual entities in our simulations to generative AI outputting images, text, and even speech. Speakers will explore topics such as defining AI, how it can benefit an organization, adoption strategies, and much more. This session is being presented using TED Talk style presentations. Attend to be engaged and part of the conversation around this emerging technology.

SIGNATURE EVENTS

THE EVOLUTION INTO A DIGITAL BATTLEFIELD (ARMY DIGITAL TRANSFORMATION)

MODERATOR

JENNIFER SWANSON, SES
Deputy Assistant Secretary of the Army (Data, Engineering & Software), Office of the ASA (ALT)

PANELISTS

YOUNG BANG, SES
Principal Deputy, ASA (ALT)

KAREN D. H. SAUNDERS, SES
Program Executive Officer, Simulation, Training and Instrumentation (PEO STRI)

RANDALL W. HILL, JR., PH.D.
Vice Dean, Viterbi School of Engineering, Omar B. Milligan Professor in Computer Science – Games and Interactive Media; Executive Director, Institute for Creative Technologies – USC

MS. SWANSON, SES   **MR. BANG, SES**   **MS. SAUNDERS, SES**   **DR. HILL, JR.**

As technology advances, so does the landscape of Warfare. Preparing our Soldiers to win on the Digital Battlefield is critical to conducting successful operations across every domain. It's a journey and we continue to progress while learning to accelerate through this Digital Transformation.

Bring your insights and your questions to this special event and engage with leaders across the Army, Industry, and Academia on the evolution of digital warfare, what the Army has been able to accomplish with these technology advancements, and what we must collectively consider as we look to defeat our near-peer adversaries in potential future conflicts.

This is a collaborative effort, and we need all involved on our mission to modernize.

THE TALX – GOVERNMENT PERSPECTIVES ON ADOPTION OF ARTIFICIAL INTELLIGENCE

MODERATOR

RAYMOND COMPTON
Fellow, LMI

PANELISTS

MAJOR GENERAL MATTHEW EASLEY, USA
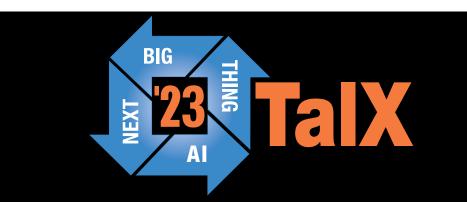Deputy Principal Information Operations Advisor, Office of the Undersecretary of Defense for Policy

CINDY BEDELL, SES
Director, Army Research Directorate, U.S. Army DEVCOM Army Research Laboratory

COLONEL RHEA PRITCHETT, USA
Program Executive Officer Special Operations Forces Digital Applications, USSOCOM

WILLIAM STREILEIN, PH.D.
Chief Technology Officer, Chief Digital and Artificial Intelligence Office (CDAO)

MR. COMPTON	MG EASLEY, USA	MS. BEDELL, SES
COL PRITCHETT, USA	DR. STREILEIN	

The convergence of artificial intelligence and emerging technologies has opened unprecedented opportunities for innovation, adaptation, and strategic planning within the DoD. In this event, we will immerse ourselves in the dynamic world of policy and strategy, exploring how these cutting-edge technologies can revolutionize our approach to national security and preparedness. Esteemed experts will share their insights, fostering transformative discussions, and collaborative idea exchange, while also addressing the challenges and embracing the potential of AI. Our speakers will take you on a forward-thinking journey, showcasing how emerging technologies can maximize benefits while mitigating risks in the defense landscape, harnessing the immense potential of AI, and emerging tech for the future.

Key areas of discussion include:

- Integration and Adoption
- Ethical and Responsible Use
- Cybersecurity and Resilience
- Autonomy and Human-Machine Teaming
- Training and Simulation
- Policy and Regulatory Framework
- Research and Development

This session is being presented using TED Talk style presentations. Attend to be engaged and part of the conversation around this emerging technology.

DOWNLOAD MOBILE APP

THE TALX – GOVERNMENT CTO/CLO FUTURE VISION

MODERATOR

ROBERT KLEINHAMPLE, CMSP
President, RCK Simulations

PANELISTS

JEREMY LANMAN, PH.D.
Chief Technology Officer, U.S. Army PEO STRI

LIEUTENANT JUNIOR GRADE CHRISTOPHER M. GREGORY, USNR
Command Technology Direcor, U.S. Navy Reserve

JIM PHARMER, PH.D.
Chief Scientist, Head, Experimental and Applied Human Performance Research and Development Division, NAWCTSD

WENDY WALSH, ED.D.
Chief Learning Officer, Air Education and Training Command

DAVID STARGEL, PH.D.
Technical Director, AFAMS

NEXT BIG THING '23 CTO/CLO TalX

MR. KLEINHAMPLE, CMSP

DR. LANMAN

LT GREGORY, USNR

DR. PHARMER

DR. WALSH

DR. STARGEL

Join us for the culminating event of the NTSA Next Big Thing series of special events, where we'll dive into the rapidly evolving world of emerging technologies. Our expert gathering of Government CTOs and CLOs from modeling, simulation and education organizations will share visionary insights on how these innovations are transforming their organizations. Discover strategies for adopting these technologies and contributing to their maturation for the benefit of our warfighters. Be in the know of where and how your organizations should posture.

This event features TED Talk style presentations, ensuring an engaging and enlightening experience. Stay for the Next Big Thing social to connect with speakers and like-minded professionals. Shape the future of technology with us — one talk at a time.

DOWNLOAD
MOBILE APP

WEDNESDAY, 29 NOVEMBER • 1530 – 1700 • ROOM W300-THEATRE

CYBERSPACE – FUTURE MULTI–DOMAIN CHALLENGE PERSPECTIVES

EXAMINING INFORMATION WARFARE AND NON-KINETIC EFFECTS THROUGH CYBERSPACE AND ELECTROMAGNETIC APPROACHES

MODERATOR

COLONEL CHAD T. BATES, PH.D., USA
Cyber / Wargaming Research Professor, U.S. Army War College

PANELISTS

GENERAL KENNETH "FRANK" McKENZIE, JR., USMC (RET.)
Executive Director, University of South Florida Global & National Security Institute

LIEUTENANT GENERAL MARIA B. BARRETT, USA
Commanding General, U.S. Army Cyber Command

COL BATES, PH.D., USA   GEN McKENZIE, JR., USMC (RET.)   LTG BARRETT, USA

The DoD faces a dynamic and challenging environment with potential threats that cross multiple domains. Top senior leaders, charged with planning, employing and responding to today's challenges will continue to deal with evolving and responding to future technological challenges from potential adversaries. To some degree, digital technologies can allow for representation of recognized demands of dealing with near-peer competition now. These technologies will need to outpace potential adversaries in the future.

This special event will feature a moderated exchange with former commanding generals, a 4-star Combatant Commander and a 3-star Service Component Cyber Commander. Panelists will provide their perspectives on:
• Information Operations/Information Warfare
• Operational understanding, context, and education
• Technology development and investment decisions through digital approaches
• Force development and training readiness enhancement through use of simulations

CERTIFIED MODELING AND SIMULATION PROFESSIONAL 3.0

CMSP – THE DISTINCTION OF A TRUE M&S PROFESSIONAL – LEARN MORE!

MODERATOR

IVAR OSWALT, PH.D., CMSP
Senior M&S Analyst, The MIL Corporation

PANELISTS

MAJOR JAKE KELLY, USA, CMSP
Maneuver Battle Lab (MBL)

THOMAS YANOSCHIK, CMSP
Site Manager, M&S Branch, Maneuver Battle Lab (MBL)

JEFFREY ERICKSON, CMSP
Senior Program Integrator, Trideum Corporation

DR. OSWALT, CMSP   MAJ KELLY, USA, CMSP   MR. YANOSCHIK, CMSP   MR. ERICKSON, CMSP

CMSP is the only encompassing M&S professional certification in the U.S. It provides differentiation, community awareness, specialized networks, and membership benefits. Its reinvention, begun in 2019, was unveiled in 2021 with CMSP 3.0. This version streamlines the processes, updates the examination, employs a Learning Management System, and is creating a vibrant community of practice!

All M&S practitioners seeking to enhance their credentials and to add a level of distinction to their qualifications — from Intern, Apprentice, Practitioner, and Master Levels — will find this Focus Event informative and valuable.

Attendees will Learn:
- The motivators behind starting CMSP, its evolution, and the current version.
- The application process, examination, and certification specifics.
- How CMSP provides value as a discrimination and mark of distinction.

The Purpose of Focus Event:
- Describe the motivation behind the creation of CMSP, its evolution, and the current version.
- Summarize the new three levels of CMSP, the use of an LMS, the new examination, and describe the improved infrastructure that includes the provision of preparation materials.
- Finally, provide tangible advice on how interested individuals can start the process to achieve their certification.

The Format of this Focus Event:
- This moderated panel session centers on three of the newest CMSP awardees and their stories of achievement. The newest CMSPs will provide a summary of their experience and answer questions from the audience.
- Also, on the panel will be a Senior Corporate Executive that has motivated his team to become CMSP certified and who works to hire the same.
- The fifth member of the panel will be a CMSP that brings to the discussion an international perspective.
- The panel will be moderated by an experienced M&S professional and CMSP holder who has moderated previous panel sessions and CMSP events.

MONDAY, 27 NOVEMBER • 1415 – 1545 • ROOM W304CDGH

BLACK SWAN – DAWN OF THE SUPER SOLDIER

MYTH VS REALITY

MODERATOR

LAUREN REINERMAN–JONES, PH.D.
Principal Analyst, Southwest Research Institute and Professor of Special Programs, DAU

PANELISTS

RICHARD "ANDY" McKINLEY, PH.D.
Non-Invasive Brain Stimulation (NIBS) Team in the Cognitive Performance Optimization Section, Applied Neuroscience Branch, USAF

IRWIN "DrCOACH" HUDSON, PH.D.
Human Systems Engineer, U.S. Army DEVCOM, STE-LTS

J.J. WALCUTT, PH.D.
Research Scientist, Enterprise-level Learning Engineer, SAIC

GEORGE MATOOK
Program Manager, U.S. Army DEVCOM SC

DR. REINERMAN–JONES   DR. McKINLEY   DR. HUDSON

DR. WALCUTT   MR. MATOOK

The idea of having a super soldier in the ranks is a tantalizing prospect for any military. Just imagine, a soldier who could withstand pain, extreme cold or the need to sleep. Although it may sound like something out of science fiction, emerging technologies capable of augmenting the human body are rapidly evolving and becoming a reality. Injectable night vision, blood engineered for the ability to breathe underwater, bionic hearing, all these are no longer science fiction. Super soldiers are fast becoming a reality as militaries across the world search for ways to beef up their troops to make them stronger, faster, and more deadly.

The idea of getting our hands on some highly coveted Marvel-Esque superpowers sounds exciting, however, there are some real-world fears and ethical questions that need to be asked. Just because we can, should we? The same technology in the hands of an insurgent or terrorist could create super terrorists capable of all kinds of destruction.

This super soldier Black Swan could truly save thousands of lives with a quick decisive win of a war; or the tech could fall into the hands of a dictator with nefarious intent. The use of Modeling and Simulation can help us better understand how to manage these new technologies. If you are in any way involved in helping our warfighters get a physical, or mental edge, then this is a must attend session! We have gathered a team of experts that have done extensive research into the area and can give us a rundown on the good, the bad and the ugly. Join us!

FOCUS EVENTS

TUESDAY, 28 NOVEMBER • 1400 – 1530 • ROOM W304EF

FAST–TRACKING DOD'S TEST CAPABILITY DEVELOPMENT: CONNECTING THE I/ITSEC COMMUNITY

RELEVANCY OF THE I/ITSEC COMMUNITY IN THE DOD OPERATIONAL TESTING NEEDS

MODERATOR

TARA KILCULLEN
Principal, ZYGOS Consulting

PANELISTS

GEOFF WILSON
Program Manager, Science and Technology (PM S&T), Test Resource Management Center (TRMC), OSD

WHITNEY B. WINCHESTER
Assistant Program Manager Executing Agent, Directed Energy Test (DET), Executing Agent, Nuclear Environments Test (NET) Instrumentation Management Office (IMO), U.S. Army PEO STRI

TRUNG D. NGUYEN
Executing Agent, Electronic Warfare Test (EWT), Instrumentation Management Office (IMO), U.S. Army PEO STRI

TRMC REPRESENTATIVE

MS. KILCULLEN   **MR. WILSON**   **MS. WINCHESTER**   **MR. NGUYEN**

This event identifies how the I/ITSEC community can engage in growing opportunities for new acquisition-focused DoD test needs. PEO STRI's Instrumentation Management Office (IMO) is a key enabler in meeting the OSD's Test Resource Management Center's (TRMC) test needs. Both TRMC T&E/S&T PM and IMO test development portfolio leads will discuss how they work together to broaden venues that rapidly bring cutting-edge technology to the test community. The attendees will take away a better understanding of how they may be able to support the TRMC mission in their cross-service role in ensuring range readiness with ever-increasing test technology challenges.

FOCUS EVENTS

HUMAN–CENTERED SUCCESSES AND CHALLENGES IN AR/VR DEVELOPMENT AND IMPLEMENTATION

IMPROVING HUMAN INTERACTION WITH VIRTUAL REALITY IN THE REAL WORLD: THERE'S LOTS TO TALK ABOUT AND MORE TO GET DONE!

MODERATOR

WINK BENNETT, PH.D.
Readiness Product Line Lead, AFRL

PANELISTS

COMMANDER BRENNAN COX, PH.D., USN
Deputy Director, Naval Medical Research Unit Dayton

MAYOWA OLONILUA
Principal Psychologist, DSTL, UK

AARON GARDONY, PH.D.
U.S. Army DEVCOM SC

B. ADRIAN FLOWERS
Capability Lead for Perceptual and Physical Augmentation, Aptima, Inc.

WING COMMANDER RUARI HENDERSON–BEGG
Defence Operational Training Capability (Air) (DOTC(A))

ROY ARENTS
NRL, The Netherlands

ENVIRONMENTAL CONSTRAINTS · ACTIVITY TRACKING · CYBER SICKNESS MUSCULOSKELETAL PAIN / FATIGUE · HAPTICS

DR. BENNETT · CDR COX, USN · MR. OLONILUA · DR. GARDONAY

MR. FLOWERS · WG CDR HENDERSON–BEGG · MR. ARENTS

Given the ongoing explosion of Augmented, Virtual, and Mixed Reality technologies and tools, we continue to see instances where we need to pay special attention to human-centered issues in developing and using these technologies in practical applications. Our panel focuses on continuing challenges in developing and applying these technologies for human performance and readiness. There are many opportunities, but there are also technological gaps and risks that persist. Examples include cybersickness and fatigue, environmental constraints such as outdoor implementation or applications in secure spaces, precision in activity tracking for individuals and larger teams in a variety of real-world contexts and situation, haptics, and how best to get realistic interaction and feedback with the environment at hand (sorry, no pun intended). The audience will have the opportunity to connect with a group of multi-national innovators who are driving research and applications with these technologies and who are also working to address some of the gaps we see today. Event participants will also have a chance to hear about panel member's ongoing research and developments, their successes and the things that are continuing challenges for their work. Audience members will also come away with a much better understanding where a number of communities are in their state of the art and what they are doing to improve human interaction, learning, and immersion in these environments.

FOCUS EVENTS

BEST FROM AROUND THE GLOBE

Best from Around the Globe features the Best Paper awardees of MODSIM World and IT²EC. Each of the winners was selected by a committee and criteria specific to the particular global conference focus and theme. Come hear the award winners offer their outstanding presentations from these prestigious international conferences.

MODSIM WORLD 2023 BEST PAPER

USING MACHINE LEARNING FOR DEFECT CHARACTERIZATION

Victoria Gerardi, Operations Research Analyst, U.S. Army DEVCOM-Armaments Center
Antonio Aguirre, U.S. Army DEVCOM-Armaments Center

This paper presents a methodology that is under development to analyze large X-ray image datasets for anomaly and/or defect detection using machine learning techniques. The characterization of anomalies and/or defects can be identified through the performance accuracy of either image classification (supervised learning - convolutional neural networks) or anomaly detection (unsupervised learning - autoencoders) models. Each learning technique has unique hyperparameters and design architectures to aid in creating a robust model to predict against X-ray images of varying orientations, brightness and contrast. This method would be a strong complement to the traditional suite of energetic material/component characterization tests, particularly for melt-pour explosives, performance-related design intent, safety, and/or performance-related defect detection. For safety or performance-related defect detection, the methodology enables baselining defects as a feedback loop in the development of new subscale tests and physics-based models to better understand and predict energetic failure modes, a capability under development at DEVCOM Armament Center called Energetic Defect Characterization (EDC).

IT²EC 2023 BEST PAPER

VR FOR PUBLIC SAFETY RESPONSE TRAINING

Major Koen Ceulemans, Innovation Manager Land Component (TBC) Technology Advisor
1LT Jeroen Nelis, Innovation Manager Belgian Federal Police (Limburg) – Subject Matter Expert XR Belgian Defence

In 2009 a Belgian ship was highjacked by Somalian pirates. In a joint effort to resolve the situation, the special forces of both the Belgian Federal Police and the Belgian Defence trained together to enter the ship. To accomplish the mission, they made a real-life replica of the ship using wood and carton based on the blueprints of the ship. However, building this replica took a lot of time; Time that could otherwise be spent training. This is why, in 2022 the Belgian military and police officially joined forces to build a proof-of-concept VR-training simulator that would make it possible to more quickly react to these kinds of situations. The aim of the simulator was to bring the interactions of the operators with the virtual environment as close to real life as possible. This collaboration between the police and military is called XR-labs. The main goal of the lab is to share knowledge and insights in the Belgian military and security sector in the field of eXtended Reality. During the construction of the proof-of-concept training simulator, a strategy is also being developed on how to adopt this kind of technology in the future organization-wide. Where we first thought about just buying off the shelf solutions, we are now shifting towards a solution of co-development, where we would build a system together with the industry. Since the technology is still evolving very rapidly at the moment, buying a state-of-the-art system right now would be outdated in a matter of years and probably even months. Also, the nature of the confidential information could raise concerns when buying a "black box" system off the shelf. For example, we are looking into making 3D-scans of the critical infrastructure like nuclear sites, airports, courthouses, embassies, etc. This will make it possible to more quickly respond to and train for emergency situations, but could also be very dangerous if the information falls into the wrong hands. Besides that, the gathered information about the performance of the operators (e.g., TTPs) is also sensitive in nature. A last issue when buying a system off the shelf is that current simulators are generally made for one specific use case. For example, there are simulators for small arms training, sniper training, decision-making, First Aid, etc. In the real world, we would have a modular simulator - a sandbox environment - that makes it possible to combine the different disciplines in a trianing scenario, as it would be in the real world.

FOCUS EVENTS

FLEET TRAINING OFFICERS PANEL

MODERATOR

CHRISTOPHER BOYLE
LVC Training Technology Director,
US Fleet Forces Command N72

PANELISTS

CAPTAIN MICHAEL LANGBEHN, USN
Deputy, Naval Air Warfare
Development Command

CAPTAIN BRIAN MILLER, USN
Director, Maritime Operations,
Carrier Strike Group FOUR

CAPTAIN SEAN ANDERSON, USN
Commanding Officer, Tactical
Training Group Atlantic

CAPTAIN PETER SHOEMAKER, USN
Commodore, Strike Fighter Wing
Atlantic

MR. BOYLE

CAPT LANGBEHN, USN

CAPT MILLER, USN

CAPT ANDERSON, USN

CAPT SHOEMAKER, USN

"LVC training continues to be a game-changer in training our combat leaders in the Fleet. From the Fleet Commander, to the pilot in the cockpit, to the First Class Petty Officer on the radar scope, LVC allows us to train together in one environment at unprecedented levels of integration and complexity." CNO, NAVPLAN

In this special event, you will hear from Fleet Training Officers about current training they provide in the here and now. We have assembled a select group of senior Navy leaders responsible for providing the most challenging training events for deploying battle groups, ships and aircraft, and their staffs and crew who will discuss the successes and challenges they face providing meaningful training across multiple domains with current systems and capabilities.

FOCUS EVENTS

SENIOR NCO PERSPECTIVE: OPERATIONAL READINESS LEVERAGING SIMULATIONS FOR TRAINING & MISSION REHEARSAL

MODERATOR

COMMAND SERGEANT MAJOR (R) WALTER A. TAGALICUD, USA
Synthetic Training Environment Cross Functional Team Highly Qualified Expert

PANELISTS

SERGEANT MAJOR TOM A. DOW JR., USA
Senior Enlisted Advisor, U.S. Army PEO STRI

COMMAND SERGEANT MAJOR BRYAN OTERO, USA
U.S. Army Combat Capabilities Development Command (DEVCOM)

SERGEANT MAJOR CHRIS KOHUNSKY, USA
Senior Enlisted Advistor, U.S. Army CAC-T, Fort Leavenworth

COMMAND SERGEANT MAJOR ERICK E. OCHS, USA
U.S. Army Training Center & Fort Jackson

SERGEANT MAJOR WILLIAM POULIOT, USA
Assistant Secretary of the Army (Acquisition, Logistics and Technology) ASA (ALT)

CSM (R) TAGALICUD, USA

SGM DOW, JR., USA

CSM OTERO, USA

SGM KOHUNSKY, USA

CSM OCHS, USA

SGM POULIOT, USA

The feedback from combat-tested senior NCOs has always been valuable to the training and development of the latest generation of Army Soldiers. These seasoned leaders know today's youngest warfighters grew up surrounded by constantly changing and advancing technology, resulting in them being more accepting of digital simulation for training and mission rehearsal. Despite their ability to adapt to technology, these young warfighters must still embrace the idea that synthetic training only augments and does not replace live training evolutions. Additionally, simulation and mission rehearsal technology is not limited to only weapons and platforms, but also covers the entire spectrum of military operations including communications, logistics, tactical data links, and battlefield medicine. Each of these critical elements must be included in any type of synthetic training environment in order to achieve both individual and unit operational readiness.

JOINT MEDICAL TRAINING – LEADERSHIP PERSPECTIVE ON CURRENT AND FUTURE CAPABILITIES

JOINT MEDICAL TRAINING LEADERSHIP PANEL

MODERATOR

MATTHEW HACKETT, PH.D.
Science and Technology Manager, U.S. Army DEVCOM SC STTC

PANELISTS

CAPTAIN JOSEPH LOPREIATO, M.D., USN (RET.)
Professor of Pediatrics, Medicine and Nursing, Assistant Dean for Simulation Education, Uniformed Services University of the Health Sciences

COLONEL MARIA M. MOLINA, M.D., USA
Acting Director, J-7 Education & Training Directorate, DHA

COLONEL KATHLEEN SAMSEY, M.D., USA
Director, Directorate of Simulation, U.S. Army Medical Center of Excellence

COLONEL BRIAN K. WHITE, USAF
Comprehensive Medical Readiness Program Chair, Air Force Medical Readiness Agency

LIEUTENANT COLONEL SAMANTHA KELPIS, USAF
MEDIC-X Team Lead, Air Force Medical Readiness Agency

DR. HACKETT

DR. LOPREIATO

COL MOLINA, USA

COL SAMSEY, USA

COL WHITE, USAF

LT COL KELPIS, USAF

The military healthcare community must continuously respond to shifts in the operational environment. In recent conflicts, evacuation of casualties occurred rapidly due to air and ground superiority. With future conflicts, in particular Large Scale Combat Operations (LSCO), evacuation may be denied for significant periods of time. Furthermore, LSCO is likely to result in larger numbers of casualties, complicating the task of clearing the battlefield. Beyond battlefield medicine, the military health system must be ready to provide care to servicemembers for nearly all specialties and sub-specialties. The combination of difficult battlefield medicine conditions with broad requirements for medical treatment facility care presents significant challenges. Within this panel, representatives from the Joint healthcare community will present the direction of military healthcare training. This will include representatives associated with battlefield medicine, training within medical treatment facilities, and graduate medical education.

FOCUS EVENTS

DIGITAL TRANSFORMATION & MODEL BASED SYSTEMS ENGINEERING (MBSE)

MARINE CORPS DIGITAL TRANSFORMATION OF TRAINING, ANALYTICS, AND EXPERIMENTATION

MODERATOR

LUIS E. VELAZQUEZ
Chief Technology Officer (CTO), MARCORSYSCOM

PANELISTS

JOHN YOUNG, PH.D.
Technical Director, Operations Analysis Directorate (OAD), Headquarters Marine Corps, Combat Development and Integration (CD&I)

LIEUTENANT COLONEL SCOTTY BLACK, USMC
Ph.D. Candidate, Naval Postgraduate School

LIEUTENANT COLONEL WYNNDEE M. YOUNG, USMC
Program Manager, Wargaming Capability, MARCORSYSCOM

JOE LOMANGINO
Air Ground Simulation Integration Analyst, TECOM

TYSON C. KACKLEY
Program Manager, Wargame Capability Engineer Analyst, MARCORSYSCOM

MR. VELAZQUEZ

DR. YOUNG

LTCOL BLACK, USMC

LTCOL YOUNG. USMC

MR. LOMANGINO

MR. KACKLEY

There are multiple pillars within the Marine Corps community that leverage MBSE. It is imperative that a cohesive strategy accounts for existing efforts, methods, means, and tools to achieve a successful Digital Transformation. Tools are designed and purpose-built to meet end state objectives regardless of the community undergoing Digital Transformation.

This moderated panel will introduce you to the Marine Corps leaders that conduct and pave the way ahead for the future of Digital Transformation. The panel members are the decision-makers from across the spectrum to include capabilities development, requirements sponsorship, program management, and Technical Authority execution. This panel will provide valuable insight into their scope of work on the correlated efforts to bring complicated computer MBSE tools, computing, models, visualization, and the creation of a specialized skilled labor force necessary to support the full range of Digital Transformation possibilities while discussing the common approaches that link them all.

ARMY SCIENCE BOARD FY23 STUDY FINDINGS AND RECOMMENDATIONS

TESTING, VALIDATING AND PROTECTING ARMY USE OF AI/ML MODELS

MODERATOR

THOMAS P. RUSSELL, PH.D.
CEO and President, Defense Science and Technology Consultants, LLC

PANELISTS

DAVID JIMENEZ
Vice President for Research, Development, Test and Evaluation, Jacobs Technologies

GARY W. BLOHM
President, G Blohm Consulting, LLC

MARC ZISSMAN, PH.D.
Associate Head, Cyber Security and Information Sciences Division, MIT Lincoln Laboratory

NANCY KREIDLER
Cybersecurity Leader, Government and Public Services Advisory, Cyber & Strategic Risk Practice, Deloitte

FRED B. SCHNEIDER, PH.D.
Samuel B. Eckert Professor of Computer Science, Cornell University

DR. RUSSELL

MR. JIMENEZ

MR. BLOHM

DR. ZISSMAN

MS. KREIDLER

DR. SCHNEIDER

Machine Learning models are vulnerable to a variety of attacks above and beyond the range of conventional cyber and human social-engineering hacks, such as data poisoning or AI Trojans inserted during the training phase. AI/ML systems are also brittle and easy to confuse in the inference phase: in a military context, parked aircraft with a certain sticker applied to the fuselage might be miscategorized by an aided target recognition system as not-aircraft, or a tank camouflaged with enough foliage might be considered a moving tree. This study assessed the current state of counter-AI and counter-counter-AI programs and research, in DOD, in the Intelligence Community, in industry and academia, and provides recommendations for the Army to improve how it tests and evaluates, validates, and protects existing and future AI/ML models and the data supply chain, and to improve detection, reaction, and restoration of AI/ML-enabled systems after an attack – AI assurance.

FOCUS EVENTS

REVOLUTIONIZING TRAINING WITH GENERATIVE AI

MODERATOR

DANIEL SERFATY
Chairman and Chief Executive Officer, Aptima, Inc.

PANELISTS

YAIR SHAPIRA, PH.D.
Founder & Chief Executive Officer, Ed-with-AI

ANDY VAN SCHAACK, PH.D.
Associate Professor of the Practice, Vanderbilt University

SVITLANA VOLKOVA, PH.D.
Chief AI Scientist, Aptima, Inc.

KEITH BRAWNER, PH.D.
Program Manager, Institute for Creative Technologies UARC, U.S. Army DEVCOM SC STTC

MR. SERFATY

DR. SHAPIRA

DR. VAN SCHAACK

DR. VOLKOVA

DR. BRAWNER

Generative AI, such as ChatGPT, has burst onto the scene as the latest application of generative natural language processing, taking the public by storm and demonstrating its impressively (and eerily) human-like conversational skills. Millions are now using it and other AI generative models, experimenting with and exploring their possibilities, asking questions, and giving various writing assignments and other tasks.

With these AI models becoming more robust and mature, how might they be put to use productively and safely in training, education, and simulation? Beyond how they might support their human counterparts as highly personalized assistants, could they fundamentally change the way we learn, train, and work in today's digital world?

Although these natural language models can create responses that appear accurate and thoughtful, they lack true human-like understanding or insight. And as they become more sophisticated and human-like, they might engender a false sense of trust or an exaggerated mistrust, overreliance, or miscalibrated confidence by their human users. What processes or guardrails will we need to ensure productive human-AI teaming that will provide accuracy, data integrity, and explainability?

This panel of leading thinkers from defense and industry will address and explore with the audience the current and potential applications of generative AI in training, simulation, and education in both military and civilian domains.

FOCUS EVENTS

DEPARTMENT OF THE AIR FORCE MAJCOM

PERSPECTIVES FROM THE USER

MODERATOR

COLONEL TIMOTHY E. BEERS, USAF
Commander, AFAMS

PANELISTS

COLONEL NICHOLAS R. YATES, USAF
Chief, Operational Training Infrastructure Division, HAF/A3TI

COLONEL BENJAMIN L. CARROLL, USAF
Chief, Aircrew Tactics and Training Division, Headquarters Air Mobility Command

LIEUTENANT COLONEL SHANE GARNER, USAF
Chief, Test & Training Division, ACC A589/A5T

COLONEL COREY J. KLOPSTEIN, USSF
Warfigther Enterprise Acquisition Delta

JAY R. FISHER
Chief, AFSOC/A3 Training Systems Branch

COL BEERS, USAF

COL YATES, USAF

COL CARROLL, USAF

LT COL GARNER, USAF

COL KLOPSTEIN, USSF

MR. FISHER

This panel brings together training command leaders to provide insights into the needs of the user. These DAF leaders will provide insight from mission readiness perspectives needed to meet operational imperatives across current systems and capabilities. The panel also provides an opportunity for I/ITSEC participants to engage with the DAF leaders to discuss challenges and future capability / technology needs to the increase Airmen and Guardian readiness through training.

MEDICAL IGNITE: THE LATEST INNOVATIONS IN MEDICAL SIMULATION ACROSS INDUSTRY, ACADEMIA, AND GOVERNMENT

MODERATORS

MATTHEW HACKETT, PH.D.
Science and Technology Manager,
U.S. Army DEVCOM SC STTC

MARK MAZZEO
Science and Technology Manager,
U.S. Army DEVCOM SC

SPEAKERS

GERD BRUDER
University of Central Florida
Institute for Simulation and Training
Topic: Virtual Experience Research
Accelerator

ALYSSA TANAKA
Soar Technology, LLC
Topic: Artificial Intelligence in the
Medical Training Domain

RYAN RIBEIRA
SimX
Topic: Virtual Reality for Military
Medical Training

ED SADLER
Simetri
Topic: Care Under Fire using Video
Pass-Through HMDs

ROBERT LEVINE
ArchieMD
Topic: Extreme Cold Medicine

RAHUL RAHUL
Rensselaer Polytechnic Institute
Topic: Functional Near Infrared
Spectroscopy for Performance
Assessment

ROBERT SWEET
University of Washington
Topic: 3D Printing Soft Tissue
Simulants

THOMAS "BRETT" TALBOT
University of Southern California
Institute for Creative Technologies
Topic: Digital Humans in Medical
Training

MAJ MARTIN SMALLIDGE
Medical Capability Development
Integration Directorate
Topic: Dental Capability – Training
and Simulation Considerations

JACK NORFLEET
U.S. Army DEVCOM SC
Topic: Automated Assessment
Capabilities to Unburden
Instructors

BETH PETTITT
U.S. Army DEVCOM SC
Topic: Army Simulation of the
Future

Healthcare simulation and training is a vast field, providing technological solutions for providers ranging from first-responders to surgeons. In both the civilian and military healthcare communities, simulation has rapidly grown to become a foundational tool for initial and continuing education. Healthcare simulation is advancing quickly with novel technologies, including mixed reality, machine learning, artificial intelligence, computer vision, physiological monitoring, and more. This session will be structured as an IGNITE event. IGNITE events are comprised of short, 5 minute sessions highlighting exciting topics or trends in a field. This event will focus on novel technologies or concepts that are emerging in heatlhcare simulation and training. Both civilian and military medicine will be represented to facilitate the greatest exchange of information and broadest reach. Attendees can expect to experience and learn about dynamic new ideas, exciting trends, and unique perspectives within the area of healthcare training.

THURSDAY, 30 NOVEMBER • 0830 – 1000 • ROOM W306AB

WARGAMING TO WARFIGHTING – TRAINING FOR THE RIGHT FIGHT ACROSS THE LEARNING CONTINUUM

MODERATOR

LIEUTENANT COLONEL WYNNDEE M. YOUNG, USMC
Program Manager, Wargaming Capability, MARCORSYSCOM

PANELISTS

COLONEL TIM BARRICK, USMC (RET.)
Wargaming Director, Marine Corps University

LIEUTENANT COLONEL JESSE ATTIG, USMC
Modeling & Simulation Officer, Marine Air Ground Task Force Training Command, USMC

PAUL TAMARIBUCHI
Director, Pacific Warfighting Center, USINDOPACOM J73

YARON "RON" KETER
JLVC Modernization Project Lead, NSWC – Corona

COLONEL GEORGE C. SCHREFFLER, III, USMC
Director, MCWL Wargame Division, USMC

LTCOL YOUNG, USMC

COL BARRICK, USMC (RET.)

LTCOL ATTIG, USMC

MR. TAMARIBUCHI

MR. KETER

COL SCHREFFLER, III, USMC

The panel will emphasize the critical significance of establishing consistency across all learning domains and levels, encompassing experimentation, professional education, wargaming, formal schoolhouse training, home-station training, and service-level exercises. To achieve this, there is a pressing need for a unified "narrative arc" that threads through these diverse learning avenues. This narrative arc should cover key elements such as the operational environment, threat capabilities and tactics, emerging weapons systems and concepts, and doctrine. The ultimate aim is to accelerate the transition from learning to training, to execution.

SERIOUS GAMES SHOWCASE AND CHALLENGE

EXPERIENCE BEST-IN-CLASS SERIOUS GAMES IN BOOTH 3181!

SGS&C DIRECTOR

JENN McNAMARA
Vice President, Strategic Partners and Products, BreakAway Games

SGS&C INDUSTRY LEAD

ADELLE ADAMS
Senior Business Development Manager, RINA Consulting Defence Ltd.

SGS&C GOVERNMENT LEAD

BENJAMIN LITTLE
Systems Engineer, U.S. Army PEO STRI

MS. McNAMARA

MS. ADAMS

MR. LITTLE

The Serious Games Showcase and Challenge (SGS&C) invites you to Booth 3181 to play this year's finalist games, immerse yourself in exciting PC, XR, and mobile learning experiences, meet the developers, and cast your vote for the People's Choice Award.

Visit the booth anytime the Exhibit Hall is open (check times in the official program) to play the serious games, network with their developers, and meet members of our organizing committee!

Visit the SGS&C to learn how games can address your serious learning needs and experience the games firsthand!
Founded in 2006, the SGS&C aims to bring awareness of the impact that games have on learning, and to provide quality exemplars. Within a casual and interactive setting, the SGS&C provides a showcase of best-in-class learning games submitted by businesses, students, and government organizations while offering the developers recognition of their achievements as finalists and award winners.

Play the games and cast your vote for the People's Choice Award by 1800 Wednesday, 29 November.
The People's Choice Award is based on votes from attendees like you. Your I/ITSEC badge includes your ballot. Be sure to visit the booth to play the games and vote!

Hear the SGS&C awards announced live on Thursday, 30 November.
Join us at 1300 in the Innovation Showcase (Booth 2588) for the Awards Ceremony for the announcement of the winners of the:

- Best General Audience Serious Game
- Best Government Audience Serious Game
- Best Student-developed Serious Game
- Best XR Serious Game
- Best Serious Game Innovation Award
- Students' Choice Award
- People's Choice Award

We thank our generous sponsors: ARA Virtual Heroes Division, Engineering & Computer Simulations, Ternion Corporation, VMASC, National Training & Simulation Association, Hatalom Corporation, HP, Box.com, and RINA Consulting Defence Ltd.

BREAKING INTO GOVCON FROM A DCAA PERSPECTIVE

DEMYSTIFYING FEDERAL GOVERNMENT CONTRACT REQUIREMENTS

MODERATOR

KATELYN RIGLE
Operations Small Business Outreach Coordinator, Defense Contract Audit Agency

Join Defense Contract Audit Agency as we break down the impact of the 2019 GAO "Contract Financing" report and the subsequent Office of the Under Secretary of the Defense for Acquisition and Sustainment Defense Pricing and Contracting finance study, which cited government compliant accounting systems, Cost Accounting Standards, and FAR Cost Principles as barriers to entry for small businesses looking to enter the Defense Industrial Base. During this presentation, DCAA will look at the types of contract awards and the requirements for each, as well as the common misconceptions of FAR, CAS, and TINA.

ABOUT DCAA

Defense Contract Audit Agency (DCAA) provides audit and financial advisory services to the Department of Defense (DOD) and other federal entities responsible for acquisition and contract administration. DCAA's role in the financial oversight of government contracts is critical to ensure DOD gets the best value for every dollar spent on defense contracting. DCAA operates under the authority, direction, and control of the Under Secretary of Defense (Comptroller)/Chief Financial Officer. Its work benefits our men and women in uniform and the American taxpayer. The Agency's primary function is to conduct contract audits and related financial advisory services. Contract audits are independent, professional reviews of financial representations made by defense contractors, and DCAA helps determine whether contract costs are allowable, allocable, and reasonable.

MONDAY, 27 NOVEMBER • 1430 – 1600 • ROOM W305AB

HUMAN READINESS LEVELS
ENGINEERING SYSTEMS FOR HUMANS

MODERATOR

KARA L. ORVIS, PH.D.
Executive Vice President, Science & Technology, Aptima, Inc.

PANELISTS

NEIL GANEY, PH.D.
Fellow for Human Systems Engineering and Integration, Northrop Grumman

SYLVAIN BRUNI
Principal Engineer, Aptima, Inc.

LAYLA AKILAN
Senior Systems Cognitive Engineer, Mile Two, LLC

JESSICA BAWEJA, PH.D.
Social Scientist, Pacific Northwest National Laboratory

DR. ORVIS

DR. GANEY

MR. BRUNI

MS. AKILAN

DR. BAWEJA

To create and maintain an advantage with peer and near peer advisories, it is critical that our warfighters are equipped with systems that are designed to consider their physical, behavioral, and cognitive needs. I/ITSEC provides an excellent opportunity for groups such as the government Human Systems COI and industry to reach out to the larger DoD community and discuss human systems issues as they relate to training, modeling, and simulation. Research shows that attention to human systems design is critical for the prevention of human error, which accounts for most accidents and incidents across a wide range of systems. Unfortunately, human performance research is not routinely transitioned to defense acquisition programs. Also, with no specifications required for human systems integration in acquisition programs, Requests for Proposals (RFPs) seldom include evaluation criteria for it, and it is ignored by program managers. Human systems design issues must be considered early during system design to reduce subsequent operations and maintenance costs, minimize accidents and incidents that negatively impact safety and costs, and improve the effectiveness of the combined human-system for achieving mission outcomes. This panel of experts will discuss the importance of recent human systems documentation and guidance, specifically the Human Readiness Levels (HRL) as they relate to modeling, simulation, education, and training solutions, all of which include the human. The panel will educate the attendees on what the HRLs are, how program managers can and should build those requirements into RFPs, and challenges associated with implementing the guidance.

WEDNESDAY, 29 NOVEMBER • 0830 – 1000 • ROOM W305AB

SIMULATION STANDARDS: DELIVERING MULTI–NATIONAL INTEROPERABILITY

STANDARDS FOSTER INTEROPERABILITY, #GOSTANDARDS

MODERATOR

WIM HUISKAMP
Chief Scientist, Modelling, Simulation and Gaming, TNO Defence Research

PANELISTS

PATRICK T. ROWE
Executive Director, Simulation Interoperability Standards Organization (SISO)

LIONEL KHIMECHE
Head of the M&S Department, DGA (Direction Générale de l'Armement)

SEBASTIAN LOZE
Simulations Industry Manager, Epic Games

SCOTT SIMMONS
Chief Standards Officer, OGC

NATO OTAN
Modelling and Simulation Group
Neuilly-sur-Seine | France

SISO Simulation Interoperability Standards Organization "Simulation Interoperability & Reuse through Standards"

KHRONOS GROUP

Open Geospatial Consortium

S&T organization

MR. HUISKAMP   MR. ROWE   MR. KHIMECHE   MR. LOZE   MR. SIMMONS

Standards provide interoperability and reduce time and cost to deliver effective solutions. This is especially true in areas like training or concept development where a mix of existing and/or newly developed components often need to be integrated in a short timeframe.

M&S standardization leads from NATO Modelling and Simulation Group (NMSG), the Simulation Interoperability Standards Organization (SISO) and other key organizations will describe their standardization processes and ongoing efforts.

You will gain renewed appreciation for the value of standards and more in-depth understanding of how they are developed, adopted, supported, and maintained. If you attended the NMSG-SISO session last year, plan to join again this year to get an update of NATO and SISO standards program information.

COMMUNITY OF INTEREST EVENT

WEDNESDAY, 29 NOVEMBER • 1300–1700 • ROOM W110A
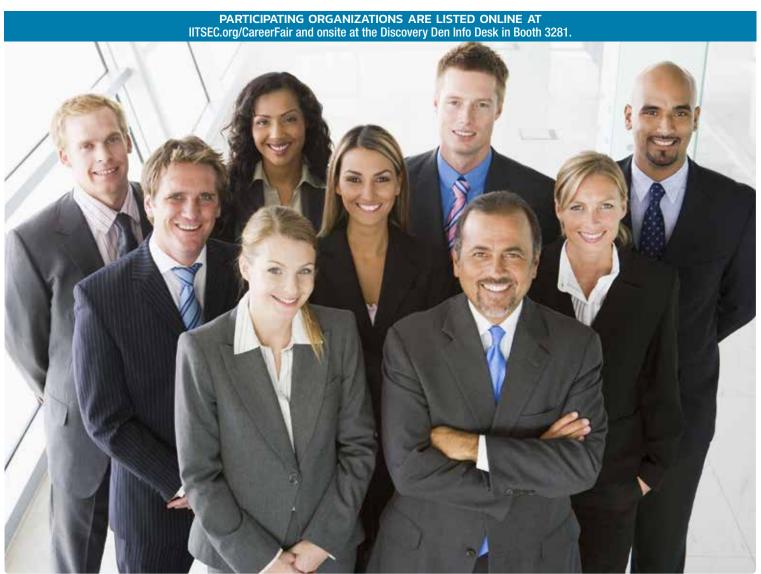
NTSA CAREER FAIR AT I/ITSEC

Job opportunities are on the rise for the defense industry – leading the way for developing cutting-edge solutions. The career fair welcomes you to be part of the fast-growing Simulation and Training community.

Meet with industry and government organizations with opportunities for new graduates and transitioning professionals on Wednesday, 29 November from 1300 – 1700 at the OCCC in Room W110A for the I/ITSEC Career Fair. See the Career Fair website at IITSEC.org/CareerFair for registration information.

This event provides:
• an opportunity to learn more about open jobs available from government and industry partners
• networking for businesses with subcontracting needs
• a space to learn about the government's perspective and process
• an environment to grow your network

I/ITSEC attendees do not need to register to attend the Career Fair. Participating organizations will be added to the website as they are confirmed; please visit IITSEC.org/CareerFair for the most up-to-date information. If you have any questions while onsite, please visit the Career Fair on Wednesday, 29 November in room W110A.

**PARTICIPATING ORGANIZATIONS ARE LISTED ONLINE AT
IITSEC.org/CareerFair and onsite at the Discovery Den Info Desk in Booth 3281.**

THURSDAY, 30 NOVEMBER • 1030 – 1200 • ROOM W306AB

COGNITIVE AUGMENTATION FOR MILITARY APPLICATIONS

A PRIMER ON THE NATO INDUSTRY ADVISORY GROUP SG-278 REPORT

MODERATOR

SYLVAIN BRUNI, PH.D.
Principal Engineer, Aptima, Inc.

PANELISTS

COMMANDER (SG) PAUL GROESTAD, NORWEGIAN NAVY
Deputy Branch Head, Cognitive Warfare Concept Lead, Concept Development Branch, Allied Command Transformation NATO

PAOLO PROIETTI
NATO Study (NIAG & STO) Coordinator, Technology & Innovation, Leonardo

VALARIE YERDON, PH.D.
Senior HSI Analyst, THOR

JOHAN DE HEER, PH.D.
Director of Research Programs – CTO Office (Thales Netherland) Segment Manager on Brain-Computer Interfaces - Key Technology Domain Systems (Thales Group)
Director of the Human Behavior Analytics Lab – Thales Research & Technology (Hengelo), Thales

SALVATORE CARMINE GIUGLIANO
System Analyst Engineer, MBDA

DR. BRUNI

CDR GROESTAD

MR. PROIETTI

DR. YERDON

DR. DE HEER

MR. GIUGLIANO

What if an authoritarian leader of a nuclear nation could improve their cognitive abilities by 100x using implants? Can multimodal deepfakes turn a population against its government in five days? Will children be cognitively inoculated against misinformation before the end of this decade? These are but a few questions the NATO Industry Advisory Group (NIAG) imagined as part of Study Group 278 on Cognitive Augmentation for Military Applications at the 2040 horizon.

The commoditization of generative AI and the vast breadth of emerging cognitive technologies, combined, will yield new opportunities and threats for NATO nations. Understanding this landscape is critical for government stakeholders and industry decision-makers as they seek to leverage such prospects and anticipate/mitigate the related threats.

In this special event, servicemembers and industry representatives will get a primer on the SG-278 report, focused on four components for cognitive augmentation: training and readiness, neurotech, emerging tech, and ethical, legal, and societal implications (ELSI). Attendees will learn:
• How to navigate the landscape of cognitive augmentation for military applications
• Critical NATO use cases and concepts of use for leveraging cognitive augmentation for blue forces while countering cognitive augmentation of red forces
• Early insights and recommendations for NATO and industry towards roadmapping cognitive augmentation towards 2040

PROGRAM BRIEFS

PM TRASYS – RANGE TRAINING SYSTEMS – ACQUISITION UPDATE

MODERATOR

JOHN TAYLOR
Deputy Program Manager, PM TRASYS, MARCORSYSCOM

PANELISTS

LIEUTENANT COLONEL RORY HERMANN, USMC
Product Manager (PdM) Range Training Systems (RTS), PM TRASYS, MARCORSYSCOM

LIEUTENANT COLONEL MARCIAL GARCIA, USMC
Product Manager (PdM) TS4, PM TRASYS, MARCORSYSCOM

NORIKO O'BRIEN
Contracting Officer, MARCORSYSCOM

JAMES FRALEY
Range and Training Programs Division (RTPD), TECOM

This event provides a brief overview of the acquisition projects managed at/by PM TRASYS in Orlando, Florida, PdM Range Training Systems and the services efforts that provide supporting activities. The PdMs will provide an update to projects and offer information regarding upcoming procurement activities. TECOM, RTPD representation will provide an update and introduce emerging training requirements in development for consideration as new acquisition projects.

PM TRASYS – SYNTHETIC TRAINING SYSTEMS – ACQUISITION UPDATE

MODERATOR

JOHN TAYLOR
Deputy Program Manager, PM TRASYS, MARCORSYSCOM

PANELISTS

ELIZABETH TYGART
Product Manager (PdM), Synthetic Training Systems (STS), PM TRASYS, MARCORSYSCOM

LIEUTENANT COLONEL MARCIAL GARCIA, USMC
Product Manager (PdM), TS4, PM TRASYS, MARCORSYSCOM

NORIKO O'BRIEN
Contracting Officer, MARCORSYSCOM

JOE LOMANGINO
Range and Training Programs Division (RTPD), TECOM

This event provides a brief overview of the acquisition projects managed at/by PM TRASYS in Orlando, Florida, PdM Synthetic Training Systems and the services efforts that provide supporting activities. The PdMs will provide an update to projects and offer information regarding upcoming procurement activities. TECOM, RTPD, representation will provide an update and introduce emerging training requirements in development for consideration as new acquisition projects.

PROGRAM BRIEFS

AIR FORCE ACQUISITION UPDATE

CO-MODERATORS

COLONEL CHARLES "MATT" RYAN, USAF
Senior Materiel Leader for the Simulators Division, Air Force Program Executive Officer (PEO) for Agile Combat Support (ACS)

LEA T. KIRKWOOD, SES
Air Force Program Executive Officer (PEO) for Agile Combat Support (ACS)

This Special Event will provide the latest information from the U.S. Air Force regarding the acquisition initiatives, focus areas, and upcoming training systems acquisition actions. It will feature remarks from Ms. Lea Kirkwood, the Air Force Program Executive Officer (PEO) for Agile Combat Support (ACS). Ms. Kirkwood will share her perspective on the current state of the Air Force acquisition process along with ongoing initiatives that apply to the I/ITSEC community. Colonel Charles "Matt" Ryan, the Senior Materiel Leader for the Simulators Division, will follow the PEO's presentation. Col Ryan and his team will provide updates on Air Force simulator business processes and opportunities.

ARMY ACQUISITION UPDATE (TSIS UPDATES)

MODERATOR

KAREN D. H. SAUNDERS, SES
Program Executive Officer, Simulation, Training and Instrumentation (PEO STRI)

PANELISTS

COLONEL THOMAS MONAGHAN, USA
Project Manager Training Devices, U.S. Army PEO STRI

JEANNIE WINCHESTER
Project Manager Cyber, Test and Training, U.S. Army PEO STRI

SCOTT PULFORD
Deputy Project Manager Synthetic Environment, U.S. Army PEO STRI

MICHAEL WILLOUGHBY
Project Lead TADSS Support Operations, U.S. Army PEO STRI

DALE WHITTAKER
Project Lead International Programs, U.S. Army PEO STRI

MIKE HARRIS
Executive Director/Senior Contracting Official, Army Contracting Command – Orlando (ACC-O)

JUDE TOMASELLO
Program Manager for Medical Simulation and Training, Defense Health Agency

The U.S. Army Program Executive Office Simulation, Training and Instrumentation (PEO STRI), Training & Simulation Industry Symposium (TSIS) updates at I/ITSEC will provide the latest information regarding current and future PEO STRI business opportunities. This is an update from the June 2023 TSIS and will include presentations from PEO STRI's Project Managers and Project Leads, as well as the Army Contracting Command – Orlando and Program Manager Medical Simulation and Training, Defense Health Agency.

PROGRAM BRIEFS

NAVY TRAINING SYSTEMS PROGRAM MANAGERS – PROGRAM BRIEF

MODERATOR

MIKE MERRITT
Acquisition Director, NAWCTSD

PANELISTS

CAPTAIN KEVIN T. MCGEE, USN
Program Manager, Naval Aviation Training Systems and Ranges Program (PMA-205)

CAPTAIN TIM JAMES, USN
Commanding Officer, NAWCTSD

BOB KERNO
Program Manager, Surface Training Systems Program Office (PMS-339)

ARNOLD MALLORY
Training Department Head, Naval Information Warfare Systems Command

Each year at I/ITSEC, a panel of Training Systems Program Managers consisting of Navy Captains and senior civilian leaders representing the Navy's training acquisition organizations convenes to discuss the year's highlights and share their strategic vision. I/ITSEC participants are welcome and encouraged to attend to hear about the state of the Navy's Training Systems.

NAVY TRAINING PROGRAMS VISION – PROGRAM BRIEF

MODERATOR

MIKE MERRITT
Acquisition Director, NAWCTSD

PANELISTS

CAPTAIN JOHN SCHIAFFINO, USN
Training Systems Program Manager, F-35 Joint Program Office

DAVID KEMP
Director, Ready Relevant Learning (PEO MLB)

ERIC FOX
Program Manager, Navy Continuous Training Environment
Naval Surface Warfare Center, Corona

In this panel session, Navy Captains and senior civilian leaders will discuss program highlights and strategic visions of pillar programs and capabilities pertinent to the Navy Training mission. I/ITSEC participants attending this session will learn more about key Navy weapons platforms, sailors, and the training environment programs.

DOWNLOAD MOBILE APP

INTERNATIONAL PAVILION
ROOM W205ABC

International attendees can meet and connect with counterparts from around the world. Limited private meeting space is available on a first-come, first-served basis to our international participants and may be scheduled at the International Pavilion's Welcome Desk. Additional information about the many international activities throughout I/ITSEC is readily available in the International Pavilion.

International registrants should register at the dedicated international check-in station positioned near the main registration desk in the lower level of West Concourse. International conference attendees' meeting bags will be available for pick-up at the main registration desk this year.

INTERNATIONAL PAVILION HOURS OF OPERATION

Monday, 27 November	0800 – 1800
Tuesday, 28 November	1200 – 1800
Wednesday, 29 November	0800 – 1500
Thursday, 30 November	0800 – 1500

INTERNATIONAL PAVILIONS

Canada	1969

AS OF 22 OCTOBER 2023

SPECIAL EVENTS

FOCUS EVENT
TUESDAY, 28 NOVEMBER • 1400 – 1530 • W305AB
Best from Around Globe

COMMUNITY OF INTEREST
WEDNESDAY, 29 NOVEMBER • 0830 – 1000 • W305AB
THE NETHERLANDS
Simulation Standards: Delivering Multi-National Interoperability

TUTORIALS

MONDAY, 27 NOVEMBER
23T27 • 1030 – 1200 • W307A • UNITED KINGDOM
TUT 10: INTERSECTION OF LEARNING ENGINEERING AND DATA
Managing Learning Resources Through Use of Metadata Standards

23T34 • 1030 – 1200 • W306AB • NORWAY AND UKRAINE
TUT 3: THE EXPERIENCE MATTERS
How to Build at War Time Resilient Online Learning System

23T36 • 1030 – 1200 • W307C • SWEDEN
TUT 4: DISTRIBUTED SIMULATION PROTOCOLS
Introduction to HLA 4

PAPERS

TUESDAY, 28 NOVEMBER
23377 • 1400 – 1430 • W308B • CANADA
ECIT 2: 5G NETWORKS AND REAL-TIME COMMAND AND CONTROL
Digital Twin Approach for 3D Visualization and Optimization of 5G Non-Terrestrial Network

23291 • 1500 – 1530 • W308A • BULGARIA
ECIT 1: AI AND LANGUAGE PROCESSING IN COMPLEX SYSTEMS
Refugee Flow Management and Resilience Implications

23179 • 1600 – 1630 • W300 – THEATRE
BEST PAPER NOMINEE SESSION 2
Contextualizing Cyberspace Electromagnetic Activities (CEMA) in Multi-Domain Operations (MDO) Through Playbooks

23357 • 1630 – 1700 • W307A • BRAZIL
SIM 2: CONVERGING REALITIES THROUGH AI AND VISUALIZATION
Real-Time Surface-to-Air Missile Engagement Zone Prediction Using Simulation and Machine Learning

23426 • 1700 – 1730 • W307A • CANADA
SIM 2: CONVERGING REALITIES THROUGH AI AND VISUALIZATION
Immersive AI Assistance During eVTOL Multi-Agent ATC Traffic Routing

23138 • 1700 – 1730 • W308B • UNITED KINGDOM
ECIT 4: EMERGING TECHNOLOGIES IN XR AND 5G
Simulation Model Abstraction Issues for Digital Twins; Separated at Birth?

WEDNESDAY, 29 NOVEMBER
23203 • 0830 – 0900 • W307D • SINGAPORE
TR 2: STRUCTURED CHAOS
Mixed Reality Bloodstain Pattern Analysis Simulation Training System

23411 • 0930 – 1000 • W308C • CANADA
HPAE 1: ON TARGET: INTEGRATING TECHNOLOGIES
Pilot Performance Assessment Using a Hybrid Expert System and Machine Learning for An Automatic Objective Assessment in Flight Simulation

23372 • 1030 – 1100 • W308B • THE NETHERLANDS
ECIT 6: DEVELOPMENTS IN VIRTUALIZED SIMULATION AND WARGAME PLANNING
Virtualized Simulation for Military Concept Development and Experimentation: The Cerebro Battle Lab, a Case Study

23271 • 1100 – 1130 • W307D • THE NETHERLANDS
TR 3: DISTRIBUTED TRAINING: ANYTIME, ANYWHERE
Simulating the Whole Picture with Distributed Mixed LVC

23195 • 1100 – 1130 • W307C • SWITZERLAND
PSMA 2: STANDARDS ARE GREAT! LET'S USE THEM
Standard Protocol Stack Improves Short-Range Wireless Communication in Live Simulation

23454 • 1130 – 1200 • W307C • BRAZIL
PSMA 2: STANDARDS ARE GREAT! LET'S USE THEM
The NISP Standard (NATO Interoperability Standards and Profiles) and Data Governance

23248 • 1130 – 1200 • W307D • USA / AUSTRALIA
TR 3: DISTRIBUTED TRAINING: ANYTIME, ANYWHERE
Can Synthetic Coaching Using an Immersive Training Device Effectively Train Student Pilots? A Field Study

23180 • 1430 – 1500 • W307A • THE NETHERLANDS
SIM 5: SIMULATING STRESSY SITUATIONS
Creation of a Human-in-the-Loop Simulator Environment for Fifth Generation Stressor Research

23207 • 1600 – 1630 • W308B • ISRAEL
ECIT 10: ADAPTING TRAINING TECHNOLOGIES FOR TEAMING OPERATIONS
Automatic Creation of High Fidelity Open Terrain Digital Twins for Off-Road Autonomous Vehicles Training and Validation

23226 • 1600 – 1630 • W308A • SOUTH KOREA
ECIT 09: AI AND INTELLIGENT DECISION SUPPORT TECHNOLOGIES
On Developing the Intelligent Decision Supporting Technologies for Ground Operations

23398 • 1630 – 1700 • W307B • TURKEY
SIM 8: LEGO MODELING
Iterative and Incremental Validation of Simulation Conceptual Models

THURSDAY, 30 NOVEMBER
23412 • 0900 – 0930 • W308B • CANADA
ECIT 12: ACCELERATING TRAINING WITH AI AND NEUROSCIENCE IN SIMULATION DEVICES
Using AI and Neuroscience in Immersive 3D Flight Simulation Device to Accelerate Pilot Training

23256 • 0900 – 0930 • W307A • ITALY
SIM 9: SIMULATING COMPLEX THREATS IN COMPLEX ENVIRONMENTS
ELMO (Electromagnetic Layer for Multi-domain Operations) Developing and Testing Activities

23166 • 0900 – 0930 • W307D • UNITED KINGDOM
TR 6: TOYS TO TASK
On Approach to Reality: The Impact of a Simulated Air Traffic Control Environment (SATCE) on Workload and Situational Awareness in Military Aviators

23299 • 0930 – 1000 • W307B • BRAZIL
ED 5: PERFORMANCE IMPROVEMENT
From Classroom to Field: Topological and Tactical Terrain Analysis Inside a Learning Environment

23457 • 0930 – 1000 • W307A • CANADA
SIM 9: SIMULATING COMPLEX THREATS IN COMPLEX ENVIRONMENTS
Numerical Study of Ammonium Nitrate/Fuel Oil Detonations for Large Scale Pattern of Life Simulations

23184 • 1030 – 1100 • W307D • THE NETHERLANDS
TR 7: DATA...MAKE IT MATTER
Data-Driven and Personalized Training as a Service Infrastructure & Techologies

23206 • 1100 – 1130 • W308A • UNITED KINGDOM
ECIT 13: COMMUNICATION IN AI–DRIVEN TEAMS AND LARGE LANGUAGE MODELS
Large Language Models Have Transformed Our World – Can They Help to Build It?

23257 • 1330 – 1400 • W307A • ITALY
SIM 11: COMPLEX FUTURE OPERATIONAL ENVIRONMENTS
Modeling & Simulation in Support of a Comprehensive CBRN Layer Development

23284 • 1400 – 1430 • W307A • CANADA
SIM 11: COMPLEX FUTURE OPERATIONAL ENVIRONMENTS
Comparison of Visualization Technologies to Support RCAF Training Modernization

23413 • 1430 – 1500 • W308B • BELGIUM
ECIT 16: LEARNING AND VISUALIZATION IN VIRTUAL REALITY
Creating Robust Evolvable MSaaS Services: An Integrated Model-Driven Engineering Approach

23408 • 1430 – 1500 • W308A • THE NETHERLANDS
ECIT 15: GEOSPATIAL DATA ANALYSIS AND TERRAIN GENERATION
Model Mining in Sensor Data for Rapid Terrain Analysis

EXHIBIT HALL

CYBER PAVILION   BOOTH 2870

NTSA's I/ITSEC CYBER PAVILION is the conference home in our physical domain on the exhibit hall floor for all government, industry, academia, and international partners engaged in cyber domain activities. This is the place to meet with others working to represent non-kinetic effects in their models & simulations, particularly as those pertain to information operations or information warfare. The Pavilion features panel events and presentations spanning policy, operations, capability acquisition, and workforce development topics. The events highlight needs of the government, capabilities of industry, efforts and research of academia, and collaboration with international partners. And it includes a panel on Information Warfare and an associated I/ITSEC Special Event on Information Warfare Challenge Perspectives outside of the Exhibit Hall.

Be at the Pavilion to
• **LEARN:** Hear from Government and Industry leaders about policy, programs and projects
• **COMMUNICATE:** Discover opportunities for collaboration in fields such as Electromagnetic Warfare, Cyber Operations, and Information Warfare
• **PROVIDE:** Demonstrate current capabilites, ongoing work in the pursuit of solutions to meet needs
• **DEVELOP:** Make contacts to carry beyond I/ITSEC

The Pavilion is our platform to communicate and cooperate on finding approaches to operate in the dynamic environment of cyberspace. Attendees from the U.S. Government, Department of Defense, Partner Nations, commercial organizations, and Academia should come to collaborate at the CYBER PAVILION.

NOTABLE ATTENDEES • NETWORKING CONTACTS ALL AT THE CYBER PAVILION:

OUTLOOK – COMMENTS FROM DEFENSE LEADERS, CURRENT AND FORMER OPERATIONAL FLAG OFFICERS
• Operationalizing for 2023, an **I/ITSEC SPECIAL EVENT**:
   Cyberspace: Future Multi-Domain Challenge Perspectives

OPPORTUNITIES – DISCUSSION ON NEEDS FROM PROGRAMS/PROJECTS, GOVERNMENT ACQUISITION
• Facilitated Panel – DoD PMs/PEOs & Capability Managers

OFFERINGS – INDUSTRY, GOVERNMENT & ACADEMIA – SOLUTIONS
• Facilitated Panel – Cyber Pavilion Sponsors from Industry
• Facilitated Panel – Information Warfare
• Research Updates – Government, Academia

CYBER PAVILION SPONSORS:
BAE SYSTEMS
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CYBER RANGES
INTEGRATION INNOVATION, INC. (I3)
LOCKHEED MARTIN
TRIDEUM
ULTIMATE KNOWLEDGE

INNOVATION SHOWCASE

EXHIBIT HALL – WEST HALL B • BOOTH 2588

Presentations within the Innovation Showcase are led by cutting-edge exhibiting companies and government agencies that are knowledgeable on the various subject matter within the M&S Industry. Be sure to stop by one of the 30-minute sessions to hear what is new and exciting in M&S! Check the onsite schedule for any changes or updates to the Innovation Showcase schedule.

The most up-to-date information will be available on the mobile app, website, and onsite during I/ITSEC.

AS OF 2 NOVEMBER 2023

MONDAY, 27 NOVEMBER

1400	Guardiaris d.o.o	Future Integrated Indoor Solider Training
1500	HTC VIVE	Deploying Secure Immersive Training Solutions with VR/XR
1540	Varjo Technologies	The Future of Simulation: Unveiling Next Generation Training Solutions
1620	Blackshark.ai	Creating Real-Time 3D Synthetic Training Environments and Terrain Generation with AI Using Current Satellite Data
1700	BAE Systems	Advancing Mission Outcomes: Advanced Digital Analysis & Prototyping Testbed

TUESDAY, 28 NOVEMBER

1230	Allen and Company	Reducing Modeling Time with Reality Capture: Understanding Scan to Mesh
1310	Trek10	Train Anywhere
1350	Bohemia Interactive Simulations	Next Gen AI for the Virtual Battlespace
1430	Metris Global	Why an Advanced, Agile Approach to Human Performance is Necessary to Keep Pace with Modernization Mandates
1510	Ingalls Information Security	Visualizing Cybersecurity Data in Multiple Dimensions for Cyber Operations
1550	Pitch Technologies	Large Scale Exercises Using Standard-Based Distributed Simulation
1630	Vrgineers, Inc.	Optimal Virtual and Mixed Reality Resolution in Pilot Training
1710	CYBER RANGES Corp	Next-Generation Cyber-Physical Ranging to Build Cyber Warriors' Professional Development and to Validate Mission Preparedness Also at the Edge of Kinetics
1750	IntelliBoard	Turning Insight into Action – Using Data to Monitor the Learner Journey and Enhance Engagement

WEDNESDAY, 29 NOVEMBER

0930	HTX Labs	EMPACT: XR Empowerment- Warfighter Created, Warfighter Owned Training
1010	Quantum3D/HAVELSAN	Quantum3D Mixed Reality Evtol Simulator
1050	Hadean Supercomputing Ltd.	Training Tomorrow's Warriors: Towards Generative AI in LVC Military Simulations
1130	Geeks and Nerds Corporation	Modular Open-Air Sensor Capability Evaluation and Testing Infrastructure (SCETI)
1210	Lone Star Analysis	Modeling and Simulation or: How I Stopped Worrying and Learned to Love Generative AI, Clustering, and Risk Analysis
1300	Radiation Emergency Services	Radiation Disaster Emergency Preparedness and Response Training and Simulation
1340	Talon Simulations	From Concept to Deployment: Fast Track Development of a Mixed Reality Amphibious Vehicle Simulator
1420	Ingalls Information Security	Enabling Agile Authorization for Mixed Reality Training Applications & Devices
1500	Quantum3D/HAVELSAN	Quantum3D UAV/Drone Simulator
1540	Splunk	Optimizing RMF Compliance: A Splunk Approach
1620	ARA Virtual Heroes Division	Blending Unreal Engine MetaHuman with BioGears Human Physiology

THURSDAY, 30 NOVEMBER

0930	Holo-Light GmbH	Scaling XR in the Enterprise- How to Take Away the "But"
1010	ForgeFX Simulations	Transforming Training Simulations: The AI Revolution in Quality and Efficiency
1050	Obsidian Solutions Group	Serious Games and Wearables for CBRNE
1130	Unreal Engine/Epic Games	An Update about Simulation Pipelines from Large Open World to Precise Behaviors
1210	Avalon Holographics	The HoloFront: Enhancing Military Operations through Holographic Visualization
1300	Serious Games Showcase and Challenge Award Ceremony	

EXHIBITORS

NTSA Sustaining Member • NTSA Regular Member • NTSA Associate Member

2 Circle Consulting	3000
302 Interactive	3301
3D Media	3161
3D perception	1370
4C Strategies	2660
4GD Limited	3519
A Square Games and Simulation LLC	3402
AccessVR	3111
Ace Computers	3219
Acme Worldwide Enterprises, Inc.	1871
Ad hoc Research	657
Adaptive Immersion Technologies	425
Aditerna	2848
Adobe	3600
ADS, Inc.	2666
Advanced IT Concepts, LLC	2370
ASTi	1560
Advanced Technology International	663
Aechelon Technology	1601
Aerotronics LLC	2680
AgileView, Inc.	3363
Air Force Research Laboratory	3371
AIQ Synertial Ltd.	427
Air Force Agency for Modeling and Simulation	1533
Akima	MR-1388
All Points Logistics	3304
Allen & Company, Inc.	3036, MR-887
Amazon Web Services, Inc.	3311
Amentum	3461
Anatomage	519
Anthology	3324
Applied Technology Academy	624
Aptima, Inc.	1101, MR-1086
ARA Virtual Heroes Division	2300
ArborXR	3302
ArchieMD, Inc.	1980
Army Futures Command Synthetic Training Environment CFT	3449
Army Modeling & Simulation Office	3249
ASI (Aero Simulation, Inc.)	840
Association of the United States Army (AUSA)	770
Astronaut Scholarship Foundation	3293
Athena Technologies LLC	3655
Atlantic Canada Aerospace & Defence Association	1969
AVADirect Custom Computers	534
Avalon Holographics	1969
AVATAR Partners, Inc.	3325, MR-1392
Aviation Training Consulting LLC (ATC)	459
AVI-SPL	3052
AVT Simulation	649, MR-387
Axient	548
Axiom AI	3675
BadVR	2335
BAE Systems	871, MR-481
Bagira Systems Ltd.	1722
Barco, Inc.	2548
Battle Road Digital, Inc.	2884
Battlespace Simulations, Inc.	1037
B-Design3D	MR-180
Bihrle Applied Research, Inc.	631
Blackshark.ai	3127

Bluedrop USA	1180
BlueHalo	3410
BMK Ventures/Marketing Assessment	2556
BNH Expert Software, Inc.	634
Boecore	2214
The Boeing Company	1049, MR-487
Bohemia Interactive Simulations	1071, MR-791
	MR-891, MR-1092
Booz Allen Hamilton	1822
Bren-Tronics, Inc.	717
Bugeye Technologies, Inc.	700
By Light	MR-191
By Light Professional IT Services LLC	1449
C2 Technologies	1359
CACI	MR-1288
CAE	1734
Calnex Solutions	3365
Carley Corporation	ICW 209C
Case Western Reserve University	3400
CATI Training Systems	2572
Central Florida Tech Grove	3665
Cervus	2848
Cesium	559
Charles River Analytics	1213, MR-182
Cleanbox Technology	3407
Clear Science, Inc.	3774
Cleemann Chair-Systems GmbH	765
Clinkenbeard	2409
Cole Engineering Services, Inc. (CESI), a By Light company	1449
	MR-781, MR-881
Collins Aerospace	2501
COLSA Corporation	3660
Command Post Technologies, Inc.	2880
Concurrent Real-Time	2810
Conflict Kinetics	145, MR-1192
Connections Café	100
Connexions Federal Services LLC	433
Control Products Corporation	630
Corsair for Business	713
Corvalent	2337
Craftsmen Industries	570
Crosscountry Mortgage	471
CS GROUP	2566
Cubic Defense	3525
Cuick Trac by Beryllium InfoSec	863
Cyber Pavilion	2870
Cyber Ranges Corp.	2985
Cyber Training Technologies	3507
CymSTAR LLC	1568, MR-1688
Dalcomm Tech LLC	3501
DART Range Simulation Training	1787
Dataunitor AS	439
Dauntless XR	3668
David Clark Company Incorporated	618
Dedicated Computing	2415
Defense Acquisition University	3231
Defense Contract Audit Agency	332
Delaware Resource Group of Oklahoma, LLC	MR-491, MR-1292
Deloitte	3010
Department of Homeland Security, Science & Technology Directorate	1728

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DESAPRO, Inc.	3569
Design Interactive, Inc.	3030
Diamond Visionics	2000
Digimation	1787
DigitalCM, LLC	3141
Discovery Machine, Inc.	1815
Displays & Optical Technologies, Inc.	2308
DiSTI Corporation	1468, MR-281
DLH Corporation	3319
DoD ATEA	2681
DOD Starbase	3291
Dogfight Boss & Precision Flight Controls	2864
domeprojection.com GmbH	2164
Doron Precision Systems, Inc.	1165
Driven Technologies, Inc.	3004
dSPACE, Inc.	3207
DTRA JSTO	3462
Dynamic Graphics, Inc.	3649
Dynepic, Inc.	1928
E2M Technologies B.V. an MTS company	1312
EcosySTEM of Learning Discovery Den	3389
EcosySTEM of Learning Info Desk	3281
Edasim, llc	424
EDM Ltd.	428
Education Management Solutions, Inc.	1119
EducationXR	2240
Eduworks Corporation	2434
Elasticsearch, Inc.	571
Elbit Systems, Ltd.	2034
Electric Picture Display Systems	1706
Embry-Riddle Aeronautical University	521
Emerging Technologies Institute (ETI)	2580
Engenium, Inc.	716
Engineering & Computer Simulations, Inc.	1113, MR-690
Engineering Support Personnel (ESP), Inc.	2441
Entrol	3159
Ergoneers of North America, Inc.	420
eSim Games Dtl. GmbH	2981
Esri	3641
EWA Government Systems, Inc.	3160
Explotrain, LLC	2080
Exyn Technologies	3361
EyeTracking LLC	419
FAAC, Inc.	1380, MR-890
Famic Technologies, Inc.	1960
Federal Compass	3460
FedLearn	3515
Fight Club International	2848
FIRST Robotics	3381, 3385
FN America, LLC	1201
ForgeFX Simulations	3464
FoxGuard Solutions	2120
FRASCA	1248
FSI Defense, A FlightSafety International Company	1248
Full Sail University	766
Fynd Reality AS	3229
G&D North America Inc.	2683
GameDriver	3730
Gaming Research Integration for Learning Lab (GRILL), AFRL	3392
Gaumard Scientific	2281
GBvi Ltd.	3100
GDIT	1801, MR-581
Geeks and Nerds (GaN) Corporation	323
General Dynamics Mission Systems	1401
Georgia Tech Research Institute	1270
Gigantor Technologies	3768
GlobalSim, Inc.	1957
Green Ammo AS	522
Grid Raster, Inc.	3471
GUARDIARIS d.o.o	3119
Hadean Supercomputing Ltd.	1954
Haptech Defense Systems	860
HaptX	3103
Hatalom Corporation	MR-290
HAVIK Solutions	1580
Hewlett Packard Enterprise	507, MR-1588
Hexagon US Federal	652
Hidow International DBA SuperX	867
HigherEchelon, Inc.	449
HII	849
HIPER Global US	506
HOLOGATE GmbH	312
Holo-Light USA, Inc.	3575, MR-291
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huensoft	674
HTX Labs	2832
IBM	3411
IHSE USA, LLC	2314
Immersive Display Solutions, Inc.	1768
Incom, Inc.	3133
Industrial Smoke & Mirrors	810
Industrial Structures	375
Inert Products LLC	2082
Information Systems Laboratories, Inc.	453
Ingalls Information Security	2673
Inhance Digital Corporation	549
Innovation Showcase	2588
Integration Innovation, Inc. (i3)	2560
Intel	3326
IntelliBoard	432
Intelligent Ultrasound North America, Inc.	2341
Inter-Coastal Electronics, LLC (ICE)	1380
International Council on Systems Engineering (INCOSE)	2818
Intrepid Control Systems, Inc.	MR-491
Intuitive Research and Technology Corporation	1809
InVeris Training Solutions	1029, MR-287
Inzpire Limited	1071
IPanel Systems	3506
iPerformX LLC	155
iQ3Connect	3674
Israel Aerospace Industries Ltd.	2348
IT²EC	572
ITI Engineering	3429
J.F. Taylor, Inc.	1712
JANUS Research Group	3635
JHT, Inc.	2320
JIRACOR	1265
JRM Technologies	2208
JVC Visual Systems	1521
Katmai	1307

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KBR	2401
Kent State University College of Aeronautics and Engineering	520
Kentucky Trailer	1714
Keysight	3661
King Crow Studios	3154
Kongsberg Defense & Aerospace AS	1071
Kratos	1332
Krauss-Maffei Wegmann GmbH & Co. KG	2836
KX	3519
L3Harris Technologies	3201
Larsen Motorsports Inc.	3285, 3289
Laser Shot	726
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Leonardo	2200
Lit Thinking	3639
Lockheed Martin	1748
LSI, Inc.	800
LuxCarta	2848
Lynx Mixed Reality	328
Magic Leap	3171
MAK Technologies	1420, MR-381
Mansfield Munitions, LLC	421
Mantis	622
Marathon Targets	1948
MASA Group	2620
Mass Virtual, Inc.	2800, MR-1488
Matrix Pro Sims	2848
Matrox Video	1981
Maxar	613, MR-181
Metris Global, LLC	1481
MicroHealth, LLC	3563
Mission Decisions	2848
Modest Tree	1969
Moodle	334
Moog	539
Moth+Flame	1306
Motion Systems	1071
MS&T Magazine - Halldale Group	1159
MSI	565
MVRsimulation, Inc.	1019, MR-188
Nakamir	866
Nasco Healthcare	2183
National Center for Simulation	2818
National Defense Industrial Association (NDIA)	2580
National Defense Magazine	2580
National Training & Simulation Association (NTSA)	2580
NATO	3040
Naviworks Co., Ltd.	3261
Newton Design, LLC	820
NLR - Royal Netherlands Aerospace Centre	2242
Nokia Federal	422
North American Rescue	1987
North American Wave Engine Corporation	715
Norxe	2014
Nova Technologies	1815
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CONTINUING EDUCATION UNITS: AN I/ITSEC OPPORTUNITY

Continuing Education Units (CEU) were established in 1970 to create a unit of measurement to quantify continuing education and training activities. CEUs apply to technical and educational settings such as I/ITSEC. The primary focus of I/ITSEC is to highlight innovative implementation of simulation and education technologies as tools to achieve cost efficient training and increased military readiness. Therefore, CEUs are offered for all **Tutorials, Paper Sessions,** and the **Professional Development Workshops**. CEUs are being sponsored and maintained by the University of Central Florida, Division of Continuing Education.

WHY SHOULD I EARN CEUs AT I/ITSEC?

• Participation in the Tutorials, Papers and Professional Development Workshops for CEU credit reinforces your commitment to remain current in the evolving technologies relating to training and simulation.

• The CEU transcript indicates your active participation in the technical program of the conference to your employer.

• Previous attendees have indicated that CEUs have assisted them in securing approval to attend the conference.

WHAT SESSIONS ARE CEU–ELIGIBLE?

• All Tutorials, Papers, and Professional Development Workshops are CEU-eligible.

WHO MAY ATTEND THESE EVENTS?

• Tutorials and Professional Development Workshops are open to everyone. The Paper Sessions are limited to registered conference attendees.

• Does attending mean I automatically receive CEU credits? No. You have to let us know, via your registration, that you are interested in the credits. There is no charge for Paid Conference Attendees. However, if you are in an unpaid category (i.e., Exhibitor Personnel) there is a $50 charge, payable during registration. You may also register separately for the CEUs if you missed this step in your conference registration process.

HOW DO I RECEIVE CEUs AT I/ITSEC?

1. Be sure you are appropriately registered (you can confirm when you check in onsite) for CEU credits.

2. Be sure to have your conference badge scanned by a conference volunteer at each session you attend. Attendance is recorded electronically and required for CEU credit.

3. Your CEU transcript will come to you via the University of Central Florida, Division of Continuing Education. Ten contact hours equate to one CEU credit.

Contact Carol Dwyer at cdwyer@NTSA.org or (703) 247-9471 for additional information.

CONTINUOUS LEARNING POINTS (CLPs)

The U.S. Department of Defense (DoD) acquisition workforce members are expected to earn Continuous Learning Points (CLPs) to stay current in leadership and functional acquisition skills that augment the minimum education, training, and experience standards established for certification purposes within their acquisition career fields. It is each acquisition member's responsibility to meet the goal of 40 CLPs each year and to meet the mandatory requirement of 80 CLPs every two years. Acquisition Professional Activities are allowed to count toward CLPs. CLPs are awarded in accordance with DoD-wide guidelines as augmented by Service-specific policies. I/ITSEC provides an excellent opportunity for the DoD acquisition workforce members to earn mandatory CLPs.

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TUT 3: THE EXPERIENCE MATTERS			CHAIR: RAMONA SHIRES, APTIMA, INC.
W306 AB	Machine Learning and the Benefits of Applying it to XR Training Systems 23T45	How to Build at War Time Resilient Online Learning System 23T34	Getting UX – Understanding UX and How to Acquire It 23T67
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TUT 5: MANAGING LEARNING DATA – xAPI ESSENTIALS AND STRATEGIES			CHAIR: ROY SCRUDDER, APPLIED RESEARCH LABS, THE UNIVERSITY OF TEXAS AT AUSTIN
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W308B	Simulation Conceptual Modeling Theory and Application 23T12	Making the Case: Building Strong M&S Verification and Validation Evidence 23T35	Accreditation of Simulation-Based Experiments: Beyond the M&S 23T22
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TUT 10: INTERSECTION OF LEARNING ENGINEERING AND DATA			CHAIR: SCOTT HOOPER, BOHEMIA INTERACTIVE SIMULATIONS
W307A	Practical Guide to Learning Engineering 23T25	Managing Learning Resources Through Use of Metadata Standards 23T27	

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BEST TUTORIAL NOMINEES
0830 – 1000 • W300 – THEATRE

A HISTORY OF GAMES FOR MILITARY TRAINING: FROM SHEEP KNUCKLES TO THE METAVERSE
23T17

There is evidence of games being used for business trade, future prediction, and military strategy for at least 5,000 years. In this tutorial we explore the history of games as tools of military strategy, planning, and training from 3,000BC to the present. We reveal the long evolution of the basic components that are necessary to create a complex game. Concepts that first emerged in India and Asia at the end of the last millennia are still embedded in the games that we create today. Finally we explore how the evolution of serious games shows a trajectory for where games in modelling and simulation are headed, including digital twins, global mobile connectivity, virtual and augmented reality, the rise of generalizable artificial intelligence, automatic content generation, and the metaverse.

The tutorial has four major sections:

(1) Ancient games from 3,000BC to 500AD, with a focus on the essential mechanics and the emergence of game pieces and rules.

(2) Modern game design and early computer implementations from 500AD to 1980AD, in which the mathematics of wargames emerged and offered a format that was amenable to programming in the earliest analog computers of the 1940s through 1980s workstations.

(3) Serious games and the recent embrace of the technology by military leaders at all levels from 1980 to the present. In these last forty years computer-based games have been transformed from crude experiments with the technology to a major workhorse for training in all domains and at all echelons.

(4) Finally, we speculate on the possible future impacts of the metaverse, digital twins, AI, and global mobile connectivity.

PRESENTERS
ROGER SMITH, PH.D., Modelbenders, LLC
PETER SMITH, PH.D., UCF

TUT 1: YOU CAN FIGHT AUTHORITY – BUT AUTHORITY ALWAYS WINS
0830 – 1000 • W307A

ILLUMINATING THE ATO PROCESS – LESSONS LEARNED THE HARD WAY
23T31

Authorization to Operate (ATO) — a mythical unicorn for some, a holy grail to most, and a regular occurrence for those who recognize the difference between vulnerable and exploitable. ATO at its core is simply an official declaration made by an authorizing official (AO) to allow a system to operate within their boundary. To achieve ATO, the security posture of the system must be rigorously documented, evaluated and approved. Earning ATO often takes years and generally millions of dollars. ATO is the critical milestone for all systems that seek to become operational in the DoD. In accordance with policy, whenever a new software application or system is being considered for DoD use, the security posture is evaluated from inception through fielding to ensure that ATO can be achieved. Unfortunately, stakeholders often ignore security leading to insurmountable blockers, specifically for those that are transitioning from the commercial sector to DoD use.

It is critical for companies to include security within their early design and architecture. Adversarial threats in a firm's code and tech stack will likely result in ATO being denied and require the firm to rework the entire architecture to remove and replace the offending code - leading to additional development, delays, and money wasted. In this vein, the lack of ATO inclusion can perpetuate the "Valley of Death" for small business and pose a significant roadblock in transitioning from research and development to operations and sustainment. This tutorial aims to encourage all attendees to become familiar with the authorization process before development of a new system / technology begins.

This presentation will discuss: i) what an ATO is, different types of ATOs, and associated security constructs, ii) the roles and responsibilities of everyone that plays a part in the ATO process - from government to industry, iii) where to start with an ATO and all the steps a company needs to take to achieve it, iv) tips and tricks for shortening the time and effort required to achieve ATO through a Certificate to Field or Cyber Impact Analysis, v) lessons learned from a small business who recently achieved ATO, vi) ATO reciprocity and how to make your ATO work across the DoD, and vii) how to maintain your ATO. By the end of this tutorial, attendees will be able to describe the steps needed to achieve an ATO.

PRESENTERS
VICTORIA CLAYPOOLE, PH.D., Dynepic, Inc.
GEORGE MOATS, Dynepic, Inc.
POWELL CRIDER, AETC/A9

TUT 2: LVC – TWO OUT OF THREE AIN'T BAD
0830 – 1000 • W305AB

INTRODUCTION TO DEFENSE MODELING AND SIMULATION
23T32

This tutorial will describe the fundamental technologies, terms and concepts associated with Defense Modeling and Simulation (M&S) as used in the U.S. Department of Defense (DoD) and in the larger Defense community. The tutorial will cover key M&S terms and concepts that describe M&S technology, development, and application. It will include: (a) M&S terminology and concepts; (b) M&S technology, architectures, and interoperability protocols; and (c) The processes for developing valid representations of: DoD warfighting capabilities, threat capabilities, complex systems, and mission environments. The attendee will become familiar with how M&S is used in the DoD for operational purposes - especially training and other areas of direct warfighter support. The tutorial will highlight the role of Verification, Validation and Accreditation (VV&A) in ensuring credible models and simulations meet the needs of their users, the use of M&S standards, and the integration of M&S with DoD Mission Engineering and Digital Engineering in the development and acquisition of DoD warfighting capabilities. The tutorial will describe the characteristics and associated challenges of M&S application within DoD functional areas including Training, Analysis, Acquisition, Test and Evaluation, Planning, Medical, Mission Engineering, Autonomy, Artificial Intelligence, DoD Research and Development/Employment, and Intelligence. The tutorial will also identify accessible M&S information resources; U.S. Government/DoD, International, Academia, and Industry.

PRESENTERS
JOHN DALY, Booz Allen Hamilton
JAMES COOLAHAN, PH.D., Coolahan Associates, LLC

MACHINE LEARNING AND THE BENEFITS OF APPLYING IT TO XR TRAINING SYSTEMS

23T45

According to Defense Secretary Lloyd Austin, the Department of Defense is making artificial intelligence (AI) research a "top priority" by investing approximately $1.5 billion in AI projects over the next five years at the Defense Advanced Research Project Agency (DARPA). Machine learning (ML), a subfield of AI, has quickly become critical in fields such as engineering, learning association, and medicine due to its ability to produce adaptable models that can perform a variety of complex tasks. Recently, ML has been leveraged to produce enormous benefits in extended reality (XR) enabled environments including education and training. However, understanding the vast field of ML and its utilization in training systems can be extremely challenging. Miscomprehension can lead to poor management and development activities that result in more costly and underwhelming training solutions. Grasping ML fundamentals and emerging concepts, and its application to XR will empower managers to make appropriate strategic and costing decisions and allow designers, developers, and engineers to successfully implement effective training systems.

This tutorial will expand on last year's overview of ML technologies to include emerging concepts, methods, software, and hardware, while detailing how these can be integrated into XR education and training environments. The presentation will highlight examples demonstrating ML's use in design, testing, and optimizing XR training systems with a variety of simulation engines and hardware devices. Additionally, this tutorial will evaluate each example's efficacy of incorporating the technology to aide in warfighter training by improving efficiency, reducing costs and training time, and sustainability.

This tutorial is for a wide range of stakeholders from those interested in gaining a basic understanding of ML for administrative level decision making to those who want detailed methods and integrations within XR-enabled training environments to gain specific performance improvements.

PRESENTERS
ADAM KOHL, Iowa State University
ELIOT WINER, PH.D., Iowa State University

IEEE 1278TM STANDARD FOR DISTRIBUTED INTERACTIVE SIMULATION (DIS): CONCEPTS AND TECHNIQUES

23T41

As any gamer will tell you, it is compelling to connect simulations and play with other actual human participants, whether in the next room or on the next continent. Distributed Interactive Simulation (DIS) is an enabling technology that connects military training and engineering simulations for that purpose.

Successful research in the 1980s led to an international effort to standardize a network protocol for linking military training and engineering simulations. DIS was the result, using the IEEE standards process to create a technically sound and widely accepted protocol. IEEE 1278TM-1995 and additions in 1998 were the first full DIS standards that contained the protocol and rules for real-time simulation interoperability of military land, sea, and air platforms, weapon interactions, radar, radio, IFF, laser designators, underwater acoustics, logistics, simulation management functions, and more.

The success of DIS expanded into the Simulation Interoperability Standards Organization (SISO) in 1996. SISO took over the development of the DIS standard and launched a much wider range of simulation standards. The 2000s saw the development of the next round of improvements, resulting in IEEE 1278.1TM-2012. Continuing development within SISO is working toward the next version, referred to as Version 8, expected to be completed in the mid-2020s.

This tutorial explains how DIS achieves real-time high-fidelity interoperability over best-effort networks. The basic concept and some of the technical details will be introduced to give students a foundation for starting and expanding the implementation and use DIS in their simulations. The standards process, history, and future directions of DIS are also presented. Emphasis on DIS Version 8 will review current developments and upcoming improvements to the DIS standard.

PRESENTER
ROBERT MURRAY, SimPhonics

MODERNIZE YOUR TRAINING BY MIGRATING LEGACY SCORM CONTENT TO CMI5

23T29

The learning and training landscape is changing rapidly with newer technologies emerging. While SCORM (Sharable Content Object Reference Model) has been the de facto eLearning industry standard, SCORM has not been extensible enough to support these technologies and does not provide enough guidance on capturing robust learner performance data.

Making the transition from SCORM to the more flexible Experience Application Programming Interface (xAPI) specification is key to supporting the vision and goals for modernizing learning within the Department of Defense while meeting the distributed learning policy (DoDI 1322.26) related to learning analytics and interoperability. SCORM and xAPI can be implemented together, but the divide is wide.

The cmi5 specification was released in 2016 to help bridge the gap and define a set of rules for how online courses are imported, launched, and tracked using an LMS and xAPI. While cmi5 presents a promising solution, adoption across the DoD has been slow, but now there are tools and templates that are freely available from ADL to help migrate legacy content to the improved cmi5 specification.

In 2020, The Advanced Distributed Learning (ADL) Initiative awarded Rustici Software a contract to design and build tools to aid in the adoption of cmi5, including sample cmi5 course templates to aid in converting legacy content and a cmi5 Content Test Suite, known as cmi5 Advanced Testing Application and Player Underpinning Learning Technologies (cmi5 CATAPULT).

This tutorial will help attendees better understand how to utilize cmi5 and the freely available course templates from cmi5 CATAPULT to migrate, create, and test their courseware to ensure they conform to the cmi5 specification. After an introduction to cmi5, where it fits into the Total Learning Architecture

(TLA), and why eLearning standards are a necessary component of modern learning ecosystems, this tutorial will walk attendees through converting legacy SCORM content to cmi5 using the sample course templates and describe the importance of testing in ADL's cmi5 Content Test Suite.

The cmi5 specification plays an important role in the DoD's learning modernization, facilitating progress in migrating from SCORM-based LMS-centric courseware to a distributed learning "ecosystem" that delivers diverse learning opportunities across federated platforms. With the cmi5 Conformance Test Suite and example course templates, there are now ways to validate that content conforms to the cmi5 specification and migrate existing legacy courseware, which will help increase adoption of the specification and move toward the DoD's TLA goals.

PRESENTER
BRIAN MILLER, Rustici Software

TUT 6: EXTENDED REALITY ON THE MOVE – SEEING IS BELIEVING
0830 – 1000 • W308A

TRANSPORTATION SYSTEMS: A SURVEY OF M&S APPLICATIONS IN MOBILITY, SUSTAINABILITY, AND LOGISTICS
23T18

Mobility (of people, goods, services) is an urgent bipartisan concern that impacts all humans on this planet. The vitality and well-being of a nation is reliant upon a well-organized transport system and supporting multimodal (e.g., pedestrians, bicycles, cars, trucks, buses, airplanes, trains, trams) infrastructure. For transportation applications ranging from ground vehicles (i.e., both manual and automated), flight vehicles (e.g., conventional aircraft, and automated drones), maritime vessels, and next-generation mechanisms for human mobility, advanced physics-based models and high-fidelity simulation implementations remain essential for ongoing applications in research, training, and education to advance and evolve our "transportation network of tomorrow.

In this 90-minute Tutorial, an apprentice-level overview of vehicle-based Modeling & Simulation (M&S) will be provided, with a focus on diverse applications in transportation systems. A high-level overview of common modeling methods will be presented with a targeted focus on timely and diverse aspects of human mobility, multimodal transportation, sustainability, diverse vehicle (i.e., land/air/sea) dynamics essentials, as well as the global supply chain and logistics. The NTSA-endorsed Certified Modeling & Simulation Professional (CMSP) curriculum will be closely adhered to, and this Tutorial will serve as a broad introduction to many core/fundamental M&S topics and techniques (e.g., Physics-based, Stochastic, Monte Carlo, Continuous simulation, Discrete-events, Human behavior, and Multi-resolution models) that are featured on the certification exam. Numerous modeling methods will be demonstrated by way of practical and media-driven examples and use cases, all of which will be verbally described (for context), mathematically modeled, and demonstrated by way of media-based simulation.

PRESENTER
KEVIN HULME, PH.D., CMSP, The Stephen Still Institute for Sustainable Transportation and Logistics (SSISTL)

TUT 7: ACORN TO OAK: STRONG CONCEPT, ACCREDITED EVENT
0830 – 1000 • W308B

SIMULATION CONCEPTUAL MODELING THEORY AND APPLICATION
23T12

Simulation Conceptual Modeling Simulation conceptual modeling is a critical step in simulation development frequently overlooked in the rush to demonstrate program progress. A simulation conceptual model is an abstraction from either the existing or a notional physical world that serves as a frame of reference for further simulation development by documenting simulation-independent views of important entities and their key actions and interactions. A simulation conceptual model describes what the simulation will represent, the assumptions limiting those representations, and other capabilities needed to satisfy the stakeholder's requirements. It bridges between these requirements and simulation design. It can bound the systems engineering problem and provide valuable artifacts for simulation validation, verification, and accreditation. The emergence of Model Based System Engineering (MBSE) has accentuated the need for well-formed simulation conceptual models. This tutorial will present the theory and application of simulation conceptual modeling as documented during the research done by the NATO MSG 058. In addition, Use Cases that have been drawn from previous conference presentations will be presented to illustrate how conceptual modeling has been performed. Additional work is necessary to mature the state-of-the-art of simulation conceptual modeling before a recommended practices guide could be standardized. This tutorial has been created to continue the maturation of the simulation conceptual modeling best practices. Presenter: Jake Borah is the Co-owner of Borah Enterprises LLC. He is a Senior Operational Research, Modeling and Simulation Analyst supporting the Air Force Operational Test and Evaluation Center, Detachment 2. Jake is a Charter Certified Modeling and Simulation Professional (CMSP). He has frequently supported US and Canadian government sponsored military simulation projects because of his mastery of the M&S technology, and expertise in High Level Architecture federation development. Jake has a BS from the United States Air Force Academy and a Master of Aeronautical Science degree from Embry-Riddle Aeronautical University.

PRESENTER
JAKE BORAH, Borah Enterprises LLC

TUT 8: HUMANS NEED NOT APPLY
0830 – 1000 • W308C

MACHINE LEARNING: AN INTRODUCTION FOR HUMANS
23T37

The modern digital world imposes key constraints and opportunities on how best to sustain a global force. On the one hand, the scale of available digital data and the pace of technological change demand solutions that can adapt quickly to massive amounts of data and rapid development of new capabilities. On the other hand, the increased digitization of information provides opportunities to exploit these enormous amounts of data, if only adequate technology can be employed to exploit the data. One of the best emerging candidates for exploit-

ing this data is the rapidly advancing field of machine learning. The ability to automatically extract lessons and patterns from large amounts of data has the potential to be an essential force multiplier for improving effectiveness and rapid adaptation of training, simulation, and education.

The field of Machine Learning (ML) began in the 1950s, and it became a major, widespread research area in the 1980s. Over the past 10-20 years, innovations in computer hardware, computer languages, computer memory, and new algorithms have kicked off a rapid escalation in the capabilities of ML systems. As a result, the common refrain from stakeholders is "I want my system to learn!" But what does it really mean for a system be able to learn? When is it a good idea and when is it not? What kinds of things are computers good at learning, and where are there still weaknesses? How does this all work, really?

This tutorial abstracts away from the mathematical and computational details to offer a high-level understanding of "How ML Works", as well as its capabilities, strengths, and weaknesses, The tutorial presents the broad categories of learning that current ML approaches address, together with examples that provide an intuitive feel for how each approach is able to work, without delving into the specifics of the complicated math that provides much of the "magic". The tutorial also investigates the "art" behind the science, introducing the work an ML practitioner needs to add to apply these powerful algorithms successfully to new problems.

The tutorial finishes by summarizing some of the types of human learning that are still on the ML frontier, waiting to be understood and conquered, as well as an overview of methods to decide which parts of your problem might be best suited to NON-learning algorithms.

PRESENTER
RANDOLPH JONES, PH.D., CMSP, Soar Technology, LLC

TUT 9: CREATING THE RIGHT ENVIRONMENT
0830 – 1000 • W308D

DIGITAL ENGINEERING BASIC PRINCIPLES
23T23

The Digital Engineering Basic Principles tutorial will describe foundational terms and concepts associated with Digital Engineering. The tutorial will provide an overview, of the development and application in the Department of Defense (DoD) of:(a) Digital Engineering terminology and concepts used in the Department of Defense (DoD),(b) Digital Engineering technology, architectures and standards and their role in enabling key functions in the DoD, (c) the processes for developing valid models, simulations, "authoritative source of truth" that captures the current state and history of a system's technical baseline [clarifying words taken from the DoD Digital Engineering Strategy], and the supporting Digital Engineering ecosystem. Attendees will become familiar with Digital Engineering methods emerging in the DoD that support product development activities to include: the development and delivery of training and other areas of direct warfighter support; and DoD acquisition support. This tutorial will identify key policies, procedures, guidance; the need for Verification, Validation and Accreditation (VV&A) in ensuring that models meet the needs of their users; and curation for models to be trusted for use and reuse.

This tutorial will describe the characteristics and associated challenges of Digital Engineering use in: Test and Evaluation, Autonomy, Mission Engineering,

DoD Research and Development/Acquisition and Manufacturing. It will also show the key role Digital Engineering has in developing capabilities that support training, maintenance and DoD operations. The tutorial will also identify accessible DoD Digital Engineering information resources and explain the role of the Office of the Under Secretary of Defense for Research and Engineering (OUSD (R&E)) Digital Engineering and Modeling and Simulation Enterprise, which is the focal point of DoD Digital Engineering, Modeling, and Simulation information, practice, technology, and functional use.

As an outcome of this tutorial, the learner should be able to understand Digital Engineering fundamentals that will help them to get started. The learner will further their understanding of key terms and concepts and how they are being applied. The tutorial will also aid learners in driving digital engineer principles and practices into digital transformation initiatives.

PRESENTERS
FRANK SALVATORE, SAIC
DARRYL HOWELL, PCG Solutions
KEITH HENRY, OUSD R&E Digital Engineering Modeling & Simulation

TUT 10: INTERSECTION OF LEARNING ENGINEERING AND DATA
0830 – 1000 • W307A

PRACTICAL GUIDE TO LEARNING ENGINEERING
23T25

NOTE: This tutorial recieved the 2022 I/ITSEC Best Tutorial award.

The goal of science is to discover the truth about the world as it is. The goal of engineering is to create scalable solutions to problems using science as one tool in that endeavor. Learning engineering is a process and practice that applies the learning sciences, using human-centered engineering design methodologies and data-informed decision-making, to support learners and their development.

Learning engineering brings together professionals from different fields, including the learning sciences, assessment, learning experience design, software engineering, and data science. Learning engineers design learning experiences, but that's not all they do. They also address the contexts and conditions that lead to great learning. These might include the architecture of physical or virtual learning environments, social structures, and learners' mindsets as well as more obvious targets such as curriculum design, educational technology, and learning analytics.

This tutorial introduces learning engineering, starting with its definition, purpose, and foundations. Next it covers the core components, including the learning engineering process model and the field's primary contributing disciplines: learning sciences, human-centered design, engineering, data collection, data analytics, and ethical design. This initial portion of this tutorial will give attendees a solid understanding of the discipline as well as its definitions, utility, and distinctions from related fields. We will use real-world case studies throughout to illustrate concepts.

Following this, we will outline the steps practitioners can use to form learning engineering teams and to execute applied learning engineering processes. This portion will include tools and recommended practices for uncovering learning challenges, assembling and managing lean-agile learning engineering teams, creating human-centered designs, integrating learning science, moti-

vating learning, implementing learning technology (particularly at scale), instrumenting learning for data, and using learning analytics to continuously improve outcomes.

PRESENTERS
SAE SCHATZ, PH.D., The Knowledge Forge, LLC
JIM GOODELL, Quality Information Partners

1030 – 1200
BEST TUTORIAL NOMINEES
1030 – 1200 • W300 – THEATRE

BEHIND THE SCREAMS: M&S ANATOMY AND DECOMPOSITION OF A CONTEMPORARY RIDE SYSTEM ATTRACTION
23T19

Edwin A. Link is widely regarded as the archetype of modern-day flight simulation. In 1929, his LINK trainer was the first commercially developed simulation aviation trainer that has since been designated as an Historic Mechanical Engineering Landmark. Link's key innovation shaped the landscape for what has become a standardized and widely embraced platform for high-fidelity training. Such systems are now commonplace across multiple foundational disciplines at I/ITSEC, including flight, driving, maritime, and others. A related fact is that the Link trainer was patented primarily as a flight trainer - but co-patented as an amusement device. The Link team instantly recognized that their innovative (and engaging) training system could also be implemented for leisure purposes; a prophetic concept, considering the technological state-of-the-art from that period. Now, almost one hundred years later, a powerful cross-synergy continues to exist between serious-minded M&S training applications and industry-leading simulator-based entertainment experiences – a notion that serves as the overarching impetus for this Tutorial.

In this timely "emerging technologies" presentation, we take a deep dive behind the screams into a recent and revolutionary simulator attraction located at the Walt Disney World Hollywood Studios (Orlando) theme park – Rise of the Resistance. Themed after the Star Wars franchise, Rise of the Resistance is a marquee, technologically groundbreaking multisensory attraction that includes several ride system innovations, motion system components, and industry firsts, including: i) a turntable simulator; ii) trackless planar motion; iii) large-screen immersive 6-DOF platform simulation; and iv) a ride finale that includes a freefall drop segment, never experienced previously on a ride simulator. This Tutorial will describe the end-to-end ride experience (and underlying M&S technologies) and will highlight broader impacts -- dating back to its Link Trainer origins — associated with the state-of-the-art implementation. The Tutorial concludes with a preview of what is to come in the simulator entertainment sector, based upon both I/ITSEC innovative concepts and current patent technologies made publicly available within recent literature.

PRESENTER
KEVIN HULME, PH.D., CMSP, The Stephen Still Institute for Sustainable Transportation and Logistics (SSISTL)

TUT 1: YOU CAN FIGHT AUTHORITY – BUT AUTHORITY ALWAYS WINS
1030 – 1200 • W307B

KEEPING UP WITH U.S. EXPORT CONTROLS IN 2023
23T26

The constantly changing dynamic of global politics have resulted in many changes to U.S. export controls in recent years. New U.S. policies towards Russia and China, as well as other countries, are reflected in changes to the Export Administration Regulations (EAR) and the International Traffic in Arms Regulations (ITAR). In addition, there have been changes to the ITAR to reorganize the structure of the regulations resulting in new definitions and updates. This tutorial will provide an understanding of the EAR and ITAR and the impact of the recent changes on the regulations and the export of controlled goods, technologies and services. There will be particular focus on how the regulations apply to the simulation industry, including controls on software, hardware, services and activities at trade shows such as I/ITSEC. Presenters will discuss examples of simulations products and services, and associated licensing strategies, in the current regulatory environment.

PRESENTER
DARREN RILEY, Riley Trade Law PLLC

TUT 2: LVC – TWO OUT OF THREE AIN'T BAD
1030 – 1200 • W305AB

LIVE, VIRTUAL AND CONSTRUCTIVE (LVC) INTEROPERABILITY 101
23T38

The purpose of this tutorial is to provide managers the necessary insight needed to support intelligent decision making when employing LVC to solve their needs. The tutorial will discuss the various solutions and domains of the technology and how it can potentially support their LVC needs. The tutorial provides a relevant use case as the mechanism to explain the concepts and the solutions required to achieve success. The tutorial will not be an in-depth technology review of LVC interoperability yet will provide sufficient management-level insight into interoperability solutions and standards like Distributed Interactive Simulation (DIS), High Level Architecture (HLA), and the Test and Training Enabling Architecture (TENA) product line.

PRESENTERS
KURT LESSMANN, Trideum Corporation
DAMON CURRY, Pitch Technologies US

TUT 3: THE EXPERIENCE MATTERS
1030 – 1200 • W306AB

HOW TO BUILD AT WAR TIME RESILIENT ONLINE LEARNING SYSTEM
23T34

The war in Ukraine shows us the importance of maintaining the ability to educate and train (new) military personnel in time of war. The Armed Forces of Ukraine (UA) have a robust online system that is a vital part of their educational system. For more than 10 years the Norwegian Defence University Col-

lege (NDUC) and NATO Defence Education Enhancement Program (DEEP) have worked together with the National Defence University of Ukraine named after Ivan Chernyakhovskyi (NDUU) to establish a resilient UA online learning system.

The efficiency of the UKR ADL system was proven during annual evaluation visits (2020 and 2021) conducted online during the COVID lockdown. Of importance is to stress the UKR input as far as the development of the NATO DEEP Strategy for Distance Learning Support is concerned. So, it means that this system has already been proven under pandemic conditions and now in the time of war.

From September 2013 to February 2023, total 145 ADL-focused NATO DEEP events were conducted, involving 1800+ Ukrainian participants. Such formats were introduced as postgraduate studies ""e-Teacher and e-Instructor within a new learning environment caused by COVID-19"", e-Instructor Certification Program, and dedicated projects: Computer Adaptive Language Testing - CALT, translation of the NATO and Norwegian ADL courses into Ukrainian, involving SMEs from UKR (i.e. Cyber Defence Awareness - CDA), and translation of the book ""Modernizing Learning"" into Ukrainian.

This tutorial will tell the story on how NDUC, NATO DEEP and NDUU for several years have planned and executed the project of establishing this vital capability for Ukraine. Furthermore, the tutorial will cover the strategy applied to reach these goals, courses and training needed to get a resilient online learning system and the technical solution and security aspects. How the online learning system is used in war to enhance military capability and how Ukraine has cooperated with international partners will be outlined during the presentation. The online system will also be presented and at the end NDUC, NATO DEEP and NDUC will cover lessons learned and recommendations from a long-time cooperation process, also introducing innovative solutions, based on XR/AI technologies.

PRESENTERS
GEIR ISAKSEN, Norwegian Defense University College/ ADL office
MAKSYM TYSCHENKO, National Defense University of Ukraine
SERHII SALKUTSAN, Ukrainian Armed Forces
PIOTR GAWLICZEK, University of Warmia and Mazury

TUT 4: DISTRIBUTED SIMULATION PROTOCOLS
1030 – 1200 • W307C

INTRODUCTION TO HLA 4
23T36

The High-Level Architecture (HLA) is the leading international standard for simulation interoperability. It originated in the defense communities but is increasingly used in other domains. This tutorial gives an introduction to the HLA standard in general and the new HLA 4 version in particular. It describes the requirements for interoperability, flexibility, composability and reuse and how HLA meets them. It also describes the new features of the most recent version: HLA 4, such as security, scalability and cloud deployment. Finally, it provides some recent experiences of the use of HLA in NATO M&S groups as well as an overview of recent evolution of Federation Object Models for military platform simulation, space simulation, cyber simulation and air traffic control simulation.

This tutorial is intended for all audiences; however, some familiarity with basic principles of distributed computing is recommended.

PRESENTERS
BJORN MOLLER, Pitch Technologies
KATHERINE MORSE, PH.D., CMSP, The Johns Hopkins University Applied Physics Laboratory

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TUT 5: MANAGING LEARNING DATA – xAPI ESSENTIALS AND STRATEGIES
1030 – 1200 • W307D

IMPLEMENTATION STRATEGIES FOR CREATING A SUSTAINABLE xAPI DATA STRATEGY
23T54

The xAPI specification is due to be approved as a standard under the Institute of Electrical and Electronics Engineers (IEEE) Learning Technology Standards Committee (LTSC) in 2023. Department of Defense (DoD) Instruction 1322.26 recommends the Experience Application Programming Interface (xAPI) data specification as the primary method for encoding and exchanging interoperable learner performance data across the DoD enterprise. xAPI statements are a form of JavaScript Object Notation (JSON), a common data format used across industry and government.

While xAPI can encode data about formal learning experiences, it also can support informal learning, such as on-the-job training, self-directed learning in work environments, or even student engagement in virtual classrooms. But because xAPI enables such broad data interoperability it presents a complex challenge in the design phase and in implementation. The creation of an xAPI data strategy helps establish the business rules for how xAPI is used across organizations to collect and interpret learner data from different digital learning systems.

This tutorial will focus on the tools, technologies, and processes for implementing xAPI to meet organization-wide objectives. While some attention will necessarily be placed on the instrumentation of learning activities with xAPI, the primary focus of this tutorial is lessons-learned on how to implement best practices so that learner data is Visible, Accessible, Understandable, Linked, Trustworthy, Interoperable, and Secure (VAULTIS).

Each organization within the DoD has its own unique challenges when implementing xAPI. Attendees of this tutorial will work through different use-cases to illustrate the value of an xAPI data strategy. Attendees will walk away with actionable knowledge about how to use xAPI profiles to continuously improve organizational insights into the wide range of digital learning systems.

PRESENTERS
FLORIAN TOLK, Advanced Distributed Learning Initiative
ELIZABETH BRADLEY, Liz Bradley Art & Design

EVOLUTION OF RF SIGNAL VISUALIZATION FROM SPECTRUM ANALYZERS TO AUGMENTED REALITY
23T33

We are surrounded by invisible radio frequency signals created by human technology like radio, cellular, and satellite. Traditionally, we see these signals through spectrum analyzers. However, the capabilities of existing analysis tools are being outpaced by the rapid modernization of wireless networks and topologies like 5G, IoT, Bluetooth, LoRa, etc. RF is inherently multidimensional, but conventional analyzers display signals in 2D slices, limiting real-world applicability to highly technical users. Emerging technology that combines Augmented Reality displays and AI/ML algorithms is capable of spatializing RF data into its natural 3D location for easier understanding and communication.

This tutorial will provide an overview of the evolution of RF visualization tools from flat interfaces to immersive ones that can be used to discover and map RF signals and networks. The audience will gain a broad understanding of the emergence of immersive interfaces and how they can be applied successfully to spatial data visualization. Building upon proven UI/UX principles, we will walk participants through challenges with the design and development process, theory behind decisions, and usability issues to overcome in actual deployments. Resulting best practices will be shared openly. Finally, the audience will learn about future applications of these tools and forecasted innovations as the underlying technology matures.

PRESENTERS
JAD MEOUCHY, BadVR
SUZANNE BORDERS, BadVR

MAKING THE CASE: BUILDING STRONG M&S VERIFICATION AND VALIDATION EVIDENCE
23T35

The processes of Verification, Validation, and Accreditation are foundational elements that underlie assessments of M&S credibility. Verification and Validation (V&V) activities serve to build an evidentiary chain of information upon which M&S Users can assess the viability of an M&S for a particular application. Information derived from the V&V processes is used to shape the understanding of how and where an M&S should be used and under what the constraints.

While V&V is founded on basic software engineering principles, implementation is often constrained by resources, whether these resources be time, money, personnel, or information. This tutorial will address the key steps that can be taken to build strong V&V evidence while accounting for resource impacts. The tutorial will incorporate lessons learned derived from multiple VV&A applications.

Topics to be covered by this tutorial will include:

• Requirements traceability that provides the link between requirements and V&V testing

• Identifying verification test strategies (e.g., leveraging information, supplemental test activities)

• Building and applying validation referent data (what the simulation results will be compared to)

• Defining the simulation measures and metrics to use as the basis of comparison (the aspects of the results that will be compared to the referent)

• Selecting validation methods to apply when performing the results/referent comparison

• Documentation templates and tools that provide efficiency of process to the V&V effort

The tutorial will enhance the learning experience by incorporating lessons learned derived from the many VV&A applications with which the authors have been involved.

PRESENTERS
SIMONE YOUNGBLOOD, The Johns Hopkins University Applied Physics Laboratory
KATHERINE RUBEN, The Johns Hopkins University Applied Physics Laboratory

BUILDING TRUSTED AI: AN INTRODUCTION TO HUMAN–AI TRUST
23T39

Artificial Intelligence (AI) is transforming how humans do everything from getting to work to diagnosing illnesses to creating art. In all these applications, AI occupies a gray area between a tool (like a calculator) and a partner (like a colleague). AI is more than a tool because AI systems have goals, dynamically plan actions to achieve those goals, and adapt to the situation based on experience. However, humans can't build the relationships with an AI system that they do with a trusted colleague. AI's undeniable value in high-stakes, life-or-death decisions coupled with AI's status as more than a tool but not yet a partner raises fascinating questions about how and how much humans should trust AI systems. These questions are especially critical for the training and simulation community, given its leading role in the deployment of AI.

This tutorial will review the science of trust across both the social and physical sciences and describe the three key aspects of AI trust: trustworthy, trustable, and trusted. Prominent theories and models of trust will be discussed and consideration of those applied throughout the human-AI lifecycle will be explored. Approaches to assessing AI trustworthiness will be explained including their relation to the DoD's existing VV&A process. The technical requirements the AI system must meet to be capable of gaining a human's trust will be detailed, including explainability, transparency, natural interaction and building common ground. Subjective and objective (behavioral and physiological) trust measurement approaches will be explained. All of this will surmount to a final discussion of human-AI trust calibration and the future of human-AI trust centered on the realm of the possible for standards (e.g. TRL equivalent for trust of a system, trustworthiness index for AI operational fielding decision). The tutorial addresses

researchers, developers, and evaluators who create or use artificial intelligence. No technical knowledge is required.

PRESENTERS
MICHAEL VAN LENT, Soar Technology, LLC
JEREMIAH FOLSOM-KOVARIK, Soar Technology, LLC
DYLAN SCHMORROW, Soar Technology, LLC
DENISE NICHOLSON, CMSP, Soar Technology, LLC
BRIAN STENSRUD, PH.D., Soar Technology, LLC

TUT 9: CREATING THE RIGHT ENVIRONMENT
1030 – 1200 • W308D

FINDING FIDELITY: WHEN YOU NEED IT, WHEN IT'S TOO MUCH, AND HOW TO OPTIMIZE SIMULATIONS FOR HIGH TRAINING EFFECT AND LOW COST
23T20

This tutorial serves as a comprehensive introduction to the concept of fidelity in serious games, simulations, and other forms of interactive training technology. The appropriate use of fidelity has a critical impact on the utility and training effectiveness of a training simulation. When misused, inappropriate fidelity goals result in simulations that are too expensive, too awkward, and too distracting to use that are poorly received by trainees. Smart use of fidelity results in enjoyable, challenging and efficacious training experiences with a measurable impact and great repeat play value.

In this tutorial, the popular impression that fidelity is a primary goal and indicative of quality training is challenged. First, the costs and benefits of fidelity are reviewed and the perils of excessive fidelity are explained with numerous graphical live-play examples. Real-world examples are taken from AI-based Virtual Human Avatars, Virtual Reality Simulations, Virtual Patients and Combat Simulations.

The tutorial then introduces a four step process to matching fidelity goals to learning for a wide range of training applications that cover the full gamut of militarily relevant training. Examples include surgical skills, behavioral interventions, and fire control systems. The tutorial then discusses alternatives to fidelity that improve training experience flow while enhancing user perception of fidelity though exploration of Interaction, Responsiveness and Abstraction. The concept of Bending Fidelity to meet training requirements is also introduced with a live example with Conversational Avatars and another using Tactical Triage. Finally, a comprehensive case study for fidelity is shared and walked through as a capstone activity to creating meaningful experiences and making fidelity judgment calls.

At the end of the tutorial, participants will be presented with sufficient examples to build a solid familiarity with best fidelity practices and how they fit with technology-based training experience. For some, this tutorial will help participants become more astute consumers and evaluators of training simulations. For others, this tutorial will help participants who desire to create new training content as they navigate fidelity judgment calls critical to technology development and effective learning outcomes.

PRESENTER
THOMAS TALBOT, M.D., University of Southern California

TUT 10: INTERSECTION OF LEARNING ENGINEERING AND DATA
1030 – 1200 • W307A

MANAGING LEARNING RESOURCES THROUGH USE OF METADATA STANDARDS
23T27

Improving Human Performance Outcomes depends on the provisioning of learning resources to the individual at the appropriate opportunity. When scaled to an entire workforce, logistical challenges may arise and optimization methods should be deployed. In order to have technology, including artificial intelligence, act as the intermediary for opportunity and optimization, the appropriate amount of data, particularly metadata, about Learning Resources and their corresponding events is required.

When Courseware Based Training (CBT) became popular in the late 1990s metadata was used, usually unsuccessfully, to create repositories of Learning Resources that were intended to be shared across Communities of Practice (COP). Recent efforts in metadata standards, coupled with the advancement of AI, have re-vitalized COPs to attempt to define and enable use cases for learning-based metadata.

This tutorial will describe the learning ecosystem that can be created by metadata and how current standards can be leveraged for success. Specific use cases that can be met through the use of metadata will be described and solutions presented. These use cases include, but are not limited to search, discovery, application within learning, optimization of both learners and the resources themselves, and lifecycle management of learning resources. The landscape of available metadata standards, and particularly how they can be combined, will be described in great detail and attendees will have the opportunity to model such solutions in accordance with these standards. These standards are centered around the LRMI vocabulary from the Learning Resource Metadata Innovation (LRMI) workgroup of Dublin Core Metadata Initiative and IEEE Learning Metadata Terms (P2881) efforts but will include other metadata standards and are applicable beyond. The benefits of using Resource Description Framework (RDF) best practices will be described and realized in the tutorial and accompanying learner-created metadata graph.

P2881 is an effort created by those familiar with legacy metadata standards used in the Shareable Content Object Reference Model (SCORM) and how those failed in application. P2881 attempts to define a small core model applicable to all types of Learning Resources that is applicable to solving particular use cases and leaving the further definition of types, such as "courses", to respective COPs. A core component of P2881 is the distinction between Learning Resources and Learning Events. Learning Resources are defined by LRMI and have been thoroughly defined and accepted the standards community. Learning Events are instantiations or opportunities of Learning Resources that are bound by time, materials, and human capital.

PRESENTERS
ANDY JOHNSON, Advanced Distributed Learning Initiative (SETA Contractor)
PHIL BARKER, Cetis LLP

DOWNLOAD
MOBILE APP

BEST TUTORIAL NOMINEES
1245 – 1415 • W300 – THEATRE

PUTTING THE WHEN AND WHERE INTO SIMULATIONS
23T68

All simulations take place somewhere on terrain or in the sea or atmosphere, amidst natural and man-made structures. The action takes place at a particular time of day and season of the year. These descriptors of the when and where of a simulation are not simply visual effects, but in a constructive or virtual world they provide a real context for the behaviors of humans, vehicles, sensors, communications and weapons. This tutorial is intended to introduce the simulation user and developer to the fine art of creating the environmental playground for a simulation. The tutorial will cover the land (but sparingly as there is another tutorial on land), atmosphere and the ocean, citing sources for data and the problems that typically exist in the original source data as well as those that inevitably result from combining information from a variety of diverse sources. The difference between geo-specific and geo-typical will be discussed and why one is chosen over the other. The issues of correlation will be illustrated within a single domain (just land features), across different simulations, and across domains (correlating land, sea, and air). The tutorial illustrates how the environment and its changes affect simulated entities – vehicles and sensors in particular. Finally, the tutorial shows how a dynamic environment can be developed and provided to the simulation. As part of the discussion, the tutorial will direct attention to the DoD-provided sources for creating a reasonably correlated virtual environment and the emerging international standards for representing environmental data. The effects of the environment span not only the domains of land, sea, and air, but electromagnetics, space and cyber by way of communications effects.

PRESENTER
S.K. "SUE" NUMRICH, PH.D., CMSP, IDA

TUT 2: LVC – TWO OUT OF THREE AIN'T BAD
1245 – 1415 • W305AB

A PROCESS FOR DISTRIBUTED LVC INTEGRATION AND EXECUTION
23T28

Integration and execution of large distributed Live, Virtual, Constructive (LVC) events consume substantial time and resources. While the underlying distributed LVC technologies are mature, the processes for integrating events are not. The IEEE Std 1730-2010 Distributed Simulation Engineering and Execution Process (DSEEP) standard defines a process model for developing an event. DSEEP defines a set of seven steps divided into activities. The process model provides representative inputs and outputs for each activity. However, the user still must instantiate the process and develop artifact templates. The development of a robust process based on DSEEP is a substantial effort.

The goal of the process is to produce a verified distributed LVC environment to conduct the event. While distributed LVC environments can be created without using a process, not using a process adds risks to the event. The first risk is that the integration fails, and it may be difficult to discover the reason. The sec-

ond risk is that the unverified environment produces invalid results that might not be apparent until the results are used.

An instantiation of DSEEP was developed based on the authors' integration and execution of many distributed LVC events. This implementation has nine steps, divided into 27 activities. This process adds two additional steps to the process. One of the steps adds a tabletop wargaming step to work through the requirements. The second additional step develops a digital twin of the target system. A detailed set of processes, templates, and guidance on how to perform the selected activities is provided. The process covers the integration of simulations and tactical systems to meet the objectives of the LVC event.

The tutorial will provide an overview of the complete process. Selected steps are described in more detail. This will provide the detailed inputs, tasks, outputs, and examples for each activity in the step. The process includes issues related to distributed LVC environments using multiple distributed simulation architectures, live entities, and cyber.

The process described in this tutorial was developed to support distributed LVC Test and Evaluation. However, the process applies to research and development, training, and experimentation. This tutorial is beneficial for anyone involved in the integration and execution of large distributed events. The tutorial is particularly beneficial for engineers tasked with planning and executing distributed events. The tutorial does not require knowledge of the DSEEP standard.

PRESENTERS
ROY ZINSER, Trideum Corporation
KENNETH LeSUEUR, PH.D., Trideum Corporation
BRETT BOREN, U.S. Army Redstone Test Center
MICHAEL O'CONNOR, CMSP, Trideum Corporation
TILGHMAN TURNER, ATEC Redstone Test Center

TUT 3: THE EXPERIENCE MATTERS
1245 – 1415 • W306AB

GETTING UX – UNDERSTANDING UX AND HOW TO ACQUIRE IT
23T67

As data and technology become increasingly intertwined in everything we do, User Experience (UX) design - the intentional creation of an experience that offers utility and value to the end user - is even more critical to mission success for our warfighters. In the military, poorly designed experiences, often involving software, processes, and tools - those with "bad" UX - have critical consequences for our warfighter. Bad UX serves as a detriment to battlefield outcomes and mission success, overloading warfighter processing capabilities, introducing errors into the mission, and potentially compounding those errors to such an extent that it results in mission failure and loss of life.

In the modeling, simulation and wargaming communities, good UX can help:

• Generate requirements for products that are based on end user input

• Iteratively design and test experiences with end users

• Focus solutions on solving the right problem and avoid over-engineering solutions that are solving unnecessary problems

This tutorial will explain the UX design process and explain how it reduces overall risk to delivery. Participants will also learn how incorporating UX de-

sign principles ensures the output of modeling and simulation is aligned to the intended application. We will also discuss how to acquire UX capabilities to support your next project.

This tutorial is for those interested in understanding the basic principles of UX and how these principles can be applied in processes like waterfall and agile within the modeling and simulation and the U.S. Government. Project managers, software developers, acquisition professionals and anyone who wants to deliver better experiences to the warfighter should attend. No background knowledge of UX is required to fully participate in this session.

PRESENTERS
AMANDA HAWKINS, OUSD R&E DCTO(MC)
VEL PRESTON, U.S. Air Force, CyberWorx
DOLORES KUCHINA-MUSINA, REXOTA Solutions, LLC

TUT 4: DISTRIBUTED SIMULATION PROTOCOLS
1245 – 1415 • W307C

USING OMG DDS FOR SECURE INTEROPERABILITY BETWEEN MULTIPLE DISTRIBUTED LVC SIMULATORS
23T21

This tutorial outlines the use of the Object Management Group's Data Distribution Service (DDS) standard in distributed LVC simulation, with a focus on the security capabilities provided by DDS. DDS provides a comprehensive middleware solution for data distribution, and its security features are crucial for LVC simulation in sensitive environments. The tutorial covers DDS fundamentals, such as configuring DDS for LVC simulation, designing DDS entities and the DDS data model, and integrating DDS with LVC simulations. It also highlights best practices and case studies for DDS implementation. Additionally, the tutorial emphasizes the security features of DDS, such as authentication, access control, data encryption, and data integrity, which are essential for securing data in distributed simulation environments.

Integrating global simulation training systems can be a formidable challenge. Legacy simulators often use different standards. Modern architectures require the use of cloud-based distributed assets. To top it off, security requirements now force integrators to become experts in information assurance. Winning solutions will be ones who create synthetic training environments that can quickly be assembled and reconfigured from ready-made components. How can simulation systems integrators keep pace by limiting integration time to meet these requirements? Attend this tutorial to learn how the Object Management Group's Data Distribution Service (DDS) can ease integration, while also delivering National Security Agency tested security for distributed training systems over any transport.

This tutorial introduces the DDS and DDS Security standards. You will learn how to use the DDS Security standard to securely interoperate with real-world systems that already communicate over DDS, to distributed LVC Simulations.

The tutorial will further describe how to integrate DDS with existing simulation standards, simulation object modes, and data models of any kind, allowing for a large suite of 'qualities of service' to help fine-tune performance and scalability, while also providing robust security for individual entities and topics of simulation data. Next the tutorial will introduce you to the Real-Time WAN Transport that extends DDS capabilities to enable secure, scalable, and high-performance communication over WANs, TDL, RF and public 5G networks. The Real-Time WAN Transport uses UDP as the underlying IP transport-layer protocol to better anticipate and adapt to the challenges of diverse network conditions.

By following this tutorial, readers will gain a comprehensive understanding of how to implement DDS for secure and reliable data distribution in LVC simulations.

PRESENTERS
ROBERT PROCTOR, JR., Real-Time Innovations
JOHN BREITENBACH, Real-Time Innovations

TUT 5: MANAGING LEARNING DATA – xAPI ESSENTIALS AND STRATEGIES
1245 – 1415 • W307D

CREATING A DATA STRATEGY AND LEARNING ANALYTICS
23T30

Understanding data strategy, analytics, and key performance indicators is critical to the successful application of learning analytics in an organization. Many organizations develop and deploy expensive training solutions but do not include a comprehensive data strategy and analytics plan. As a result organizations may not understand how their learning content is used, when students require intervention, and when and how to update content so that learning is more effective and efficient.

This tutorial provides a comprehensive overview of designing and implementing an effective data strategy for learning analytics. Participants will gain knowledge and skills necessary to document algorithms, metrics, and visualization requirements to create effective analytics. The tutorial will include the development of a short data strategy to address a sample use case. Attendees will perform an evaluation of the key performance indicators by determining how to evaluate data visualizations. Participants will leave the tutorial with a solid understanding of the main functions of learning analytics, the components of a data strategy, and how to apply these concepts in practice.

This tutorial is for data scientists, xAPI professionals, learning content developers, and instructional designers who have a requirement for or interest in learning analytics and visualizations.

PRESENTERS
JONATHAN POLTRACK, Veracity Technology Consultants
ROB CHADWICK, Veracity Technology Consultants

TUT 6: EXTENDED REALITY ON THE MOVE – SEEING IS BELIEVING
1245 – 1415 • W308A

DRIVING PROFICIENCY THROUGH MOBILE, IMMERSIVE, HANDS–ON EXTENDED REALITY (XR) TRAINING
23T47

Training is often consumed in the classroom or remotely as a one size fits all structure with limited opportunity and/or costly simulations to practice hands-on skills in contextualized situations. Providing training to sustain a global force in a digital world must be mobile and offer the ability to "act out" or practice

critical skills to instill muscle memory, embody actions, and formulate critical thinking. By utilizing an integrated approach of augmented, virtual, and mixed reality technologies, eXtended Reality (XR) training can provide a contextualized virtual environment (which links the learning of foundational skills to practical scenarios and operational stressors) with augmented overlays and real-world objects (to scaffold instruction via multimodal cues tied to the real-world) creating a fully immersive and highly engaging training environment. When XR training applications are embodied and accessible an opportunity exists to provide psychomotor practice in a highly engaging environment leading to significant proficiency gains in both primary and refresher training. Providing trainees immersive, hands-on XR training anytime, anywhere using applications downloaded to a mobile device enables consumption to be readily available and learner centered offering an action-oriented option very different from traditional classroom and remote training.

It is crucial when developing XR training solutions to evaluate the utility of the novel contextually based design elements and embodied interactions afforded by XR. This challenge is further complicated when implementing XR training using handheld mobile devices. XR does not have a proven, common mental map for the way users expect to interact with XR content on a mobile device especially when spatial movement is required. It is critical to build systems and UI/UX interaction capabilities that optimize users expected interaction paradigm with future facing technology.

This Emerging and Innovative Concepts tutorial will dive into the key elements of a mobile immersive training platform that leverages andragogically-based activities and formative assessments to infer trainee proficiency by providing insights into: key drivers of immersive, accessible training in XR; potential implementation barriers and technical challenges to embodied training in XR when using mobile devices; value-added case studies with end-user feedback; and user-centered guidelines for designing, developing and implementing mobile XR training systems. By the end of this tutorial, attendees will be able to implement effective techniques for developing and implementing immersive, accessible mobile XR training applications based on case studies in the military medical, transportation, logistics, and maintenance domains.

PRESENTERS
JOANN ARCHER, Design Interactive
CLAIRE HUGHES, Design Interactive
ERIC MARTIN, Design Interactive
JOE RUISI, AETC Medical Modernization Division, AFMMAST Program Office

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TUT 7: ACORN TO OAK: STRONG CONCEPT, ACCREDITED EVENT
1245 – 1415 • W308B

ACCREDITATION OF SIMULATION–BASED EXPERIMENTS: BEYOND THE M&S
23T22

The Department of the Army has no individual or organization that accredits simulation-based experimentation (SIMEXp). Army Regulations require that the models and simulations (M&S) be accredited- but not any of the other components required to execute a SIMEXp. The purpose of this tutorial is present a framework for SIMEXp accreditation and enable attendees to understand all of the areas which much be accredited for the overall accreditation of a SIMEXp. Accreditation of the M&S will be discussed as it serves as the foundation for an overall accreditation, but there are other equally important components requiring separate accreditations. Attendees will be able to identify the components of tactical and operational scenario which must be validated by current warfightersand that the person who accredits those aspects must have credible knowledge of the current state of doctrine, military organizations, and operational concepts (friendly and enemy) to be studied. Nothing in the Army's regulatory accreditation of the M&S addresses the physical and computational environment on which the SIMEXp is conducted. For example, if the company commander would only know the happenings of a subordinate platoon's area of operations by what is reported on by voice or texted on a mission command system, then the SIMEXp should be physically structured to reflect those same conditions. Not only must the M&S be accredited, but also the hardware and network on which it is running to ensure processors are robust enough to execute as required, the network transmission speeds are sufficient and no packets are being lost during execution. Finally, attendees will learn how to design and assess the analytical methods used during a SIMEXp to ensure accreditation of the analytical portion of the SIMEXp. The analysis plan, data collection and reduction methodology, and computational methods for analyzing the data must all be documented and accredited in a peer-reviewed final report in order for the overall SIMEXp to be accredited. This tutorial is for those interested in gaining a better understanding of proper SIMEXp design and why more than just the M&S must be accredited. The methodology learned also can be applied to improve simulation-enabled training events and wargames.

PRESENTERS
THOMAS YANOSCHIK, CMSP, SAIC
CYNTHIA FORGIE, PH.D., Maneuver Battle Lab
CYNTHIA DUNN, CMSP, SAIC
STEPHEN MILLER, SAIC
MAJOR SEAN FRASER, CMSP, Maneuver Battle Lab

TUT 8: HUMANS NEED NOT APPLY
1245 – 1415 • W308C

GENERATIVE AI APPLIED TO RAPID DEVELOPMENT OF SIMULATION AND MODELING ASSETS
23T52

Simulation environments, virtual and otherwise, are often bottlenecked by the content creation process of art design, graphical modeling, and data integration. This asset development pipeline is slow and costly, requiring specialized labor that can complicate the logistics or expose the operational security of a training objective. However, the emerging field of generative AI allows one individual to direct a single computer to build libraries of relevant, usable materials through simple voice or text prompts. Once the tools have fully matured, the net increase in productivity and speed will likely be measured in multiple orders of magnitude.

This tutorial will review and critically analyze modern sim production workflows against the next-generation approach of directed AI, and explore the numerous possible trajectories of this highly disruptive new technology. The audience will gain a deep understanding of the current generative AI methodologies with a particular emphasis on applied utility rather than theoretical potential.

Together, we will walk through common simulation challenges and dissect the corresponding AI prompts that generate passable solutions within mere seconds. The audience will learn how to begin testing these new tools and be given recommendations on how to use them effectively and securely.

PRESENTERS
JAD MEOUCHY, BadVR
SUZANNE BORDERS, BadVR

TUT 9: CREATING THE RIGHT ENVIRONMENT
1245 – 1415 • W308D

INTRODUCTION TO DESIGN OF EXPERIMENTS
23T69

Understanding the experimental design process is fundamental to conducting efficient and effective tests and model and simulation experiments. This tutorial aims to provide a comprehensive understanding of the test design process, with practical examples and demonstrations. Our goal is to provide you with the skills to create a good test design and effectively communicate statistical results in reports.

The tutorial begins with an introduction that explores the test design framework and explains the concept and purpose of experimental design. We then delve into the various aspects of planning, design selection and evaluation, and the analysis of an experimental design. Within the planning phase, we cover the essential elements such as identifying test objectives, response variables, and factor selection. We then provide an overview of different types of experimental designs and their purpose. In evaluating a test design, we discuss important metrics like power and confidence that are used to ensure adequate data collection and assess the quality of the design. Lastly, we cover some best practices for analysis and reporting, such as avoiding data "roll-ups", incorporating interval estimates, and utilizing high-level graphical summaries to effectively communicate the results.

By the end of the tutorial, you will have gained a better understanding of the test design process and will be equipped with valuable insights and techniques for creating and analyzing experimental designs.

PRESENTERS
KELLY AVERY, IDA
KEYLA PAGAN-RIVERA, IDA
JOHN HAMAN, IDA
REBECCA MEDLIN, IDA

To view author bios, please view Digital Program at
IITSEC.org/Agenda/Agenda-Details.
The most up-to-date session information is available on the mobile app.

ROOM	SESSION/CHAIR	1400	1430	1500
W300 – THEATRE	Best Paper Nominee Session 1 Chair: Maureen Holbert	23233 Developing the Human Machine Teaming (HMT) Ecosystem	23210 Effects of Trust Calibration on Human-Machine Team Performance in Operational Environments	23273 Wires Crossed in a Digital World: How to Prevent Misalignments in Human and AI Decision Making
W307A	SIM 1: Effects-Based Cyber Defense Chair: Gabriel Diaz	23260 A Flight-Representative Operational Cyber Test Environment	23295 Incorporating Navigation Effects into Synthetic Environments for Improved Cyberspace Training	23306 A Generic Missile Defense System Model for Use in Cybersecurity Vulnerability Assessments
W307B	ED 1: Evaluation and Application of Instructional Strategies Chair: Wendi Van Buskirk, Ph.D.	23174 Using Non-immersive VR Simulations in Conjunction with Priming to Enhance Conceptualizing Radiation and Risk	23196 Leveraging Machine Learning and Cognitive Science to Enhance Knowledge Retention in Air Force Special Warfare Trainees	23199 Using Feedback to Increase Engagement with Adaptive Training Tools in USMC Classrooms
W307D	TR 1: Simulation IS Better, Right?! Chair: Perry McDowell	23331 Cybersickness Considerations for Curricula Using Virtual Reality Training Systems	23333 Simulators Provide Adequate Training – Says Who?	
W308A	ECIT 1: AI and Language Processing in Complex Systems Chair: Wesley Fine	23264 Winning Hearts & Tongues: A Polish to Lemko Case Study	23269 The Simplification of Complex Systems using Natural Language Processing	23291 Refugee Flow Management and Resilience Implications
W308B	ECIT 2: 5G Networks and Real-Time Command and Control Chair: Ed Jezisek	23377 Digital Twin Approach for 3D Visualization and Optimization of 5G Non-Terrestrial Network	23384 Real-time Updated Digital Twins for Drone Swarm Command and Control	23434 Blockchain Cybersecurity for Edge Computing Nodes such as Digital Twin, and Other Deployed Edge Systems

ROOM	SESSION/CHAIR	1600	1630	1700
W300 – THEATRE	Best Paper Nominee Session 2 Chair: Toni Hawkins-Scribner, Ph.D.	23179 Contextualizing Cyberspace Electromagnetic Activities (CEMA) in Multi-Domain Operations (MDO) Through Playbooks	23241 Developing Criteria to Compare Military Medical Trauma Simulations Across Modalities	23225 Practical Magic: Applying Guidelines to Serious Game Accessibility
W307A	SIM 2: Converging Realities Through AI and Visualization Chair: Tammie Smiley	23141 Optimizing Dynamic Visualizations, Operational and Engineering Models for Today's Warfighter	23357 Real-Time Surface-to-Air Missile Engagement Zone Prediction Using Simulation and Machine Learning	23426 Immersive AI Assistance During eVTOL Multi-Agent ATC Traffic Routing
W307B	ED 2: Medical-ish Chair: M. Beth Pettitt, Ph.D.	23109 Using Biometrics to Evaluate the Efficacy of Virtual Reality Learning Environments Through the Detection of Awe	23285 A Review of Research Discussing Analysis of EEG Data During Training and Skill Transfer for Skills Learned in Virtual Reality	23428 Disrupting the Status Quo: Nursing Curriculum Transformation with Virtual Reality
W308A	ECIT 3: Leveraging AI for Optimization and Simulation Chair: John Killilea, Ph.D.	23114 AI/ML-driven Network Optimization to Enable Synthetic Training and Distributed Simulation	23139 How Large Language Models Translate Raw Data into Expert Rules	23232 Rapid Retraining Architecture for Deploying AI/ML at the Speed of Relevance
W308B	ECIT 4: Emerging Technologies in XR and 5G Chair: Erica Dretzka	23104 Demystifying 5G for Extended Reality (XR) and Spatial Computing: Five Critical Lessons from a Year in Independent Research and Development (IRAD)	23134 How Immersive Technology Augments Operations Centers	23138 Simulation Model Abstraction Issues for Digital Twins; Separated at Birth?

ROOM	SESSION/CHAIR	0830	0900	0930
W3O7A	SIM 3: Modeling and Simulation Services: What's Hot Chair: Tammie Smiley	23223 Constructive Simulation Limitations and Cloud Scalability	23421 Enabling Multi-Domain Operations through Simulation Services	
W3O7B	ED 3: Preparing the Workforce through STEM Chair: Summer Rebensky, Ph.D.	23301 Advancing Career Aspirations in STEM Fields through Co-Design and XR-Enabled Educational Delivery Models	23392 Understanding STEM Education Opportunities to Build the Future Workforce	23455 Learning to Learn: The Trials and Tribulations of CBE Implementation in Technical Training
W3O7C	PSMA 1: Who's In Charge Here... Git'r Dun Chair: Robert Epstein	23133 Development of a Digital Simulation Supporting the U.S. Space Force National Test and Training Complex	23262 A Data Strategy for Data-Driven Training Management: Artificial Intelligence and the Army's Synthetic Training Environment	23410 An Inflection Point for Defense Modeling and Simulation (M&S) Management – Redefining Roles and Responsibilities Across the Department's M&S Enterprise
W3O7D	TR 2: Structured Chaos Chair: Wendy Johnson	23203 Mixed Reality Bloodstain Pattern Analysis Simulation Training System	23228 Exploring Multimodal Blended Environments for Medical Training and Simulation	23308 Enabling Point of Injury Care in Live Force-on-Force Exercises
W3O8C	HPAE 1: On Target: Integrating Technologies Chair: Randy Jensen	23235 Towards Robust Estimation of Cognitive Workload from Wearable Physiological Sensors	23277 The Criticality of Human Computer Interface/ Human-Machine Interaction for Healthcare	23411 Pilot Performance Assessment Using a Hybrid Expert System and Machine Learning for An Automatic Objective Assessment in Flight Simulation

ROOM	SESSION/CHAIR	1030	1100	1130
W3O7A	SIM 4: Modeling Structure into the World Chair: Samuel Halverson	23240 Unreal Oceans: Using Unreal Engine 5 to Simulate Realistic Maritime Vessel Motion	23286 Automated Building Corner Detection for Validating 3D Point Cloud Data	23338 Automated Generation of Accurate 3D Building Interiors: Lessons Learned and Challenges
W3O7B	ED 4: Transformative Application of VR in the Real World Chair: Duke Tucker	23120 Evaluate the Benefits of Employing Immersive Learning Techniques: Improve the Effectiveness of Sexual Assault and Prevention (SAPR) Training	23130 Examining Full-Spectrum Embedded Training Modules for a Crew's Task Simulation Task	23375 Virtual Reality Provides Real Data: How Data in VR Transforms the Concept of Readiness
W3O7C	PSMA 2: Standards Are Great! Let's Use Them Chair: Nick Giannias	23352 The Digital Twin Encapsulation Standard: An Open Standard Proposal for Simulation-Ready Digital Twins	23195 Standard Protocol Stack Improves Short-Range Wireless Communication in Live Simulation	23454 The NISP Standard (NATO Interoperability Standards and Profiles) and Data Governance
W3O7D	TR 3: Distributed Training: Anytime, Anywhere Chair: Tim Woodard	23224 Warfighter Readiness: Virtual Training on Demand	23271 Simulating the Whole Picture with Distributed Mixed LVC	23248 Can Synthetic Coaching Using an Immersive Training Device Effectively Train Student Pilots? A Field Study
W3O8A	ECIT 5: Visualizing and Understanding Decision-Making in AI Chair: Shannon Craig	23122 An Approach for Visualizing Comparison of Human and AI Decision-Making	23145 Neural Activity Mapping of Army Aviation Flight Task Performance	23316 Using AI to Increase Trust in AI - Yes, We're Serious
W3O8B	ECIT 6: Developments in Virtualized Simulation and Wargame Planning Chair: Keith Holt	23372 Virtualized Simulation for Military Concept Development and Experimentation: The Cerebro Battle Lab, a Case Study	23373 Genetic Algorithms for Wargame Operational Planning	23406 Joint Data Mesh – A Data-Centric Approach for Modeling & Simulations
W3O8C	HPAE 2: Tailored to Me: Immersive Technologies Chair: Sondra Chambers	23403 Taking Control: An HFACS Analysis of Loss of Control in Helicopter EMS Flights	23431 A Framework for Performance Assessment Across Multiple Training Scenarios Using Hierarchical Bayesian Competency Models	23449 Me and My Report: A Segmentized After-Action Review Embedded Report Application for Supporting Maintenance Training in VR

ROOM	SESSION/CHAIR	1330	1400	1430
W3O7A	SIM 5: Simulating Stressy Situations Chair: Simon Skinner	23275 Techniques for Simulating Data Visualization of the Digital Patient	23414 Virtual Reality-based Medical Simulation for Pre-Hospital Space Medicine Care: VALOR PHSMCC	23180 Creation of a Human-in-the-Loop Simulator Environment for Fifth Generation Stressor Research
W3O7B	SIM 6: Extending XR to the Real World Chair: Colleen Matthews	23186 Toward Next Generation Aerial Refueling Airplane Simulator Qualification	23309 An XR Authoring Tool for Customizing Aviation Weather Educational Content	23388 Using Virtual Reality to Connect Military Families Together: A Diary Study with the Virtual Family Room
W3O7C	PSMA 3: Guide To Simulation Management by Air, Land and Sea Chair: Paul Butler	23135 An Ontology-based Approach for Scenario Generation in Flight Simulation Systems	23106 A Hybrid Approach to Combat Simulation Experimentation	23272 Enabling Distributed Maritime Operations Through Live, Virtual, Constructive Technologies
W3O7D	TR 4: Reality Re-Imagined Chair: Luis Velazquez	23103 RFID Sensing and Analytics to Improve Team Training	23119 The Coast Guard Investigating Officer Course: An Analysis and Redesign Using Immersive Technologies	23321 Immersive Space Operations Training in Extended Reality
W3O8A	ECIT 7: AI in Schedule Forecasting and Behavior Scaling Chair: Maureen Holbert	23302 Scaling Intelligent Agent Combat Behaviors Through Hierarchical Reinforcement Learning	23364 Novel Schedule Forecasting for Low-Volume Highly-Complex New Product Development	23416 Force Design Using AI, Digital Engineering, and Wargaming: Sports Insights
W3O8B	ECIT 8: Authorizations and Enabling the Human Dimension in Digital Applications Chair: Anastacia MacAllister, Ph.D.	23274 Enabling Agile Authorization for Mixed Reality Training Applications and Devices	23283 Enabling the Human Dimension in Joint All Domain Command and Control (JADC2)	23354 Finding Critical Areas of Concern for sUAS Collision Avoidance
W3O8C	HPAE 3: Unlocking Minds: Learning and Instruction Chair: Paul Andrzejewski	23144 Leadership Gaps in Army Training Organizations: Misunderstanding and Misapplication of the Instructional Systems Specialist (ISS)	23268 Assessing Information Maneuver Performance and Effectiveness	23399 Learning Engineering Virtual Training Systems with Learning Science, Data Standards and a Capabilities Maturity Model

ROOM	SESSION/CHAIR	1530	1600	1630
W3O7A	SIM 7: Cyber Attack: The Unseen Chair: Miranda Frost	23217 Extending PNPSC Player Strategies with Continuous Firing Rates	23303 Cyber Reactive Adversary Framework for Training	
W3O7B	SIM 8: Lego Modeling Chair: Connie Perry	23146 Modeling and Simulation for Hypersonic Missile Threat Assessment	23279 Integrating New Engagement Types in Live Training Exercises	23398 Iterative and Incremental Validation of Simulation Conceptual Models
W3O7C	PSMA 4: How Do I Acquire Thee, Let Me Count the Ways Chair: Lisa Bair	23288 Virtual Pathways: Application of the Adaptive Acquisition Framework for Synthetic Training Environments	23353 Cyber Resiliency at the Edge – From Technology to Policy	
W3O7D	TR 5: Learning to Train, Training to Learn Chair: Liz Gehr, Ph.D.	23251 Failure is an Option: Implementing Safe Failure as a Learning Strategy	23396 On Episodic Memory in Experiential Learning via Flightcrew Training Simulations	23401 Immersive Aviation Training Design Driven by the Science of Learning
W3O8A	ECIT 9: AI and Intelligent Decision Support Technologies Chair: Eugene Pursel	23219 AI Inference of Team Effectiveness for Training and Operations	23226 On Developing the Intelligent Decision Supporting Technologies for Ground Operations	23270 Continuous Asymmetric Risk Analysis: A New Method to Analyze Risk
W3O8B	ECIT 10: Adapting Training Technologies for Teaming Operations Chair: Jenifer Wheeler	23125 Considerations for Adapting Training Technologies for Manned-Unmanned Teaming Operations	23247 Training Implications for Future Advanced Air Mobility Operations	23207 Automatic Creation of High Fidelity Open Terrain Digital Twins for Off-Road Autonomous Vehicles Training and Validation
W3O8C	HPAE 4: Teams, Training, and Misinformation Chair: Sean Carey	23325 Team Training for Collaborative Cross-Functional Problem-Solving in Wargaming Exercises	23332 Dangers and Solutions for Systematic Misinformation at Scale	23337 Unobtrusive Measures and Understanding Team Processes

ROOM	SESSION/CHAIR	0830	0900	0930
W3O7A	SIM 9: Simulating Complex Threats in Complex Environments Chair: Susan Harkrider	23151 Adding Weather to Wargame Simulation	23256 ELMO (Electromagnetic Layer for Multi-domain Operations) Developing and Testing Activities	23457 Numerical Study of Ammonium Nitrate/Fuel Oil Detonations for Large Scale Pattern of Life Simulations
W3O7B	ED 5: Performance Improvement Chair: Bill Gerber, Ph.D.	23142 Teaching Simple Combat Models through Spike TV's "Deadliest Warrior"	23171 Leveraging Sports Psychology to Improve Team Performance Huddles	23299 From Classroom to Field: Topological and Tactical Terrain Analysis Inside a Learning Environment
W3O7D	TR 6: Toys to Task Chair: Mike Thorpe	23140 Media and Fidelity Analysis: Predicting Technological Training Requirements for Unidentified Future Vertical Lift Program	23166 On Approach to Reality: The Impact of a Simulated Air Traffic Control Environment (SATCE) on Workload and Situational Awareness in Military Aviators	
W3O8A	ECIT 11: AI-Driven Clustering and Data Transformation Chair: Lloyd Kleinman	23153 A Novel Approach to Dynamic Unsupervised Clustering	23173 Transforming a Digital World into Real Insights Using Synthetic Data	23176 Unsupervised Clustering for Image Data
W3O8B	ECIT 12: Geospatial Data Analysis and Terrain Generation Chair: LCDR Michael Natali, Ph.D., USN	23366 Hyper-Concurrency: The Convergence of Development, Test, and Training	23412 Using AI and Neuroscience in Immersive 3D Flight Simulation Device to Accelerate Pilot Training	23420 How Are You Enabling Model Reuse and Development for Simulation?

ROOM	SESSION/CHAIR	1030	1100	1130
W3O7A	SIM 10: Representing Atypical Patterns Chair: Craig Unrath	23335 A Structure for Representing Critical Infrastructures	23370 Evaluation of Open-Source Data for Gray-zone Operations Decision-Systems	23448 Simulating Civil Security Activities in Stability Operations
W3O7B	ED 6: Alcademy: Mastering the Future Chair: Christina Bouwens, Ph.D.	23157 Generating Procedural Knowledge Test Items Using Natural Language Processing Techniques	23163 Toward a Theory of Human-AI Co-Learning and Trustworthiness	
W3O7C	PSMA 5: What If I Told You You're In The Digital World? Chair: Marco Lassus	23129 Remodeling Readiness: Using Digitization to Enable Organizational Expertise	23365 AI/ML-Driven Content Repository Maintenance	23360 Augmented Maintenance: Setting Expectations for Augmented Reality
W3O7D	TR 7: Data...Make it Matter! Chair: Marwane Bahbaz	23184 Data-Driven and Personalized Training as a Service Infrastructure & Techologies	23198 A Machine Learning Approach for Identiying At-Risk Students in Learning Record Stores: A Case Study Using USALearning Experience API	23409 Digitizing Performance and Competencies
W3O8A	ECIT 13: Communication in AI-Driven Teams and Large Language Models Chair: Angela Alban	23190 Communication Styles in Human-AI Teams Tasked with Urban Search and Rescue Missions	23206 Large Language Models Have Transformed Our World – Can They Help to Build It?	23266 Developing Methods to Support Social Media Intelligence Analysis
W3O8B	ECIT 14: Real-Time Analytics and Cybersecurity Visualization Chair: Neil Stagner	23137 Visualizing Cybersecurity Data for Detection and Assistance in Cyber Operations	23265 Leveraging AI to Create Real-time, Character-based Virtual Trainers	23437 Real-time Analytics to Support Operational Decision Making

ROOM	SESSION/CHAIR	1330	1400	1430
W3O7A	SIM 11: Complex Future Operational Environments Chair: Glenn Hodges, Ph.D.	23257 Modelling & Simulation in Support of a Comprehensive CBRN Layer Development	23284 Comparison of Visualization Technologies to Support RCAF Training Modernization	
W3O8A	ECIT 15: Accelerating Training with AI and Neuroscience in Simulation Devices Chair: Mike Lokuta	23287 Analyzing, Preparing, and Processing Input Geospatial Data for High-Resolution Terrain Generation	23382 Crowdsensing of Meteorological Data for Safety and Efficiency of Unmanned Aerial Traffic in Urban Environment	23408 Model Mining in Sensor Data for Rapid Terrain Analysis
W3O8B	ECIT 16: Learning and Visualization in Virtual Reality Chair: Eric Jarabak	23250 Using VR to Validate and Visualize MBSE-Designed Interfac	23294 Learning and Emotional Outcomes in an Immersive Omnidirectional Pilot Study	23413 Creating Robust Evolvable MSaaS Services: An Integrated Model-Driven Engineering Approach

PAPERS

BEST PAPERS

BEST PAPER SESSION 1

Session Chair: Maureen Holbert, Booz Allen Hamilton
Session Deputy: Sondra Chambers, General Dynamics Mission Systems

23233 Developing the Human Machine Teaming (HMT) Ecosystem
Anastacia MacAllister, Ph.D., Rey Nicolas, General Atomics Aeronautical Systems, Inc.; Col Daniel Javorsek, Ph.D., USAF AFOTEC DET 6/CC; Patrick Rupp, George Hellstern, Miguel Morales, Lockheed Martin Corporation; Louis Dube, EpiSci

23210 Effects of Trust Calibration on Human-Machine Team Performance in Operational Environments
Beth Hartzler, Ph.D., Sandro Scielzo, Ph.D., Alvin Abraham, Rachel Wong, CAE USA; Spencer Kohn, Ph.D., Perceptronics Solutions

23273 Wires Crossed in a Digital World: How to Prevent Misalignments in Human and AI Decision Making
Maria Chaparro Osman, Ph.D., Summer Rebensky, Ph.D., Audrey Reinert, Ph.D., Valarie Yerdon, Ph.D., Christopher Jenkins, Jianna Logue, Charles Jusko, Gabriel Ganberg, Aptima, Inc.

BEST PAPER SESSION 2

Session Chair: Toni Hawkins-Scribner, Ph.D., Air University/Squadron Officer School
Session Deputy: Wendy Johnson, Ph.D., HQ AETC/A5X – TR2

23179 Contextualizing Cyberspace Electromagnetic Activities (CEMA) in Multi-Domain Operations (MDO) Through Playbooks
COL Chad Bates, Ph.D., U.S. Army War College; Jacob Cox, Ph.D., Clark Heidelbaugh, Jim Ruth, Tim Friest, Trideum Corporation

23241 Developing Criteria to Compare Military Medical Trauma Simulations Across Modalities
Shannon Bailey, Ph.D., Michael Brannick, Colleen Reiner, Luis Llerena, USF Health CAMLS; F. Bowling, HQ USSOCOM; Dennis Lyons, U.S. Army (Retired)/Smith and Nephew, Inc.; Samantha Tromly, Institute of Applied Engineering, University of South Florida

23225 Practical Magic: Applying Guidelines to Serious Game Accessibility
Jennifer McNamara, Breakaway Games; Michael Brooks, The Pennsylvania State University World Campus

EDUCATION

EVALUATION AND APPLICATION OF INSTRUCTIONAL STRATEGIES

Session Chair: Wendi Van Buskirk, Ph.D., NAWCTSD
Session Deputy: Henry Phillips, Ph.D., Soar Technology, LLC

23174 Using Non-immersive VR Simulations in Conjunction with Priming to Enhance Conceptualizing Radiation and Risk
Angela Leek, Nir Keren, Ph.D., Andrew Lawson, Aidan Webster, Iowa State University

23196 Leveraging Machine Learning and Cognitive Science to Enhance Knowledge Retention in Air Force Special Warfare Trainees
Amy Smith, Blank Slate Technologies

23199 Using Feedback to Increase Engagement with Adaptive Training Tools in USMC Classrooms
Matthew Marraffino, Ph.D., NAWCTSD; Allison Garibaldi; Nicholas Fraulini, Ph.D., StraCon Services Group; Cheryl Johnson, Ph.D., Quantum Improvements Consulting; Micah Soboleski, MCCSSS

MEDICAL-ISH

Session Chair: William Pike, Ph.D., U.S. Army DEVCOM SC STTC
Session Deputy: Frank Karluk, DLH Corporation

23109 Using Biometrics to Evaluate the Efficacy of Virtual Reality Learning Environments Through the Detection of Awe
Christopher Yockey, 775 Test Squadron

23285 A Review of Research Discussing Analysis of EEG Data During Training and Skill Transfer for Skills Learned in Virtual Reality
Shawn Adams, USAFR; Andrew Clayton, Ph.D., Air University

23428 Disrupting the Status Quo: Nursing Curriculum Transformation with Virtual Reality
Juliet Kolde, Ph.D., Jeffrey Olsen, Casey Brown, Nightingale College; Jack Pottle, M.D., Oxford Medical Simulation

PREPARING THE WORKFORCE THROUGH STEM

Session Chair: Summer Rebensky, Ph.D., Aptima, Inc.
Session Deputy: Thea Albertson, Serco North America

23301 Advancing Career Aspirations in STEM Fields through Co-Design and XR-Enabled Educational Delivery Models
Alex Renner, Eliot Winer, Ph.D., Kimberly Zarecor, Ph.D., Evrim Baran, Ph.D., Ezequiel Aleman, Ph.D., Anasilvia Salazar Morales, Iowa State University

23392 Understanding STEM Education Opportunities to Build the Future Workforce
James Belanich, Franklin Moses, Allyson Buytendyk, Christian Dobbins, Dan Kolodrubetz, Alex Pang, IDA

23455 Learning to Learn: The Trials and Tribulations of CBE Implementation in Technical Training
Nathan Jones, Problem Solutions LLC; Nate Ferrara, Allen Interactions

ED 4   WEDNESDAY, 29 NOVEMBER • 1030 • W307B

TRANSFORMATIVE APPLICATION OF VR IN THE REAL WORLD

Session Chair: Duke Tucker, Pinnacle Solutions
Session Deputy: Erin McCormick, Ph.D., 711 HPW, AFRL

23120 Evaluate the Benefits of Employing Immersive Learning Techniques: Improve the Effectiveness of Sexual Assault and Prevention (SAPR) Training
Kellie Hill, Air Force Sustainment Command (AFSC)

23130 Examining Full-Spectrum Embedded Training Modules for a Crew's Task Simulation Task
Crystal Maraj, Ph.D., UCF-SMST; Shelley Brown, Dean Reed, Jonathan Hurter, Clive Hoayun, University of Central Florida Institute for Simulation and Training

23375 Virtual Reality Provides Real Data: How Data in VR Transforms the Concept of Readiness
Summer Rebensky, Ph.D., William Stalker, Shawn Turk, Samantha Perry, Ph.D., Aptima, Inc.; Jonathan Diemunsch, Quintin Oliver, Wink Bennett, Ph.D., AFRL

ED 5   THURSDAY, 30 NOVEMBER • 0830 • W307B

PERFORMANCE IMPROVEMENT

Session Chair: Bill Gerber, Ph.D., IDA
Session Deputy:

23142 Teaching Simple Combat Models through Spike TV's "Deadliest Warrior"
Vikram Mittal, United States Military Academy

23171 Leveraging Sports Psychology to Improve Team Performance Huddles
Joanne Barnieu, Steven Aude, Ph.D., Heidi Keller-Glaze, Ph.D., Ryan Riley, Kate Lambourne, Ph.D., Maryann Strassen, Angela Ferreira, ICF; Nathanael Keiser, Ph.D., Christopher Vowels, Ph.D., U.S. Army Research Institute

23299 From Classroom to Field: Topological and Tactical Terrain Analysis Inside a Learning Environment
Raphael de Souza, Thiago Da Goncalves, Diogenes Silva, Rodrigo Mendonca, Fabio Torres, Diego Hermes, Brazilian Marines Simulation Center; Alberto Raposo, PUC-Rico

ED 6   THURSDAY, 30 NOVEMBER • 1030 • W307B

AIcademy: MASTERING THE FUTURE

Session Chair: Christina Bouwens, Ph.D., L3Harris
Session Deputy: Josh Looper, USAF

23157 Generating Procedural Knowledge Test Items Using Natural Language Processing Techniques
Bridge Eimon, Sowmya, Ramachandran, Ph.D., Jeremy Ludwig, Ph.D., Stottler Henke Associates, Inc.

23163 Toward a Theory of Human-AI Co-Learning and Trustworthiness
Frederick Diedrich, Ph.D., Independent Consultant; Gary Riccio, Ph.D., Independent Consultant; Tatiana Toumbeva, Ph.D., Aptima, Inc.; Scott Flanagan, Sophia Solutions

EMERGING CONCEPTS & INNOVATIVE TECHNOLOGIES

ECIT 1   TUESDAY, 28 NOVEMBER • 1600 • W308A

AI AND LANGUAGE PROCESSING IN COMPLEX SYSTEMS

Session Chair: John Killilea, Ph.D., NAWCTSD
Session Deputy: Marcus Boyd, CAE USA

23264 Winning Hearts & Tongues: A Polish to Lemko Case Study
Petro Orynycz, Orynycz.com; Tom Dobry, Antech Systems

23269 The Simplification of Complex Systems using Natural Language Processing
Jaden Flint, Chanler Cantor, William Marx, Ph.D., CAPT Timothy Hill, USN (Ret.), COL John Frasier, USA (Ret.), Kyle Russell, Intuitive Research and Technology Corporation

23291 Refugee Flow Management and Resilience Implications
Kostadin Lazarov, Orlin Nikolov, CMDR COE

ECIT 2   TUESDAY, 28 NOVEMBER • 1400 • W308B

5G NETWORKS AND REAL-TIME COMMAND AND CONTROL

Session Chair: Ed Jezisek, Training and Simulation | Land Systems, Saab, Inc.
Session Deputy: Enrique Mertins, 75th IC, U.S. Army

23377 Digital Twin Approach for 3D Visualization and Optimization of 5G Non-Terrestrial Network
Chuan Pham, Maroua Ben-Attia, Abdo Shabah, Humanitas Solutions; Kaniz Mahdi, Jaroslav Holiš, Deutsche Telekom AG

23384 Real-time Updated Digital Twins for Drone Swarm Command and Control
Berk Cetinsaya, Carsten Neumann, Dirk Reiners, Carolina Cruz-Neira, University of Central Florida

23434 Blockchain Cybersecurity for Edge Computing Nodes such as Digital Twin, and Other Deployed Edge Systems
Michael Wikan, Yugandhar Cindepalle, Booz Allen Hamilton

ECIT 3   TUESDAY, 28 NOVEMBER • 1400 • W308A

LEVERAGING AI FOR OPTIMIZATION AND SIMULATION

Session Chair: Wesley Fine, Bohemia Interactive Simulations
Session Deputy: Syed Mohammad, Ph.D., DHS Science and Technology Directorate

23114 AI/ML-driven Network Optimization to Enable Synthetic Training and Distributed Simulation
Jack Burbank, June Gordon, Todd Lutton, Gregory Patti, Ebony Robinson, Antonio Fiuza, Sabre Systems, Inc.; Brad Friedman, U.S. Army Futures Command, Synthetic Training Environment CFT

23139 How Large Language Models Translate Raw Data into Expert Rules
David Noever, Joseph Regian, PeopleTec, Inc.

23232 Rapid Retraining Architecture for Deploying AI/ML at the Speed of Relevance
Anastacia MacAllister, Ph.D., Dennis Chen, Vasna Khani, Victoria Dorn, Arman Ommid, Rey Nicolas, General Atomics Aeronautical Systems, Inc.

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ECIT 4 — TUESDAY, 28 NOVEMBER • 1600 • W308B

EMERGING TECHNOLOGIES IN XR AND 5G

Session Chair: Erica Dretzka, OSD Force Readiness
Session Deputy: Samantha Dubrow, Ph.D., The MITRE Corporation

23104 Demystifying 5G for Extended Reality (XR) and Spatial Computing: Five Critical Lessons from a Year in Independent Research and Development (IRAD)
Michael Zurat, General Dynamics IT

23134 How Immersive Technology Augments Operations Centers
William Liggett, III, USCYBERCOM; Andrew Clayton, Ph.D., Air University

23138 Simulation Model Abstraction Issues for Digital Twins; Separated at Birth?
Simon Skinner, Thales Training and Simulation

ECIT 5 — WEDNESDAY, 29 NOVEMBER • 1030 • W308A

VISUALIZING AND UNDERSTANDING DECISION-MAKING IN AI

Session Chair: Shannon Craig, MAK Technologies
Session Deputy: Rishabh Kaushik, Collins Aerospace, Inc.

23122 An Approach for Visualizing Comparison of Human and AI Decision-Making
Henry Phillips, Ph.D., Alyssa Tanaka, Ph.D., Angela Woods, Soar Technology, LLC

23145 Neural Activity Mapping of Army Aviation Flight Task Performance
Christina Parker, Ed.D., Air Force Special Operations Command; JJ Walcutt, Ph.D., Clay Strategic Designs; LT Nicholas Armendariz, USN, Naval Aerospace Medical Institute; Dhiraj Jeyanandarajan, QNeuro

23316 Using AI to Increase Trust in AI - Yes, We're Serious
Kyle Russell, Connor Green, Charles Etheredge, Michael Yohe, William Marx, Ph.D., CAPT Timothy Hill, USN (Ret.), Lt Col Robert Odom, USAF (Ret.), Col Daron Drown, USAF (Ret.), Intuitive Research and Technology Corporation

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ECIT 6 — WEDNESDAY, 29 NOVEMBER • 1030 • W308B

DEVELOPMENTS IN VIRTUALIZED SIMULATION AND WARGAME PLANNING

Session Chair: Keith Holt, Lockheed Martin Corporation
Session Deputy: Adam Kohl, Iowa State University

23372 Virtualized Simulation for Military Concept Development and Experimentation: The Cerebro Battle Lab, a Case Study
Dirk oude Egbrink, Jan Jaap Knobbout, Zeeger Lubsen, Royal Netherlands Aerospace Centre

23373 Genetic Algorithms for Wargame Operational Planning
John Pav, Eric Jamieson, Booz Allen Hamilton; Adam Haywood, HAF A5/7

23406 Joint Data Mesh – A Data-Centric Approach for Modeling & Simulations
Samuel Chambers, Joint Staff J7; Walter Cedeño, Jay Freeman, Colby McAlexander, CAE USA

ECIT 7 — WEDNESDAY, 29 NOVEMBER • 1330 • W308A

AI IN SCHEDULE FORECASTING AND BEHAVIOR SCALING

Session Chair: Maureen Holbert, Booz Allen Hamilton
Session Deputy: Steven Godby, AFLCMC/WNS

23302 Scaling Intelligent Agent Combat Behaviors Through Hierarchical Reinforcement Learning
LtCol Scotty Black, USMC, Naval Postgraduate School

23364 Novel Schedule Forecasting for Low-Volume Highly-Complex New Product Development
Bruce Chehroudi, Ph.D., Scott Morchower, Mantech International; Jonathan Lam, Ph.D., USSF; Gus Benavides, Axient Corp

23416 Force Design Using AI, Digital Engineering, and Wargaming: Sports Insights
Matthew Bowler, Joshua Traub, Booz Allen Hamilton; Brian Hall, New York University

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ECIT 8 — WEDNESDAY, 29 NOVEMBER • 1330 • W308B

AUTHORIZATIONS AND ENABLING THE HUMAN DIMENSION IN DIGITAL APPLICATIONS

Session Chair: Anastacia MacAllister, Ph.D., General Atomics Aeronautical Systems, Inc.
Session Deputy: Keith Brawner, Ph.D., U.S. Army DEVCOM SC STTC

23274 Enabling Agile Authorization for Mixed Reality Training Applications and Devices
Brandi Pickett, Jason Ingalls, Ingalls Information Security

23283 Enabling the Human Dimension in Joint All Domain Command and Control (JADC2)
Emilie Reitz, Joint Staff, J6; Kevin Seavey, JS J6 Joint Fires Integration Division; Samuel Chambers, Joint Staff J7; Justin Wright, Huntington Ingalls Industries

23354 Finding Critical Areas of Concern for sUAS Collision Avoidance
Elijah Keck, Mustafa Akbas, Embry-Riddle Aeronautical University

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ECIT 9 — WEDNESDAY, 29 NOVEMBER • 1530 • W308A

AI AND INTELLIGENT DECISION SUPPORT TECHNOLOGIES

Session Chair: Eugene Pursel, USSTRATCOM
Session Deputy: William Pike, Ph.D., U.S. Army DEVCOM SC STTC

23219 AI Inference of Team Effectiveness for Training and Operations
Rob Hyland, Kenneth Lu, Spencer Lynn, Stephen Marotta, James Niehaus, Ph.D., William Norsworthy, Avi Pfeffer, Curtis Wu, Bryan Loyall, Charles River Analytics

23226 On developing the Intelligent Decision Supporting Technologies for Ground Operations
Sangheun Shim, Kiwoong Park, Dongkuk Ryu, Suhyun Kim, Taejong Lee, Agency for Defense Development

23270 Continuous Asymmetric Risk Analysis: A New Method to Analyze Risk
Zachry Engel, Nickalus Harrill, Jacob Ediger, Nicolas Velez Camacho, Randal Allen, Ph.D., Lone Star Analysis, Inc.

ECIT 10	WEDNESDAY, 29 NOVEMBER • 1530 • W308B

ADAPTING TRAINING TECHNOLOGIES FOR TEAMING OPERATIONS

Session Chair: Jenifer Wheeler, Southwest Research Institute
Session Deputy: Christopher Chambers, Serious Simulations, LLC

23125 Considerations for Adapting Training Technologies for Manned-Unmanned Teaming Operations

Scott Scheff, HF Designworks, Inc.; John O'Malia, ThayerMahan; Beth Atkinson, James Pharmer, Ph.D., NAWCTSD

23247 Training Implications for Future Advanced Air Mobility Operations

Kendall Carmody, Maureen Namukasa, Bhoomin Chauhan, Vivek Sharma, Meredith Carroll, Ph.D., Florida Institute of Technology

23207 Automatic Creation of High Fidelity Open Terrain Digital Twins for Off-Road Autonomous Vehicles Training and Validation

Ido Ariav, David Zaphir, Alon Faraj, Asaf Avinoam, Yisachar Shapira, Elbit Systems Ltd.

ECIT 11	THURSDAY, 30 NOVEMBER • 0830 • W308A

AI-DRIVEN CLUSTERING AND DATA TRANSFORMATION

Session Chair: Lloyd Kleinman, Surface Combat Systems Training Command
Session Deputy: Matt Canonico, NVIDIA

23153 A Novel Approach to Dynamic Unsupervised Clustering

Christopher Heinlen, Mark Volpi, Randal Allen, Ph.D., Lone Star Analysis, Inc.

23173 Transforming a Digital World into Real Insights Using Synthetic Data

Javier Garza, Lockheed Martin Corporation

23176 Unsupervised Clustering for Image Data

Nickolas Vlahopoulos, Spiridon Kasapis, University of Michigan; Geng Zhang, MES; Jonathon Smereka

ECIT 12	THURSDAY, 30 NOVEMBER • 0830 • W308B

GEOSPATIAL DATA ANALYSIS AND TERRAIN GENERATION

Session Chair: LCDR Michael Natali, Ph.D., USN, ONR
Session Deputy: James Ohlman, CAE USA

23366 Hyper-Concurrency: The Convergence of Development, Test, and Training

Joshua Fields, Timothy Mobeck, Trevor Rossi, Craig Smith, Jason Valestin, Collins Aerospace

23412 Using AI and Neuroscience in Immersive 3D Flight Simulation Device tto Accelerate Pilot Training

Jean-Francois Delisle, CAE Inc.

23420 How Are You Enabling Model Reuse and Development for Simulation?

Chris McGroarty, Christopher Metevier, U.S. Army DEVCOM SC STTC; Scott Gallant, Effective Applications Corporation; Keith Snively, U.S. Army DEVCOM C5ISR; Anup Raval, Greg Tracy, Mark Schlottke, Dynamic Animation Systems, Inc.

ECIT 13	THURSDAY, 30 NOVEMBER • 1030 • W308A

COMMUNICATION IN AI-DRIVEN TEAMS AND LARGE LANGUAGE MODELS

Session Chair: Angela Alban, SIMETRI, Inc.
Session Deputy: Don Lail, U.S. Army DEVCOM CBC

23190 Communication Styles in Human-AI Teams Tasked with Urban Search and Rescue Missions

Ashish Amresh, Northern Arizona University

23206 Large Language Models Have Transformed Our World – Can They Help to Build It?

Graham Long, Thales

23266 Developing Methods to Support Social Media Intelligence Analysis

Daniela Miele, Lauren Glenister, Angela Woods, Soar Technology, LLC

ECIT 14	THURSDAY, 30 NOVEMBER • 1030 • W308B

REAL-TIME ANALYTICS AND CYBERSECURITY VISUALIZATION

Session Chair: Neil Stagner, PM TRASYS, MARCORSYSCOM
Session Deputy: Greg Ouellette, NAWCTSD

23137 Visualizing Cybersecurity Data for Detection and Assistance in Cyber Operations

Jason Ingalls, Ingalls Information Security; Judson Dressler, U.S. Air Force; Kaur Kullman, University of Maryland Baltimore County

23265 Leveraging AI to Create Real-time, Character-based Virtual Trainers

Dennis O'Dell, Jr., Pinnacle Solutions, Inc.

23437 Real-time Analytics to Support Operational Decision Making

Dejan Neskovic, Jerry Sheehan, Alec "AJ" Gray, Jr., Booz Allen Hamilton

ECIT 15	THURSDAY, 30 NOVEMBER • 1330 • W308A

ACCELERATING TRAINING WITH AI AND NEUROSCIENCE IN SIMULATION DEVICES

Session Chair: Mike Lokuta, CAE Inc.
Session Deputy: Javier Garza, Lockheed Martin Corporation

23287 Analyzing, Preparing, and Processing Input Geospatial Data for High-Resolution Terrain Generation

Tu Lam, Matt Reilly, Pedro Ramos, Hunter York, Scot Shiflett, Amanda Larrieu, Leidos, Inc.; Clayton Burford, U.S. Army DEVCOM SC STTC

23382 Crowdsensing of Meteorological Data for Safety and Efficiency of Unmanned Aerial Traffic in Urban Environment

Jose Alejandro Gonzalez Nunez, Mustafa Akbas, Embry-Riddle Aeronautical University

23408 Model Mining in Sensor Data for Rapid Terrain Analysis

Frido Kuijper, Ruben Smelik, Ewan Demeur, Remco van der Meer, Vera Bekkers, TNO

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LEARNING AND VISUALIZATION IN VIRTUAL REALITY

Session Chair: Eric Jarabak, PM TRASYS, MARCORSYSCOM
Session Deputy: Scott Burdick, AFLCMC/XA

23250 Using VR to Validate and Visualize MBSE-Designed Interfaces
Sean Flanagan, Jake Bolton, Hunter Stinson, Integration Innovation, Inc.

23294 Learning and Emotional Outcomes in an Immersive Omnidirectional Pilot Study
Fred Martin, Jr., U.S. Army; Maria Harrington, University of Central Florida

23413 Creating Robust Evolvable MSaaS Services: An Integrated Model-Driven Engineering Approach
Chris McGroarty, Christopher Metevier, U.S. Army DEVCOM SC STTC; Scott Gallant, Effective Applications Corporation; Keith Snively, U.S. Army DEVCOM C5ISR; Herwig Mannaert, Alexander Boucquey, Normalized Systems eXpanders Factory

HUMAN PERFORMANCE, ANALYSIS AND ENGINEERING

ON TARGET: INTEGRATING TECHNOLOGIES

Session Chair: Randy Jensen, Stottler Henke Associates, Inc.
Session Deputy: Victoria Claypoole, Ph.D., Dynepic, Inc.

23235 Towards Robust Estimation of Cognitive Workload from Wearable Physiological Sensors
Aaron Novstrup, Stottler Henke Associates, Inc.; Monica Tynan, James Heaton, Massachusetts General Hospital; Gianluca De Luca, Delsys, Inc.; Joshua Kline, Altec and Delsys, Inc.

23277 The Criticality of Human Computer Interface/ Human-Machine Interaction for Healthcare
Steven Michael Thomas, William Marx, Ph.D., CAPT Timothy Hill, USN (Ret.), Chanler Cantor, Intuitive Research and Technology Corporation

23411 Pilot Performance Assessment Using a Hybrid Expert System and Machine Learning for An Automatic Objective Assessment in Flight Simulation
Jean-Francois Delisle, Maher Chaouachi, Melvyn Tan, Laurent Desmet, CAE Inc.; Andrea Lodi, Polytechnique de Montréal

TAILORED TO ME: IMMERSIVE TECHNOLOGIES

Session Chair: Sondra Chambers, General Dynamics Mission Systems
Session Deputy: Matthew Stone, NAWCAD

23403 Taking Control: An HFACS Analysis of Loss of Control in Helicopter EMS Flights
Paige Lawton, Albert Boquet, Embry-Riddle Aeronautical University

23431 A Framework for Performance Assessment Across Multiple Training Scenarios Using Hierarchical Bayesian Competency Models
Caleb Vatral, Gautam Biswas, Naveeduddin Mohammed, Institute for Software Integrated Systems - Vanderbilt University; Benjamin Goldberg, Ph.D., U.S. Army DEVCOM SC STTC

23449 Me and My Report: A Segmented After-Action Review Embedded Report Application for Supporting Maintenance Training in VR
Nir Keren, Ph.D., Andrew Lawson, Amon McAllister, Ashwin Jacob, Iowa State University; Robert Johnson, Christopher Boswell, Glenne Goode, Iowa Department of Transportation; Angela Leek, Aiden Webster, Iowa State University

UNLOCKING MINDS: LEARNING AND INSTRUCTION

Session Chair: Paul Andrzejewski, HigherEchelon, Inc.
Session Deputy: Miriam Plaza, Intelligent Decision Systems, Inc.

23144 Leadership Gaps in Army Training Organizations: Misunderstanding and Misapplication of the Instructional Systems Specialist (ISS)
Christina Parker, Ed.D., AFSOC; Leonard Momeny, USAACE

23268 Assessing Information Maneuver Performance and Effectiveness
Morgan Borders, William Ross, Michael Williams, Cognitive Performance Group; Rebecca Goolsby, ONR

23399 Learning Engineering Virtual Training Systems with Learning Science, Data Standards and a Capabilities Maturity Model
Kevin Owens, Applied Research Laboratories: The University of Texas at Austin; Shelly Blake-Plock, Yet Analytics, Inc.; Jim Goodell, QIP

TEAMS, TRAINING, AND MISINFORMATION

Session Chair: Sean Carey, USAF/AMC/A3TD
Session Deputy: Annie Robinson, Overmatch, Inc.

23325 Team Training for Collaborative Cross-Functional Problem-Solving in Wargaming Exercises
Randy Jensen, Stottler Henke Associates, Inc.; Grace Teo, Quantum Improvements Consulting; Lisa Townsend, U.S. Army DEVCOM SC STTC

23332 Dangers and Solutions for Systematic Misinformation at Scale
Joseph Regian, David Noever, PeopleTec, Inc.

23337 Unobtrusive Measures and Understanding Team Processes
Alexxa Bessey, Ph.D., Kara Orvis, Ph.D., Robert McCormack, Ph.D., Aptima, Inc.; Marissa Shuffler, Ph.D., Clemson University; Tara Brown, Ph.D., Niagara Bottling; Dorothy Carter, Ph.D., Michigan State University; Amanda Thayer, Ph.D., Florida Institute of Technology; Eduardo Salas, Ph.D., Rice University

POLICY, STANDARDS, MANAGEMENT AND ACQUISITION

WHO'S IN CHARGE HERE...GIT'R DUN

Session Chair: Robert Epstein, Leidos
Session Deputy: Sean Osmond, Bohemia Interactive Simulations

23133 Development of a Digital Simulation Supporting the U.S. Space Force National Test and Training Complex
Major Cameron Webster, USSF, U.S. Space Force; Doug Parsons, DEVCOM Aviation & Missile Center; Mike Farmer, Palski & Associates, Inc.; Bryan Johnson, Aerospace Corporation; Tony Kubat, The MITRE Corporation

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23262 **A Data Strategy for Data-Driven Training Management: Artificial Intelligence and the Army's Synthetic Training Environment**
Benjamin Goldberg, Ph.D., Chris McGroarty, U.S. Army DEVCOM SC STTC; Kevin Owens, Kevin Gupton, Applied Research Laboratories: The University of Texas at Austin; COL Paul Kwon, USA, Jeremy Lanman, Ph.D., U.S. Army PEO STRI; Paul Butler, The MITRE Corporation

23410 **An Inflection Point for Defense Modeling and Simulation (M&S) Management – Redefining Roles and Responsibilities Across the Department's M&S Enterprise**
Scott Schutzmeister, Annie Patenaude, IDA

STANDARDS ARE GREAT! LET'S USE THEM
Session Chair: Nick Giannias, CAE Inc.
Session Deputy: E. Michael Bearss, Ph.D., CMSP, Trideum Corporation

23352 **The Digital Twin Encapsulation Standard: An Open Standard Proposal for Simulation-Ready Digital Twins**
Francesco Leacche, Roberto De Ioris, Amey Godse, Apurva Shah, Duality AI

23195 **Standard Protocol Stack Improves Short-Range Wireless Communication in Live Simulation**
Reto Haldemann, Thierry Hischier, Thales Simulation & Training

23454 **The NISP Standard (NATO Interoperability Standards and Profiles) and Data Governance**
Colonel Alexandre Freitas, Brazilian Army

GUIDE TO SIMULATION MANAGEMENT BY AIR, LAND AND SEA
Session Chair: Paul Butler, The MITRE Corporation
Session Deputy: LT Nicholas Armendariz, USN, Naval Aerospace Medical Institute

23135 **An Ontology-based Approach for Scenario Generation in Flight Simulation Systems**
Hung Tran, Michael Tillett, Howard Cheung, CAE USA

23106 **A Hybrid Approach to Combat Simulation Experimentation**
Christopher Willis, CMSP, John Bayer, CMSP, Major Jacob Kelly, CMSP, Samford Anderson, CMSP, Maneuver Battle Lab (MBL)

23272 **Enabling Distributed Maritime Operations Through Live, Virtual, Constructive Technologies**
Jennifer Pagan, NAWCTSD; CAPT Joseph Cohn, Ph.D., Peter Squire, Ph.D., Natalie Steinhauser, ONR; LCDR Joseph Geeseman, Ph.D., PMA 205; Rudolph Darken, Ph.D., Christian Fitzpatrick, Ph.D., Naval Postgraduate School

HOW DO I ACQUIRE THEE, LET ME COUNT THE WAYS
Session Chair: Lisa Bair, SAIC
Session Deputy: Nicole Dees, PM TRASYS, MARCORSYSCOM

23288 **Virtual Pathways: Application of the Adaptive Acquisition Framework for Synthetic Training Environments**
Brian Serra, Thomas Kehr, Ph.D., Cole Engineering Services, Inc.; Matthew Masson, Ricardo Escobar, U.S. Army PEO STRI

23353 **Cyber Resiliency at the Edge – From Technology to Policy**
Dustin Easterling, Jason Smith, Michael Yohe, CAPT Timothy Hill, USN (Ret.), William Marx, Ph.D., Intuitive Research and Technology Corporation

WHAT IF I TOLD YOU YOU'RE IN THE DIGITAL WORLD?
Session Chair: Marco Lassus, U.S. Air Force Simulators Division
Session Deputy: Jeremy Gneiting, U.S. Army DEVCOM Aviation and Missile Center

23129 **Remodeling Readiness: Using Digitization to Enable Organizational Expertise**
Brooke Shields, Debbie Brown, Tim Welch, Eduworks Corporation

23365 **AI/ML-Driven Content Repository Maintenance**
John Carney, James King, Nancy Belmont, MARi, LLC; John Stamper, Christine Kwon, Joanie Lam, Anahita Sehgal, Carnegie Mellon University

23360 **Augmented Maintenance: Setting Expectations for Augmented Reality**
B. Adrian Flowers, Michael Keeney, Ph.D., Werner Born, Ph.D., Jeffrey Beaubien, Ph.D., Aptima, Inc.

SIMULATION

EFFECTS-BASED CYBER DEFENSE
Session Chair: Gabriel Diaz, Scientific Research Corporation
Session Deputy: John Aughey, Boeing Company

23260 **A Flight-Representative Operational Cyber Test Environment**
Jacob Pryor, Tara Clayton, Steven Hildebrand, Trideum Corporation; Andrew Smilie, U.S. Army Redstone Test Center

23295 **Incorporating Navigation Effects into Synthetic Environments for Improved Cyberspace Training**
Omar Hasan, Ph.D., Andrew Mendoza, Jeffrey Welch, Robert Burch, Dignitas Technologies; J. Allen Geddes, U.S. Army DEVCOM SC STTC

23306 **A Generic Missile Defense System Model for Use in Cybersecurity Vulnerability Assessments**
Shelton Wright, Ph.D., Thomas Morris, Ph.D., William Meehan, The University of Alabama in Huntsville; John Bland, Ph.D., C. Daniel Colvett, Ph.D., Christian Schenck, U.S. Army DEVCOM AvMC

CONVERGING REALITIES THROUGH AI AND VISUALIZATION

Session Chair:　Tammie Smiley, Trideum Corporation / Army Modeling and Simulation Office (AMSO)
Session Deputy:　Corey Hendricks, Ph.D., Leidos

23141　Optimizing Dynamic Visualizations, Operational and Engineering Models for Today's Warfighter

CDR Herbert Honaker, USN (Ret.), CPT Logan Rash, USA, Compendium Federal Technology

23357　Real-Time Surface-to-Air Missile Engagement Zone Prediction Using Simulation and Machine Learning

Joao Dantas, Diego Geraldo, Felipe Medeiros, Institute for Advanced Studies; Marcos Maximo, Takashi Yoneyama, Aeronautics Institute of Technology

23426　Immersive AI Assistance During eVTOL Multi-Agent ATC Traffic Routing

Jean-Francois Delisle, Simon Riendeau, CAE Inc.; Clodéric Mars, Sagar Kurandwad, AI-Redefined

MODELING AND SIMULATION SERVICES: WHAT'S HOT

Session Chair:　Tammie Smiley, Trideum Corporation / Army Modeling and Simulation Office (AMSO)
Session Deputy:　James (Paul) Rowlett, USSOCOM

23223　Constructive Simulation Limitations and Cloud Scalability

Jackie Zhang, Reese Gallagher, Cristhian De La Paz, Infinitas Engineering, Inc.; Peter Drewes, Mike Baker, Brian McDonell, Ph.D., Amazon Web Services

23421　Enabling Multi-Domain Operations through Simulation Services

Chris McGroarty, U.S. Army DEVCOM SC STTC; Jose Orozco; Alpesh Patel, Bruce Robbins, U.S. Army PEO STRI; Robert Kewley, simlytics.cloud, LLC; Charles Sanders; Susan Harkrider, U.S. Army DEVCOM C5ISR; Kevin Steffenson, AFRL/RQSA; Scott Gallant, Effective Applications Corporation

MODELING STRUCTURE INTO THE WORLD

Session Chair:　Samuel Halverson, L3Harris Technologies
Session Deputy:　Einav Kiperman, Independent Consultant

23240　Unreal Oceans: Using Unreal Engine 5 to Simulate Realistic Maritime Vessel Motion

Brandon Rudolph, Matthew Thompson, Mark Thoreson, NSWC Crane

23286　Automated Building Corner Detection for Validating 3D Point Cloud Data

Amy Neuenschwander, Jeff Perry, Center for Space Research; Lori Magruder, Dept. of Aerospace Engineering

23338　Automated Generation of Accurate 3D Building Interiors: Lessons Learned and Challenges

Aaron Katzman, Joseph Moran, Jr., Dignitas Technologies

SIMULATING STRESSY SITUATIONS

Session Chair:　Simon Skinner, Thales Training and Simulation
Session Deputy:　Susan Harkrider, U.S. Army DEVCOM C5ISR

23275　Techniques for Simulating Data Visualization of the Digital Patient

Liv Weaver, Harleigh Bass, William Marx, Ph.D., Steven Michael Thomas, Chanler Cantor, Intuitive Research and Technology Corporation; Chase Mitchell, M.D., Radiology of Huntsville

23414　Virtual Reality-based Medical Simulation for Pre-Hospital Space Medicine Care: VALOR PHSMCC

Karthik Sarma, M.D., Ph.D., Michael Barrie, M.D., John Dorsch, D.O., Nora Carr, Nilesh Patel, M.D., Michael Poppe, Ph.D., Talia Weiss, Jennifer Polson, Ph.D., Ryan Ribeira, M.D., SimX, Inc.

23180　Creation of a Human-in-the-Loop Simulator Environment for Fifth Generation Stressor Research

Maykel van Miltenburg, Lodewijck Foorthuis, Rolf Zon, Royal Netherlands Aerospace Centre (Royal NLR)

EXTENDING XR TO THE REAL WORLD

Session Chair:　Colleen Matthews, U.S. Army PEO STRI
Session Deputy:　Paul Bogard, AFMC AFLCMC/WIH

23186　Toward Next Generation Aerial Refueling Airplane Simulator Qualification

Zack Kirkendoll, Brandon McCullough, Michael Millington, James Cook, Ph.D., Brian Morris, CymSTAR, LLC

23309　An XR Authoring Tool for Customizing Aviation Weather Educational Content

Kexin Wang, Jack Miller, Jiwon Kim, Michael C. Dorneich, Ph.D., Eliot Winer, Ph.D., Iowa State University

23388　Using Virtual Reality to Connect Military Families Together: A Diary Study with the Virtual Family Room

Joshua Baldwin, Andrew Rukangu, Kyle Johnsen, Ph.D., Sun Joo (Grace) Ahn, Ph.D., University of Georgia

CYBER ATTACK: THE UNSEEN

Session Chair:　Miranda Frost, LogiCore Corporation
Session Deputy:　Margaret Nolan, NAWCTSD

23217　Extending PNPSC Player Strategies with Continuous Firing Rates

E. Michael Bearss, Ph.D., CMSP, Trideum Corporation; Mikel Petty, Ph.D., University of Alabama in Huntsville

23303　Cyber Reactive Adversary Framework for Training

Sean Guarino, William Norsworthy, John Steigerwald, David Kelle, Charles River Analytics; Dorsey Wilkin, Patch Plus Consulting

PAPERS

SIM 8   WEDNESDAY, 29 NOVEMBER • 1530 • W307B

LEGO MODELING

Session Chair: Connie Perry, U.S. Army PEO STRI
Session Deputy: Maj Matthew Morse, USMC, TECOM

23146   Modeling and Simulation for Hypersonic Missile Threat Assessment
Randal Allen, Ph.D., Lone Star Analysis, Inc.

23279   Integrating New Engagement Types in Live Training Exercises
Tagg LeDuc, Marwane Bahbaz, U.S. Army PEO STRI; Julie Kent, Ph.D., The MITRE Corporation

23398   Iterative and Incremental Validation of Simulation Conceptual Models
Erkin Çilden, Ph.D., Ahmet Sezer, Haluk Canberi, STM Savunma Teknolojileri Mühendislik ve Tic. A.Ş.; Halit Oguztuzun, Ph.D., Middle East Technical University

SIM 9   THURSDAY, 30 NOVEMBER • 0830 • W307A

SIMULATING COMPLEX THREATS IN COMPLEX ENVIRONMENTS

Session Chair: Susan Harkrider, U.S. Army DEVCOM C5ISR
Session Deputy: Nathan Jones, Problem Solutions, LLC

23151   Adding Weather to Wargame Simulation
Hung Tran, CAE USA; John Wokurka, BAE Systems, Inc.

23256   ELMO (Electromagnetic Layer for Multi-domain Operations) Developing and Testing Activities
LTC Piergiorgio Ventura, CPT Salvatore De Mattia, NATO Modelling & Simulation Centre of Excellence

23457   Numerical Study of Ammonium Nitrate/Fuel Oil Detonations for Large Scale Pattern of Life Simulations
Mike Theophanides, CAE Inc.

SIM 10   THURSDAY, 30 NOVEMBER • 1030 • W307A

REPRESENTING ATYPICAL PATTERNS

Session Chair: Craig Unrath, Trideum Corporation
Session Deputy: Thomas Kehr, Ph.D., CESI

23335   A Structure for Representing Critical Infrastructures
Edward Carmona, Freddie Santiago, Dignitas Technologies

23370   Evaluation of Open-Source Data for Gray-zone Operations Decision-Systems
Robert Ducharme, Ph.D., Colby McAlexander, Brian Mills, Jay Freeman, CAE USA

23448   Simulating Civil Security Activities in Stability Operations
Susan Aros, Ph.D., Mary McDonald, Naval Postgraduate School

SIM 11   THURSDAY, 30 NOVEMBER • 1330 • W307A

COMPLEX FUTURE OPERATIONAL ENVIRONMENTS

Session Chair: Glenn Hodges, Ph.D., Mile Two, LLC
Session Deputy: Ray Compton, LMI

23257   Modelling & Simulation in Support of a Comprehensive CBRN Layer Development
LTC Piergiorgio Ventura, CPT Salvatore De Mattia, NATO Modelling & Simulation Centre of Excellence

23284   Comparison of Visualization Technologies to Support RCAF Training Modernization
Maj Jason Munn, RCAF AWC; Jerzy Jarmasz, Ph.D., DRDC; Capt Daniel Deluce, RCAF AWC

TRAINING

TR 1   TUESDAY, 28 NOVEMBER • 1400 • W307D

SIMULATION IS BETTER, RIGHT?!

Session Chair: Perry McDowell, MOVES Institute
Session Deputy: Gernai Bledsoe, USAF AFLCMC/WNS

23331   Cybersickness Considerations for Curricula Using Virtual Reality Training Systems
Nicholas Adriaanse, NSWCDD DNA

23333   Simulators Provide Adequate Training – Says Who?
Alexxa Bessey, Ph.D., Mark Schroeder-Strong, Brian Schreiber, Aptima, Inc.; Steven Macut, BGI, LLC; Wink Bennett, Ph.D., AFRL

TR 2   WEDNESDAY, 29 NOVEMBER • 0830 • W307D

STRUCTURED CHAOS

Session Chair: Wendy Johnson, Ph.D., HQ AETC/A5X – TR2
Session Deputy: Nir Keren, Ph.D., Iowa State Universit

23203   Mixed Reality Bloodstain Pattern Analysis Simulation Training System
Terence Teng, Derek Chong, Saravana Kumar, Ph.D., Meng Fai Ying, Home Team Science and Technology Agency; Pei Pei Lei, Denzyl Tai, Jaya Ganase, Siong Chun, Shawn Foo, Singapore Police Force

23228   Exploring Multimodal Blended Environments for Medical Training and Simulation
Darin Hughes, Ph.D., Edward Stadler, Liam O'Neill, SIMETRI, Inc.; William Pike, Ph.D., U.S. Army DEVCOM SC STTC

23308   Enabling Point of Injury Care in Live Force-on-Force Exercises
Matthew Hackett, Ph.D., Mark Mazzeo, Jack Norfleet, Ph.D., U.S. Army DEVCOM SC STTC; Darin Hughes, Angela Alban, Edward Stadler, SIMETRI, Inc.; Conner Parsey, U.S. Army DEVCOM SC STTC; Brian VanVoorst, Nicholas Walczak, Raytheon BBN Technologies

TR 3   WEDNESDAY, 29 NOVEMBER • 1030 • W307D
DISTRIBUTED TRAINING: ANYTIME, ANYWHERE
Session Chair: Tim Woodard, NVIDIA
Session Deputy: Jennifer Serra, Collins Aerospace

23224 Warfighter Readiness: Virtual Training on Demand
Jennifer Quinton, Arorae Corporation; William Rossi, Tactical Training Group Pacific; Brian Roder, Huntington Ingalls Industries; J. Garrick Sheatzley, EWTGLANT

23271 Simulating the Whole Picture with Distributed Mixed LVC
Emilie Reitz, Joint Staff J6; Kevin Seavey, Joint Staff J6 Joint Fires Integration Division; Major Sander Cruiming, Royal Netherlands Army; Justin Wright, Huntington Ingalls Industries

23248 Can Synthetic Coaching Using an Immersive Training Device Effectively Train Student Pilots? A Field Study
Sandro Scielzo, Ph.D., Gary Eves, Ph.D., Beth Hartzler, Ph.D., CAE USA

TR 4   WEDNESDAY, 29 NOVEMBER • 1330 • W307D
REALITY RE-IMAGINED
Session Chair: Luis Velazquez, MARCORSYSCOM
Session Deputy: Julie Suereth, NSWC PCD/PM TRASYS

23103 RFID Sensing and Analytics to Improve Team Training
Samantha Dubrow, Ph.D., Michael Fine, Ph.D., Brian Colder, Ph.D., Abdul Noor, Anthony Santago II, Ph.D., The MITRE Corporation

23119 The Coast Guard Investigating Officer Course: An Analysis and Redesign Using Immersive Technologies
LCDR John Botti, III, U.S. Coast Guard

23321 Immersive Space Operations Training in Extended Reality
Daniel Stouch, Rob Hyland, Susan Latiff, Ph.D., Sean Guarino, Kimberly Brady, Dan Duggan, Charles River Analytics, Inc.

TR 5   WEDNESDAY, 29 NOVEMBER • 1530 • W307D
LEARNING TO TRAIN, TRAINING TO LEARN
Session Chair: Liz Gehr, Ph.D., The Boeing Company
Session Deputy: Benjamin Goldberg, Ph.D., U.S. Army DEVCOM SC STTC

23251 Failure is an Option: Implementing Safe Failure as Learning Strategy
Cami Sims, Thea Albertson, Sharon Rosenthal, Serco, Inc.

23396 On Episodic Memory in Experiential Learning via Flightcrew Training Simulations
Nathan Sonnenfeld, Caroline Gomez, Florian Jentsch, Ph.D., Blake Nguyen, Stephen Fiore, Ph.D., Institute for Simulation & Training, University of Central Florida

23401 Immersive Aviation Training Design Driven by the Science of Learning
CDR Adam Jackson, Andrew Clayton, Ph.D., Air University

TR 6   THURSDAY, 30 NOVEMBER • 0830 • W307D
TOYS TO TASK
Session Chair: Mike Thorpe, Serco, Inc.
Session Deputy: Eric Carrasco, NSWC PCD/PM TRASYS

23140 Media and Fidelity Analysis: Predicting Technological Training Requirements for Unidentified Future Vertical Lift Program
Matthew Pierce, Jacob Entinger, Mitchell Tindall, Ph.D., Emily Anania, Ph.D., Beth Atkinson, James Pharmer, Ph.D., NAWCTSD

23166 On Approach to Reality: The Impact of a Simulated Air Traffic Control Environment (SATCE) on Workload and Situational Awareness in Military Aviators
Jonathan Allsop, Ph.D., Richard Keeling, RAF Central Flying School

TR 7   THURSDAY, 30 NOVEMBER • 1030 • W307D
DATA...MAKE IT MATTER!
Session Chair: Marwane Bahbaz, U.S. Army PEO STRI
Session Deputy: Nancy Russell, Northrop Grumman

23184 Data-Driven and Personalized Training as a Service Infrastructure & Techologies
Manfred Roza, Guido Tillema, Royal Netherlands Aerospace Centre (Royal NLR)

23198 A Machine Learning Approach for Identiying At-Risk Students in Learning Record Stores: A Case Study Using USALearning Experience API
Paul Jesukiewicz, Office of Personnel Management (OPM) USALearning; Jim Bilitski, Ph.D., University of Pittsburgh at Johnstown; Rob Chadwick, Jonathan Poltrack, Veracity Technology Consultants; John DeCore, PowerTrain

23409 Digitizing Performance and Competencies
Robby Robson, Ph.D., Fritz Ray, Gregg Connell, Eduworks Corporation; Shelly Blake-Plock, Cliff Casey, Yet Analytics, Inc.; Benjamin Goldberg, Ph.D., U.S. Army DEVCOM SC STTC; Kevin Owens, Applied Research Laboratories: The University of Texas at Austin

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FRIDAY, 1 DECEMBER 2023 — PROFESSIONAL DEVELOPMENT WORKSHOPS

LOCATION: Orange County Convention Center, West Concourse, note room assignments below.

DATE: Friday, 1 December

TIMES: 0700 – 0800   Continental Breakfast and Registration
0800 – 1200   All Sessions

WHO MAY ATTEND? All registrants of I/ITSEC are welcome to attend – I/ITSEC badge is required for entry.

FEES: There is no fee for I/ITSEC Conference Registrants/Exhibitors – I/ITSEC badge required for entry.

CEU/CLP: Paid I/ITSEC Conference registrants are eligible to receive CEU/CLP credits. If not a paid attendee, a $50 fee will be charged only if you wish to receive the CEU credits.

REGISTRATION: Registration for individual workshops is not required. Workshops fill on a first-come, first-serve basis. Please arrive early for topics that interest you the most — **seating is limited**. If you wish to receive CEU credits, be sure to request CEUs during your conference registration. You may update your registration to include CEUs at any time at **http://www.iitsec.org/attend/registration-fees**

LUNCH: On own

Workshop Schedule:

0700 Continental Breakfast and Registration

0800 – 1200 All Sessions
- Fundamentals of Artificial Intelligence for Simulation-Based Training
- Certified Modeling and Simulation Professional 3.0
- Serious Game Design Workshop
- From the Last of Us to the First of Us: Rebuilding after a Zombie Crisis
- Demystifying Learning Engineering and Immersive Design: The Workshop
- Cognitive Load Assessment During Training in Immersive Environments
- Using DDS for Distributed Training Simulators
- Disrupt, Design, Deploy: A Human-Centered Approach to Learning and Development

PDW 1 • ROOM W308A

FUNDAMENTALS OF ARTIFICIAL INTELLIGENCE FOR SIMULATION–BASED TRAINING
23W2

Presenters: Robert Sottilare, Ph.D., Brice Colby, Ph.D., Randolph Jones, Ph.D., CMSP, Soar Technology, LLC

This half-day professional development workshop is designed to provide participants with a comprehensive overview of the fundamentals of artificial intelligence (AI) in the context of simulation-based training. Through a combination of lectures, hands-on activities, and case studies, participants will gain a deeper understanding of the key concepts and technologies in this field, and will learn how to apply these methods to improve the quality and effectiveness of simulation-based training.

PDW 2 • W308B

CERTIFIED MODELING AND SIMULATION PROFESSIONAL 3.0
23W15

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

The Certified Modeling and Simulation Profession (CMSP) certification program has been reinvented and reintroduced to the M&S community as CMSP 3.0. The certification's application process has been streamlined, the examination updated, and an approach to ensure readily available reference material developed, amongst many other additional improvements. This proposal is to conduct a CMSP 3.0 Professional Development Workshop. This four-hour session will describe the requirements needed to achieve this valuable certification. It will cover the application and examination processes including education, work experience, and reference requirements for the Apprentice, Practitioner, and Master Levels; application processes; how the exam is administered and scored; and the role of continuing education in certificate renewal. It will also provide timely insights into preparing for and achieving this certification including, new in 2023, review of sample questions from each of the three certification levels. It will discuss fundamental M&S topics covered in the exams and will also include several relevant simulation videos. Finally, the workshop will conclude with two enjoyable interactive game-show style exercises to summarize the material covered, a rapid-fire question and answer game, as well as a round-table discussion regarding ongoing efforts to ensure this certification's future success. The proposed Professional Development Workshop would be provided by Ivar Oswalt — a Senior M&S Expert that is CMSP Certified, that has been an integral part of its reinvention, and that has previously led CMSP Professional Development Workshops.

PDW 3 • ROOM W308D

SERIOUS GAME DESIGN WORKSHOP
23W10

Presenters: Vance Souders, Thermo Fisher Scientific; Radhakishan R. Shetty, JANUS Research Group

During this workshop, participants will be introduced to key concepts, steps, and processes involved in designing a game for learning. Through hands-on activities and working together in groups, participants will work through the initial phases of the design process. Participants will identify a topic, audience, training requirements and learning objectives, creating an effective story, determining instructional and gaming strategies, designing key game mechanics, and choosing the appropriate delivery technology. Presenters will facilitate the groups and give examples from past experiences and provide examples from the Serious Game Showcase and Challenge.

PDW 4 • ROOM W207C

FROM THE LAST OF US TO THE FIRST OF US: REBUILDING AFTER A ZOMBIE CRISIS
23W7

Presenter: Tamara Griffith, Ph.D., U.S. Army DEVCOM SC STTC; Patricia Bockelman, Ph.D., SAIC; Joan Johnston, Ph.D.; Sarah Matthews, Ph.D., Health Communications Consultants Inc.; Lisa Townsend, U.S. Army DEVCOM SC STTC; Grant Johnston

WE SURVIVED THE APOCALYPSE!!!... Now what?

This workshop takes participants through a post-crisis timeline in which the decisions and actions taken today will impact scenarios tomorrow. This is an interdisciplinary exploration of how a civilized society might thrive, or fail to survive, after a potential infrastructure collapse. While the scenario uses metaphor for engagement (the zombies), it is inspired by a combination of real-world events involving public health, national security, and public resources (e.g. transportation, supply chain, cyber/information). Nested in this fictional storyline, participants will establish needed resources, skills, and new social norms and by doing so, these participants will create the world that next year's I/ITSEC participants inherit. Participant groups will represent various perspectives as they try to transition from "survival" to recovery and (hopefully) "thriving". While the storyline is fantastic, the scenarios pose challenges that call for real decision-making strategies, negotiation skills, and short-/long-term planning; the scenarios demand the same types of skills as actual recovery requires. This is intended to be a multi-year exploration with the results of the previous year feeding a paper for the next year, and a workshop that starts where the previous year's workshop ends pursuing a stable and sustainable future. The immediate and longitudinal data from this format will provide insights into tacit knowledge involved in complex team problem-solving. Come for the fun; learn from the insights!

You may have outlived the zombies, but can you thrive with whatever unfolds next? At the end of the workshop participants should understand the 4 dimensions of teamwork and how team self-correction during an after action review can improve teamwork.

PDW 5 • ROOM W208A

DEMYSTIFYING LEARNING ENGINEERING AND IMMERSIVE DESIGN: THE WORKSHOP
23W12

Presenters: Jeanine DeFalco, Ph.D., University of New Haven; Marina Halter, Emily Ouellette

Designing virtual reality (VR) training simulations may not seem difficult at a glance, but even the simplest interactions can be complex in the VR space. In this workshop, participants will experience what it's like to go through the design process, create a prototype, and iterate until a final product is produced. Participants will review the basics of learning engineering, immersive design, and constructivist learning theory, and come to understand how these disciplines are leveraged to construct training simulations. Participants will identify important traits, skills, and capabilities that combine into up-skilling an immersive learning engineer. Participants will be introduced to how learning engineering combines fundamentals of instructional designers and learning experience designers (LXDs) while simultaneously engaging in collaborative design work as part of a cross-functional design team. Best practices for engineering dynamic immersive learning experiences will be discussed.

PDW 6 • ROOM W208B

COGNITIVE LOAD ASSESSMENT DURING TRAINING IN IMMERSIVE ENVIRONMENTS
23W13

Presenter: Andrew Beall, Ph.D., Matthias Pusch, Bryce Armstrong, Todd Hartwig, WorldViz VR

Join us for a hands-on workshop where we will explore the measurement of cognitive load and the application of immersive training simulators. Researchers and developers will delve into projection-based simulation room technology, a robust alternative to head-mounted displays, offering enhanced realism and interaction capabilities vital for standardized training processes. With the Tactical Combat Casualty Care (TCCC) protocol serving as our case study, participants will learn to integrate cognitive load measurements into simulation scenarios. Attendees will gain practical experience with an immersive projection system and learn how to capture 360 degree photographic scenes for evoking contextual cues. An experimental session will allow some participants to have their cognitive load measured under various conditions, and then all participants will be able to conduct real-time data analysis guidance using open-source tools. This workshop is designed to equip attendees with an understanding of cognitive load measurement, immersive training technology, and data analysis for effective training simulator development.

DOWNLOAD
MOBILE APP

PDW 7 • ROOM W308C

USING DDS FOR DISTRIBUTED TRAINING SIMULATORS
23W4

Presenter: Andre Odermat, John Breitenbach, Real-Time Innovations

This workshop outlines the use of the Object Management Group® (OMG®) Data Distribution Service (DDSTM) standard in distributed Live, Virtual, & Constructive (LVC) simulation, with a focus on the security capabilities provided by DDS. DDS provides a comprehensive middleware solution for data distribution, and its security features are crucial for LVC simulation in sensitive environments. The tutorial covers DDS fundamentals, such as configuring DDS for LVC simulation, designing DDS entities and the DDS data model, and integrating DDS with LVC simulations. It also highlights best practices and case studies for DDS implementation. Additionally, the tutorial emphasizes the security features of DDS, such as authentication, access control, data encryption, and data integrity, which are essential for securing data in distributed simulation environments.

Integrating global simulation training systems can be a formidable challenge. Legacy simulators often use different standards. Modern architectures require the use of cloud-based distributed assets. To top it off, security requirements now force integrators to become experts in information assurance. Winning solutions will be the ones that create synthetic training environments that can quickly be assembled and reconfigured from ready-made components.How can simulation systems integrators keep pace by limiting integration time to meet these requirements? Attend this tutorial to learn how DDS can ease integration, while also delivering National Security Agency (NSA)-tested security for distributed training systems over any transport."

PDW 8 • ROOM W208C

DISRUPT, DESIGN, DEPLOY: A HUMAN–CENTERED APPROACH TO LEARNING AND DEVELOPMENT
23W14

Presenter: Sydney Heimbrock, Ph.D., Ryan Twedell, Cydney Miller, Qualtrics

The discipline of Learning Engineering has emerged as mission critical for enabling evidence-based designs for improved learning outcomes. Harvard University's Huntington Lambert defines Learning Engineers as understanding the "who" an organization is teaching, and the "what" the learning must deliver, in order to design the "how" of learning experiences. Because humans are at the center of this challenge, the methods and tools of human centered design are critical for effective learning design, development and delivery. This workshop will give participants an immersive experience in Human Centered Design (HCD) for Learning and Development. The workshop will kick off with a brief presentation framing the value, history and outcomes of HCD as it relates to the future of learning. Participants will learn and practice HCD by applying the framework, methods and tools to a real government learning experience use case.

Participants will learn the four key phases of the HCD process:
- Discover
- Reframe
- Implement, measure and continuously improve

For each phase of the HCD process, facilitators will present the principles, methods and tools, then support participant small groups to apply them in the room to design the future of learning in their organizations. Participants will then explore how to apply HCD to digital learning ecosystems through automated qualitative data collection and analysis. Participants will leave the workshop educated, inspired and equipped to apply a human centered approach to their learning design, delivery and evaluation strategies.

NTSA EcosySTEM OF LEARNING
AT I/ITSEC

The EcosySTEM of Learning (EoL) focuses on strategically and tactically building interest and educational momentum through a wide breadth of Science, Technology, Engineering and Mathematics (STEM) initiatives. The EoL mission is to establish, nourish, and maintain a solid foundation for launching future leaders and fostering the future workforce.

Designed for agility and diversity, the EoL is built upon four major cornerstones. Each cornerstone is comprised of initiatives which provide impactful substance to the EoL architecture and to those who engage.

OUTREACH
ENCOUNTERS THROUGH OBSERVATION, INTERACTION, AND IMMERSION.

- Student Tours
- Interaction with STEM focused organizations
- Path for year round engagement opportunities

DISCOVERY DEN
PLATFORMS PROMOTING PRESENTATION SKILLS AND SHARING OF SUBJECT MATTER EXPERTISE.

- Informative Exhibits
- Serious Games Showcase & Challenge
- Presentation Theatre

FOCUSED WORKSHOPS
CURRICULUM THROUGH CLASSES, SHORT COURSES, SEMINARS AND MORE.

- Teacher Focused
- Student Focused
- Workforce Development

CAREER INVESTMENT
ADVANCEMENTS WITH LONG TERM PROFESSIONAL GOALS IN MIND.

- Tutorials
- Professional Development Workshops
- Scholarship Program
- Career Fair
- Continuing Education Units (CEUs)
- University Collaboration

BOOTHS 3181–3389

NTSA EcosySTEM OF LEARNING
AT I/ITSEC

Launching Future Leaders • Fostering the Future Workforce

NTSA recognizes the need to maintain a strong workforce to enable the growth and development of the modeling, simulation, and training (MS&T) industry. Doing so requires strong, productive Science, Technology, Engineering and Mathematics (STEM) programs that are impactful to all phases of learning: absorption, nurturing, practicing. Disciplines applicable to current, emerging, and future requirements of MS&T are experienced through observation, interaction, and immersion.

NTSA enables a significant multidimensional STEM program platform which offers many opportunities at I/ITSEC and throughout the year. Initiatives are tailored to support (1) self-motivated learners that prefer independent learning, (2) friendly competitions, and (3) peer collaboration.

The EcosySTEM for Learning provides both physical and virtual platforms for global participation by students, teachers, and industry professionals. Experiences include observation, interaction, and situation immersion which tax the human sensory systems — which then becomes knowledge driven by curiosity and ambition.

At I/ITSEC, the EcosySTEM of Learning demonstrates applications of DoD technology through education initiatives, sample national initiatives highlighting military/community partnerships in education, benchmark outreach programs by companies to support education, undergraduate, graduate. and post graduate opportunities in STEM to support the future workforce. The program continues to adapt and incorporate the latest sciences and technologies into the many initiatives fostered with the ecosystem.

TEACHER FOCUSED: Teachers inspire and educate the modeling and simulation community's future professionals. Educator training, mentorship, and experiential opportunities support development and community engagement.

STUDENT FOCUSED: Programming is comprised of live, online, and on-demand opportunities for students to share their own experiences, to learn about what others are doing, and to interact with professionals.

WORKFORCE DEVELOPMENT: Building upon networks and relationships, today's workforce continues to thrive through life-long learning.

EcosySTEM OF LEARNING SCHEDULE

MONDAY, 27 NOVEMBER

ROOM W108AB
0800 – 1700   K-12 Teacher Training

TUESDAY, 28 NOVEMBER

W108AB
0800 – 1700   STARBASE Teacher Training

W107
0800 – 1700   K-12 Teacher Training

WEDNESDAY, 29 NOVEMBER

ROOM W108AB
0800 – 1700   STARBASE Teacher Training

ROOM W107
0800 – 1700   Problem Challenge

BOOTH 3389
1530 – 1630   Problem Challenge Awards

THURSDAY, 30 NOVEMBER

W108AB
0900 – 1000   Career Panel

BOOTH 2588
1300   Serious Games Showcase & Challenge Awards Ceremony

THROUGHOUT THE CONFERENCE

BOOTH 3181
Serious Games Showcase & Challenge

VISIT THE INFO DESK IN BOOTH 3281 FOR THE LATEST EOL LINEUP.

WEDNESDAY, 29 NOVEMBER • 1300–1700 • ROOM W110A

NTSA CAREER FAIR AT I/ITSEC

Job opportunities are on the rise for the defense industry – leading the way for developing cutting-edge solutions. The career fair welcomes you to be part of the fast-growing Simulation and Training community.

Meet with industry and government organizations with opportunities for new graduates and transitioning professionals on Wednesday, 29 November from 1300 – 1700 at the OCCC in Room W110A for the I/ITSEC Career Fair. See the Career Fair website at IITSEC.org/CareerFair for registration information.

This event provides:
• an opportunity to learn more about open jobs available from government and industry partners
• networking for businesses with subcontracting needs
• a space to learn about the government's perspective and process
• an environment to grow your network

I/ITSEC attendees do not need to register to attend the Career Fair. Participating organizations will be added to the website as they are confirmed; please visit IITSEC.org/CareerFair for the most up-to-date information. If you have any questions while onsite, please visit the Career Fair on Wednesday, 29 November in room W110A.

PARTICIPATING ORGANIZATIONS ARE LISTED ONLINE AT
IITSEC.org/CareerFair and onsite at the Discovery Den Info Desk in Booth 3281.

SERIOUS GAMES
SHOWCASE & CHALLENGE

The Serious Games Showcase and Challenge (SGS&C) invites you to Booth 3181 to play this year's finalist games, immerse yourself in exciting PC, XR, and mobile learning experiences, meet the developers, and cast your vote for the People's Choice Award.

Visit the booth anytime the Exhibit Hall is open to play the serious games and network with the finalists and award winners.

Visit the SGS&C at Booth 3181

Learn how games can address your serious training needs and experience the games first hand! Founded in 2006, the SGS&C aims to bring awareness of the impact that games have on personnel development, and to provide best-in-class exemplars. Within a casual and interactive setting, the SGS&C provides a showcase of learning games submitted by businesses, students, and government organizations while offering the developers recognition of their achievements.

Play the games and cast your vote

The People's Choice Award is based on votes from attendees like you. Your I/ITSEC badge includes your ballot.

Be sure to visit the booth by *1800 on Wednesday, November 29th* to play the games and vote!

Hear the SGS&C awards announced live

Join us *Thursday, November 30th at 1300* in the Innovation Showcase (Booth 2588) for the Awards Ceremony announcing the:

➢ Best General Audience Serious Game
➢ Best Government Audience Serious Game
➢ Best Student-developed Serious Game
➢ Best XR Serious Game
➢ Best Serious Game Innovation Award
➢ Students' Choice Award
➢ People's Choice Award

We thank our generous sponsors

➢ ARA Virtual Heroes Division
➢ Engineering & Computer Simulations
➢ Ternion Corporation
➢ VMASC
➢ National Training Systems Association
➢ Hatalom Corporation
➢ HP
➢ Box.com
➢ RINA Consulting Defence Ltd.

SHOWCASING SERIOUS GAMES TO EDUCATION AND TRAINING LEADERS

f sgschallenge
X @sgschallenge
in serious-games-show-case-challenge

WWW.SGSCHALLENGE.COM

33RD ANNUAL RADM FRED LEWIS POSTGRADUATE SCHOLARSHIP RECIPIENTS

In honor of RADM Fred Lewis, the former President of NTSA, these scholarships are offered to stimulate student interest and university participation in preparing individuals for leadership in the Modeling & Simulation, Training, and Education communities. By investing in our future workforce, the scholarships encourage expansion of the I/ITSEC community and promote innovation through direct investment in our community's future leaders. The awards are offered at a Masters level in the amount $5,000, and at a Doctoral level in the amount $10,000.

Arsha Ali
University of Michigan
ENGINEERING

Scott Boatright
Southern Illinois University
INSTRUCTIONAL DESIGN AND TRAINING METHODOLOGY

Kendall Carmody
Florida Institute of Technology
AVIATION SCIENCES

Stephen Hilliard
University of San Diego
COMPUTER SCIENCE AND/OR INFORMATION SCIENCES

Jenna Korentsides
Embry-Riddle Aeronautical University
HUMAN FACTORS

Catherine LoGrande
Embry-Riddle Aeronautical University
HUMAN FACTORS

Makely Phillips
Johns Hopkins University
INTERNATIONAL RELATIONS

Elisabeth Slifkin
University of Central Florida
HUMAN FACTORS

Richard Yocius, Jr.
Colorado State University – Global Campus
COMPUTER SCIENCE AND/OR INFORMATION SCIENCES

7TH ANNUAL LEONARD P. GOLLOBIN POSTGRADUATE SCHOLARSHIP RECIPIENTS

The **Leonard P. Gollobin Graduate Scholarship** program was generously bequeathed by Mr. Gollobin to direct students developing their technical talents into the defense industry. Throughout his career, Mr. Gollobin led scientific initiatives that improved our defense systems and strategically shaped our military capabilities. NTSA administers this scholarship with the intent to provide financial support for those seeking advanced degrees and a path to leverage their commitment to strengthen our nation's security. The awards are offered at a Masters level in the amount $5,000, and at a Doctoral level in the amount $10,000.

Tyrone Evans Clark
Full Sail University
GAME DESIGN

Steven Ford
University of Central Florida
HUMAN FACTORS

Lee Gill
Virginia Tech
ENGINEERING

Alexander Giovannelli
Virginia Tech
COMPUTER SCIENCE AND/OR INFORMATION SCIENCES

Ancuta Margondai
University of Central Florida
ENGINEERING

T'kara Mullins
University of Central Florida
HUMAN FACTORS

Sarah Romero
University of Central Florida
HUMAN FACTORS

John Sermarini
University of Central Florida
ENGINEERING

McKenna Tooker
Embry-Riddle Aeronautical University
HUMAN FACTORS

BARBARA McDANIEL UNDERGRADUATE SCHOLARSHIP

NTSA continues the **Barbara McDaniel Undergraduate Scholarship** program this year to acknowledge the substantial contributions of a long-time I/ITSEC leader. Mrs. McDaniel, the recipient of the I/ITSEC 2017 Lifetime Achievement Award, tirelessly supported all aspects of I/ITSEC since 1993. She began her career as an educator, so these awards will honor her life-long passion in the education of our youth. NTSA understands the importance of students pursuing Modeling & Simulation degrees and how vital it is to the modeling, simulation, and training (MS&T) industry. These new scholarship awards will keep the MS&T workforce pipeline filled, now starting at the Undergraduate level.

In its fourth year, NTSA awarded $10,000 to each of three universities:
• **Birmingham-Southern College,** Birmingham, AL
• **Norfolk State University,** Norfolk, VA
• **Utah Valley University,** Orem, UT

NTSA CMSP SCHOLARSHIP AT I/ITSEC

Yarisse Adorno Oyola
Florida Institute of Technology
Human Factors

The Certified Modeling & Simulation Professional (CMSP) certification program was created in 2002 to provide the Modeling & Simulation (M&S) industry with its own professional certification that remains valid for four years before recertification is required. The CMSP designation recognizes professionals with extensive experience and expertise in M&S. The award is offered at the Masters level in the amount $5,000.

For more information about the CMSP program,
visit **www.NTSA.org/CMSP**.

IMPORTANT DATES FOR 2024

(DON'T DELAY!)

When to Apply Applications must be submitted by 21 June 2024.

How to Apply
See **https://www.iitsec.org/education/career-investment/scholarships** for complete application details.

Award Announcement 2 August 2024

POSTGRADUATE SCHOLARSHIPS

Looking for Future Leaders in the Simulation, Training and Education community? Learn more about the I/ITSEC community at **www.iitsec.org**.

Eligibility U.S. Citizens • Full-time Masters or Doctoral students (complete undergraduate work by Spring 2024). See Study Disciplines at **https://www.iitsec.org/education/career-investment/scholarships**

Award Amounts Available for Fall 2024
$10,000 (Doctoral Candidates)
$5,000 (Masters Candidates)
Be our guest at I/ITSEC
2 – 6 December 2024

Direct Further Inquiries To
I/ITSEC Scholarship Program
c/o The National Training and
Simulation Association
2101 Wilson Boulevard, Suite 700
Arlington, VA 22201
(703) 247-9490 or **rdespot@NTSA.org**

Scholarship Chair
Janet Spruill, Aptima, Inc.

ANNUAL I/ITSEC 5K RUN/WALK/ROLL

WEDNESDAY, 29 NOVEMBER 2023
OCCC, West Concourse, Hall D

0530   Packet Pickup
0645   Start Time

http://www.iitsec.org/attendees/planningyourstay • [f] www.facebook.com/iitsec5k

All registered runners will receive a custom race tech shirt, finishers race medal, race bib and official timing by Milestone Race Authority, and pre- and post-race refreshments. Tax-deductible registration.

REGISTER BY 1 OCTOBER TO GET A SHIRT

END OF AUGUST – 10 OCTOBER   **$50**
(Register by 10 October to secure your shirt & medal)

11 OCTOBER – 17 NOVEMBER   **$50**
(Shirts & medals are not available)

18 NOVEMBER – 29 NOVEMBER   **$65**
(Shirts & medals are not available)

We are excited to once again be holding the I/ITSEC 5K (3.1 miles) Run/Walk/Roll to benefit the Tunnels to Towers Foundation and the I/ITSEC STEM Initiative. Come out and have a great morning of fun while you support these two great organizations!

YOU HAVE FOUR GREAT OPTIONS TO PARTICIPATE:

❶ **TRADITIONAL 5K PARTICIPATION –** Get out there, watch the sun rise, and put some pavement miles under your feet.

❷ **SNOOZE BUTTON –** Don't do mornings (or running)? We have you covered with this option.

❸ **Virtual 5K –** Want to participate on your own time and your own location? Here is your chance! Run a distance of 5k (3.1mi) the week of I/ITSEC with a GPS enabled app (Run Keeper, Map My Run, Zombies RUN!), like us on Facebook, and tag us with #IITSEC5K.

❹ **NOT INTERESTED IN RUNNING?** Make a donation instead which will go miles in supporting our great charities.

Only in-person participants receive a shirt and medal. Shirt sizes are not guaranteed.
Snooze and Virtual participants do not receive a shirt or medal.

Email Sean Osmond for Race Information at **iitsec5k@gmail.com**
or Shannon Burch for Sponsorship information at **sburch@NTSA.org**

CHARITIES THE 5K WILL SUPPORT

TUNNEL TO TOWERS: Tunnel to Towers helps America's heroes by providing mortgage-free homes to Gold Star and fallen first responder families with young children and by building custom-designed smart homes for catastrophically injured veterans and first responders. Tunnel to Towers is also committed to eradicating veteran homelessness and aiding the victims of major U.S. disasters.

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I/ITSEC STEM: The I/ITSEC STEM Initiative is a non-profit, 501c3 organization founded and maintained by the National Training and Simulation Association to support and promote activities encouraging students interests and pursuits of Science, Technology, Engineering, and Mathematics. For more information on this ongoing program, please visit the Education / STEM section on the I/ITSEC home page.

Earle L. Denton Memorial Golf Tournament

Organized by Central Florida Chapter NDIA • Sunday, 26 November **OR** Monday, 27 November

Shingle Creek
GOLF CLUB

Rosen Shingle Creek Golf Club
9939 Universal Blvd, Orlando, FL 32819 • 407-996-9933 • www.shinglecreekgolf.com

DEADLINES

Golf On-Line Registration	19 November
Sponsorship	19 November

TOURNAMENT TIME

Sunday	1100 Registration	1230 Shotgun
Monday	0630 Registration	0730 Shotgun

POINT OF CONTACT

Debbie Berry   407-748-3807 • debbie.berry@lmco.com

FORMAT

Captain's Choice / Scramble

PAIRINGS & REQUESTS

Final assignments and pairings will be made by the tournament coordinator. Priority is based upon receipt of payment.

NOTE: To guarantee requested pairings, all golfers (two, three or four) MUST be entered during a single login session. Golfers registering separately MUST clearly specify pairing requests under comments. The tournament coordinator will attempt to honor all requests.

CANCELLATIONS

Must be received via email to **debbie.berry@lmco.com** by close of business 11 November to receive 50% refund. No refunds thereafter. Substitute golfers are permitted.

ON–LINE REGISTRATION

• Register and/or select sponsorship at **https://www.iitsec.org/attend/registration-fees**
• Register one to four players per login.

FEES

$130 per player *(green fees, range balls, cart, lunch)*

Coordinate club rentals directly with the Rosen Shingle Creek Golf Club pro shop.

SPONSORSHIPS

Details available at **iitsec.org**

Select hole, beverage cart, putting contest or a sponsorship package.

Fees start as low as $500.

SPONSORS

Send your logos via email to **debbie.berry@lmco.com** no later than 19 November. Do not bring your own sign.

*Scholarships and additional qualified initiatives supported through tournament proceeds. For a full list of initiatives (STEM, etc.), contact Central Florida Chapter NDIA.

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WOMEN IN DEFENSE
A NATIONAL SECURITY ORGANIZATION

WID WOMEN IN DEFENSE Women In Defense (WID) strengthens the Defense Industrial Base and workforce by promoting programming that creates and enhances opportunities for women, increasing diversity within the defense community. WID's two-fold mission focuses on powering women currently working in defense and encouraging talented young women to pursue careers in National Security. Membership is open to women and men whose primary professional activities impact the national security of the United States and its partners and allies. WID's 20 chapters include members from defense companies; all branches of the U.S. Armed Forces; government; academia; think tanks; associations; and professional services. Active military and government employees receive complimentary membership. **Visit us in Booth 2580.**

www.womenindefense.net

CMSP

CERTIFIED MODELING & SIMULATION PROFESSIONAL (CMSP) CERTIFICATION AT I/ITSEC

For more information
or to apply, visit
NTSA.org/CMSP
or contact Carol Dwyer at
cdwyer@NTSA.org

CMSP at I/ITSEC 2023
Join us at our events this week to learn more about CMSP, what's new, and how to become a part of the CMSP Community of Practice.

MONDAY, 27 NOVEMBER • 1400 – 1530 • ROOM W307A
FOCUS EVENT
This special event is a panel discussion of M&S Professionals providing their views on the process, value, and future of CMSP.

WEDNESDAY, 29 NOVEMBER • 1500 – 1600 • ROOM W208B
CMSP NOW AND IN THE FUTURE
A discussion of CMSP 3.0's new features and functionality, segueing into future development and deployment plans. These will include a renewed emphasis on establishing M&S certification as a requirement in procurements and job requisitions, new membership benefits, and collaborations with the U.S. DoD and Military Services to cross-certify M&S professionals.

FRIDAY, 1 DECEMBER • 0800 – 1200 • ROOM W308B
PROFESSIONAL DEVELOPMENT WORKSHOP
This workshop provides insights into CMSP certification levels, exam preparation, key topics, and incorporates three game-show style exercises: with associated prizes!

EXHIBIT BOOTH 2580 • EXHIBIT HALL WEST CONCOURSE
Visit the NTSA booth 2580 for CMSP information and materials. Learn more about becoming a CMSP, what's new, and how you can apply. CMSP professionals are at the booth daily from 1200 – 1330 to help you to learn more.

LINKEDIN
Be sure to follow us on LinkedIn (NTSA.org/CMSPLinkedIn) to keep up with what's new in the CMSP world, what the associated committees are doing, and what's ahead. Join the LinkedIn CMSP Nation today!

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ATTENDEE LUNCHEON

Lunch will be served Tuesday, 28 November – Thursday, 30 November at 1200-1330. You must enter and exit luncheon through the Exhibit Hall. Full Conference registrants will receive lunch tickets with their registration materials. Exhibitors and Visitors may purchase a ticket for $45 at the main Registration Station. Lunch tickets are dated; you must present the current day's lunch ticket for entry.

CONNECTIONS LOUNGE & GRILL

Stop by and relax in the Connections Lounge & Grill for a bite to eat or a refreshing drink, and then connect to your email or review the I/ITSEC program online to plan your next move at the conference. The Connections Lounge & Grill will be located in Booth 100, West Exhibit Hall.

SHOW MANAGEMENT OFFICE

206AB • The Show Management Office will be staffed during show hours for all questions regarding booth space, rules, regulations, exhibitor locators, security, and late/early passes. Registration will not be made available at the Show Management Office.

ABOUT REGISTRATION

In addition to access to Tutorials, Papers, Special Events, and Professional Development Workshops, registration fees cover Continuing Education Units (CEUs), lunches (T-W-Th), coffee breaks (T-W PM, W-Th AM), continental breakfasts (W-Th), and the Thursday banquet. A meeting bag with conference materials is included.

I/ITSEC REGISTRATION SERVICES FOR 2023

We strive to minimize the time spent in line so you can move on to the conference events or the exhibit floor. Our goal is to make your I/ITSEC experience a pleasant one even before you enter the Orange County Convention Center (OCCC). Avoid that line and move on to what you came to I/ITSEC to do!

Traditional Registration Stations. Located in West Lobby A of the West Concourse Registration area, traditional walk-up registration will be available for Full Service Registration, on-site payments, changes/edits to name badges, multiple badge pick-ups, or just because you prefer dealing one-to-one with a real person.

Alternate Registration Stations within the Orange County Convention Center. Limited stations at the Main Registration Station will be open Friday and Saturday to handle early registration, especially exhibitors. There will be signage noting QR codes for those who need to register on-site using personal cell phones or laptops. Attendees are encouraged to pre-register and utilize the Self Badging stations once on-site.

Self-badging printing stations are only available for those who pre-registered and received a confirmation QR code. To complete your registration at this station, you must be paid in full with no outstanding balance or questions remaining about your registration.

Speakers (including Paper Presenters) will have special registration stations. More details will be provided to speakers/presenters, but be sure to watch for signage pointing to these areas.

Registration outside of the Orange County Convention Center. I/ITSEC full-service satellite registration will be located at the Main Lobby of the Hyatt Regency, adjacent to hotel check in, from Sunday noon through Tuesday. These stations will be staffed to assist you whether you need to start your registration from scratch or just need to pick up your nametags.

To get from your hotel to the West Concourse of the OCCC, you have several choices of transportation.

- I/ITSEC Shuttle Bus located on **https://www.iitsec.org/attend/planning-your-stay/transportation**
- Reasonable public transportation is available on the I-Ride trolley bus along International Drive. Check **http://www.iridetrolley.com** or your hotel for schedules.
- Your own or a rented vehicle. Parking at the West Concourse is limited, arrive early. If the West lot is full, overflow parking will be available in the South lot, shuttles will run from the South lot to the West Concourse. See detailed parking information (to the right).
- Most of the hotels are within walking distance (wear comfortable shoes).

CONVENTION CENTER PARKING

EXHIBITOR PARKING

$20 per Day – For regular vehicles with re-entry privileges each day. Exhibitor must show badge and receipt for repeat entries.

$30 per Day – For oversized vehicles with re-entry privileges each day. Exhibitor must show badge and receipt for repeat entries.

ATTENDEE PARKING

$20 per Entry – For regular vehicles per entry.

$30 per Entry – For oversized vehicles per entry.

AFTER 5PM

$10 per Entry – For regular vehicles. Same stipulations as above.

$15 per Entry – For oversized vehicles. Same stipulations as above.

ACCEPTED PAYMENT METHODS

Cash, Traveler's Checks, American Express, MasterCard & Visa

ATTENDANCE WAIVER – Participation at I/ITSEC 2023 includes possible exposure to and illness from infectious diseases, including but not limited to COVID-19. While particular rules and personal discipline may reduce this risk, the risk of serious illness and death does exist. As an attendee at I/ITSEC, you freely assume all such risks related to illness and infectious diseases, such as COVID-19, even if arising from the negligence or fault of the Released Parties. By attending I/ITSEC, you hereby knowingly assume the risk of injury, harm, and all loss associated your attendance.

For complete information about I/ITSEC attendance policies, please review **https://www.iitsec.org/attend/meeting-safety-responsibility**

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Map Legend

- 482 State Road
- TOLL 528 Toll Road
- 4 Interstate

Map labels:
Vineland Road, UNIVERSAL ORLANDO RESORT, UNIVERSAL STUDIOS FLORIDA, ISLANDS OF ADVENTURE, VOLCANO BAY WATER THEME PARK, UNIVERSAL CITYWALK, Major Blvd., EXIT 77, EXIT 78, THE MALL AT MILLENIA, INTERCHANGE 259, EXIT 75AB, EXIT 74B, Oakridge Rd., American Way, International Drive, Kirkman Rd., Turkey Lake Rd., Dr. Phillips Blvd., 439, 435, Carrier Dr., Lakehurst Dr., Sand Lake Rd., 482, THE FLORIDA MALL, RESTAURANT ROW, EXIT 74A, Jamaican Court, Austrian Court, Austrian Row, ICON Park, POINTE ORLANDO, Canada Ave., Samoan Court, Apopka-Vineland Rd., Pointe Plaza Ave., Convention Way, Universal Blvd., Tradeshow Blvd., Hawaiian Court, ORANGE COUNTY CONVENTION CENTER, EXIT 72, POST OFFICE, Destination Pkwy., EXIT 2, TOLL 528, Beachline Expressway, to Orlando International Airport, EXIT 1, AQUATICA ORLANDO, Westwood Boulevard, Sea Harbor Drive, International Dr., Orangewood Blvd., EXIT 71, Palm Parkway, SeaWorld ORLANDO, EXIT 68, EXIT 67, Central Florida Parkway, DISCOVERY COVE ORLANDO, Map courtesy of VisitOrlando®

CONNECTED TO CONVENTION CENTER – WEST CONCOURSE

①	Hyatt Regency Orlando* (HQ)	$268
②	Rosen Centre Hotel	$238
③	Rosen Plaza Hotel	$226

CONNECTED TO CONVENTION CENTER – NORTH/SOUTH CONCOURSE

④	Hilton Orlando	$274

SEAWORLD/INTERNATIONAL DRIVE SOUTH AREA

⑤	DoubleTree by Hilton Orlando at SeaWorld	$136
⑥	Fairfield Inn & Suites Orlando at SeaWorld	Government Per Diem Only
⑦	Tru by Hilton Orlando Convention Center	$159

INTERNATIONAL DRIVE & CONVENTION CENTER AREA

⑧	Castle Hotel, Autograph Collection	$171
⑨	Embassy Suites by Hilton Orlando – International Drive Convention Center	$175
⑩	Embassy Suites by Hilton Orlando – International Drive/ICON Park	$175
⑪	Fairfield Inn & Suites Orlando International Drive/Convention Center	Government Per Diem Only
⑫	Hampton Inn Orlando – International Drive/Convention Center	$161
⑬	Homewood Suites by Hilton Orlando – International Drive/Convention Center	$172
⑭	Hyatt Place Orlando I-Drive/Convention Center	$156
⑮	Residence Inn by Marriott Orlando Convention Center/International Drive Area	$164
⑯	Rosen Inn at Pointe Orlando	$90
⑰	Sonesta ES Suites Orlando – International Drive	$149
⑱	SpringHill Suites by Marriott Orlando Convention Center/International Drive Area	$162

2023 per diem rates have not been released, rates are subject to change.

Visit the OnPeak housing desk inside the NTSA Show Office (W206AB) for assistance onsite at I/ITSEC.
You may also call our central agents Monday – Friday at **855-992-3353**.

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THE NATIONAL TRAINING AND SIMULATION ASSOCIATION'S ANNUAL SIMULATION & TRAINING TRENDS AND TECHNOLOGY REVIEW – I/ITSEC EXHIBITOR DIRECTORY

This publication will be available to all the attendees, exhibitors, and exhibit visitors at I/ITSEC. It will be placed in the attendees' conference bags and available at registration, and other locations at the convention center.

THE I/ITSEC SHOW DAILY

The I/ITSEC Show Daily informs the simulation & training community on breaking events & happenings on-site at I/ITSEC. It is printed overnight and distributed daily at the conference center, choice hotels, and uploaded to the I/ITSEC website. The daily has evolved into a vital part of I/ITSEC; a "must read" while attending the conference. Stop in to Media Room, W207A, for more information.

ENGAGE I/ITSEC ON SOCIAL MEDIA

Facebook.com/IITSEC/

Linkedin.com/company/iitsec

@iitsec

https://www.youtube.com/user/NTSAToday

I/ITSEC MOBILE APP DOWNLOAD AT

Available on the App Store

ANDROID APP ON Google play

I/ITSEC PROCEEDINGS

The I/ITSEC Knowledge Repository provides a valuable link to the I/ITSEC training, simulation and education community. Access the online papers repository available at **www.iitsec.org/attend** post-conference.

STAY IN TOUCH

Free Wireless hot spots. E-mail/Internet Kiosks.

Complimentary WiFi is available in the lobby and I/ITSEC session rooms (look for signage). WiFi signal strength is not guaranteed, if you need access outside of the complimentary stations, all of OCCC is now WiFi enabled for a modest user fee.

I/ITSEC is the premier annual event of its kind, attendance by the mainstream and specialist trade press is heavy, resulting in coverage that reaches your key marketing targets. Our media staff stands ready to assist you in achieving maximum exposure during your time at I/ITSEC. Corporate representatives are invited to bring their marketing materials to the Media Room for distribution as early as possible after the opening of registration. Additional exhibitor presentations will be made available inside the exhibit hall at the Innovation Showcase, Booth 2588.

• Visit Show Daily staff onsite in room W207A.

• Dino Pignotti, Show Daily Editor, **pignotti.dino@gmail.com**

• Check out more details on the I/ITSEC News page of **http://www.iitsec.org**.

The I/ITSEC Media Room is W207A, phone **(407) 685-4013**.

FOR LIFE-THREATENING EMERGENCIES: DIAL 911
SECURITY HOTLINE DURING I/ITSEC: (407) 685-6111

SECURITY TRAINING BEFORE THE CONFERENCE

Technology collection directives contain mandates requiring exhibitors and presenters to receive a counterintelligence (CI) briefing from their CI support staff prior to I/ITSEC. Contractors with classified contracts may contact their Defense Security Service Special Agents. To avoid security breaches, I/ITSEC presenters and exhibitors should ensure that the required briefing has been received. A list of CI support agencies follows. Please contact your security officer/manager and ensure that an appropriate briefing for yourself and your colleagues is arranged. Providers of the briefings are:

Army	902 Military Intelligence
Navy, USMC, Coast Guard	Naval Criminal Investigative Service
Air Force	Air Force Office of Special Investigation
Contractors	Defense Counterintelligence and Security Agency (formerly Defense Security Service)

PERSONAL SECURITY

The most important thing to protect, of course, is yourself. Pay attention to your surroundings. Report suspicious behavior or security breaches to a security person or NTSA staff. Familiarize yourself with emergency procedures and exits at your hotel and the Convention Center. Please note that security surveillance cameras are in place throughout the conference and exhibit areas.

EMERGENCY MEDICAL SERVICES

EMT and/or paramedics will be on-site during I/ITSEC (including hall build-up and teardown). During I/ITSEC 2023 they will be located near registration, in Med Room 4, near the escalators at the A2 entrance. Dial 911 for life threatening emergencies. For non-emergencies within the center, dial 5-9809 or on your cell dial (407) 685-9809, or alert any security or I/ITSEC staff member with a radio.

BAGS AND BRIEFCASES

Bags and briefcases may be carried in by those wearing **Conference Attendee** or **Exhibitor** badges. **Exhibit Visitors** (those who are only visiting the exhibits) **WILL NOT** be allowed to carry in bags or briefcases. A check room will be available in the main registration area. A small purse or fanny pack is allowed, but is subject to search. Additional security restrictions may be posted on **http://www.iitsec.org** and on signage at the conference. Conference Management reserves the right to adjust security levels as deemed necessary during the conference.

PRESENTATIONS

Recording devices will not be permitted in the presentation rooms, unless authorized by the conference management. Presenters and Exhibitors should review their company's policy documents and those of the government agencies with whom you contract regarding open distribution, limited distribution, restricted distribution, and sharing limitations.

CAMERAS

Exhibitors have the right to limit photographs and videos of their displays. Please respect this right by asking before photographing or videotaping. Participants found taking photos or videos without the consent of the presenters or exhibitors will be dealt with according to security procedures, to possibly include confiscation of materials and removal from the premises.