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WELCOME ATTENDEES OF I/ITSEC 2024!

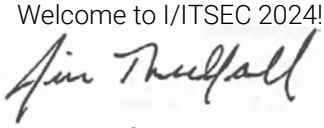
Welcome to I/ITSEC 2024, the World's largest modeling, simulation, training, and education conference! I would like to thank this year's lead services, the Naval Services, for their collaborative approach in assembling this year's conference agenda together. The program has been evolving for over a year now, and I hope you will have a chance to thank those in the leadership for all the time and energy they put into building this very robust agenda. Our Program Chair, Mr. Fred Fleury, and I have coordinated this past year with the lead service executives, Captain Tim James (USN) and Colonel Marcus Reynolds, (USMC) and their respective principals, Mr. Craig Snoderly (USN) and Ms. Carol Byers-Bendle (USMC). Their efforts, along with the Conference Sponsor, the National Training and Simulation Association (NTSA), led by VADM Sean Buck, USN, (Ret.), NTSA President, and NTSA Senior Vice President, Ms. Debbie Langelier, are the driving forces behind the incredible content that will be presented during this year's conference.

In addition to the Naval Services and NTSA's individual contributions, there are many others to thank among the conference leadership this year. Our service executives, Col Carlos Quinones (USAF), Colonel Corey Klopstein (USSF), Brigadier General Christine Beeler (USA), and Mr. Gregory Knapp (OSD), along with their respective service principals, Mr. Heath Morton (USAF), Ms. Sandra Veautour (USSF), Ms. Debra Dawson (USA), and Mr. Frederick Engle (OSD), have spent countless hours coordinating and collaborating to bring you expert panels, insightful presentations/demonstrations, and policymaker perspectives. Along with the conference leadership, there are an additional 300+ volunteers who bring their expertise from government, industry, and academia to diligently review the merits of the paper, tutorial, and professional development workshop submissions and ultimately select those presented at this year's conference. The conference will also provide Special Event sessions that enable Congressional members, Senior Military members, and Industry/Academia Experts to provide future visions, strategies, expectations, and technologies that will shape the future of modeling, simulation, and training into 2035. These same events will be supported by the Next Big Thing that also looks at how these future concepts can be turned into reality.

The theme for I/ITSEC 2024 is *Assuring Deterrence through Integrated Training and Readiness – The Need is Now!* This theme resonates not only throughout our military structure and operations, but through our allies and partners who, like us, are increasingly facing great challenges from not only our typical adversaries, but splinter terrorist groups. The challenge to our national defense industrial base and what will be on display during the conference shows how we can collaborate and bring innovative as well as responsive technology solutions to provide our forces, and those of our allies, the strategic advantage to meet these threats.

For nearly 60 years the modeling, simulation, and training professionals that gather annually for I/ITSEC have a common goal and focus: to increase the effectiveness of modeling, simulation, training, and education in the world's most complex environments. Whether the end users of these solutions are for military members, first responders, healthcare professionals, or the many other highly critical fields of operation, the conference has remained the premier showcase within our diverse, yet focused, community. I look forward to joining you this week as we collaborate, learn, and network together at I/ITSEC 2024!

Welcome to I/ITSEC 2024!



Jim Threlfall
I/ITSEC 2024 Conference Chair

WELCOME ATTENDEES OF I/ITSEC 2024!

Welcome to I/ITSEC 2024! We have planned an exciting and informative five-day conference for you. This year's lead services, the Naval Services (U.S. Navy and Marine Corps), their Service Executives and Principals, in collaboration with NTSA, and the 300+ volunteers from industry, government, and academia have worked hard to prepare this great program. Alongside these volunteers, Jim Threlfall, our I/ITSEC 2024 Conference Chair and I have created an agenda with 157 Technical Papers, 55 Special Events, 33 Tutorials, and 9 Professional Development Workshops. We continue to offer our Signature Events including the Congressional panel, Pentagon leadership panels with international partner discussions, the Next Big Thing, Black Swan, I/ITSEC Fellows, and our outreach-focused events such as our EcosySTEM of Learning and I/ITSEC's own Serious Game Showcase & Challenge.

Our comprehensive program is built around this year's theme, *Assuring Deterrence through Integrated Training and Readiness – The Need is Now!* We can achieve this deterrence by sharpening the swords and tools of our Warfighters and first responders. Our program does this by emphasizing more immersive XR training environments, AI-enhanced decision-making, and digital-twin engineering such that our military services and international partners are well-positioned to achieve greater readiness to deter this aggression.

Suppose you are new to I/ITSEC. In that case, I encourage you to start with some Tutorials on Monday, listen to the opening ceremonies and leadership on Tuesday, and take in some interesting papers and Special Events. Don't miss the over 190,000 sq. ft. exhibit floor with over 400 organizations showing their latest technologies and training systems. Finish the week on Friday with our Professional Development Workshops tailored to dive deep into modeling and simulation (M&S) technologies and protocols. As you examine our extensive program and plan your week, I'm sure you will see why I/ITSEC 2024 is the world's largest modeling and simulation conference.

With so much to choose from, I highly encourage all attendees, newbies, and long-time friends to download the I/ITSEC 2024 app to your phone. Our role-based persona schedule builder will help you plan your week, set reminders, give needed feedback, and allow you to find that vendor on the show floor who can meet your needs.

Please support our charity events that will benefit the Tunnel to Towers Foundation, which builds homes and assists our first responders, Warfighters, and Gold Star families. These events are The Earle L. Denton Memorial Golf Tournament on Sunday, 1 December, or Monday, 2 December, and our 5K Run/Walk/Roll which will start at 0530 on Wednesday, 4 December.

I firmly believe that we have created a world-class event where all attendees will find a wealth of knowledge, value, and networking opportunities. I look forward to welcoming you to I/ITSEC 2024.

Sincerely,

Fred Fleury
I/ITSEC 2024 Program Chair

GOVERNMENT KEYNOTE

HONORABLE CARLOS DEL TORO
Secretary of the Navy

THE HONORABLE CARLOS DEL TORO was sworn in as the 78th Secretary of the Navy August 9, 2021. As Secretary, he is responsible for over 1 million Sailors, Marines, reservists, and civilian personnel and an annual budget exceeding $255 billion. His priorities include securing the training and equipment successful naval operations demand and addressing the most pressing challenges confronting the U.S. Navy and Marine Corps by strengthening maritime dominance, building a culture of warfighting excellence, and enhancing strategic partnerships.

Born in Havana, Cuba, Del Toro immigrated to the U.S. with his family as refugees in 1962. Raised in the Hell's Kitchen neighborhood of New York City, he attended public schools and received an appointment to the United States Naval Academy, where he earned a Bachelor of Science Degree in Electrical Engineering. Secretary Del Toro was commissioned as a Surface Warfare Officer upon his graduation in 1983.

His 22-year naval career included a series of critical appointments and numerous tours of duty at sea – including First Commanding Officer of the guided missile destroyer USS Bulkeley (DDG 84); Senior Executive Assistant to the Director for Program Analysis and Evaluation in the Office of the Secretary of Defense; and Special Assistant to the Director and Deputy Director of the Office of Management and Budget – where he helped manage the budgets of DOD, the U.S. Department of State, the Central Intelligence Agency, the Defense Intelligence Agency, the National Reconnaissance Office, and the Peace Corps.

After retiring at the rank of Commander, Secretary Del Toro founded SBG Technology Solutions, Inc. in 2004. As its CEO and President, he supported defense programs across a host of immediate and long-term Department of Navy issue areas, including shipbuilding, AI, cybersecurity, acquisition programs, space systems, health, and training.

He holds a Masters in National Security Studies from the Naval War College, a Masters in Space Systems Engineering from the Naval Postgraduate School, and a Masters in Legislative Affairs from George Washington University.

Secretary Del Toro and his wife have four children and three granddaughters.

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NAVAL SERVICES FIRESIDE CHAT

VICE ADMIRAL SEAN S. BUCK, USN (RET.)
President, National Training and Simulation Association

MODERATOR

VICE ADMIRAL SEAN S. BUCK, USN (RET.) is the President of the National Training and Simulation Association (NTSA). VADM Buck is a seasoned leader with over 40 years of experience in commissioned military service and higher education. He served as the 63rd Superintendent of the U.S. Naval Academy, where he led the institution through significant challenges, including the COVID-19 pandemic, ensuring continuous operations in support of its critical mission of developing the leaders of tomorrow for our nation. Throughout his career, he commanded at many levels, including as Commander of U.S. Fourth Fleet & Naval Forces Southern Command, where he was responsible for key security and humanitarian operations across the Americas. In his current role, VADM Buck leads NTSA in advancing the training, modeling, and simulation industry, representing and advocating for its membership that drives innovation in defense and technology sectors. His leadership extends to serving on advisory boards for Academy Securities, Synergist Technology, and First Command Financial Services, and contributing to the development of the U.S. Naval Academy's athletic programs. VADM Buck holds a Master's in Security Policy Studies from The George Washington University and has completed executive education at Harvard and MIT. His commitment to excellence continues to shape the future of training and simulation.

ADMIRAL JAMES W. KILBY, USN
Vice Chief of Naval Operations

UNITED STATES NAVY

ADM. JAMES W. KILBY is a native of Pound Ridge, New York, and a 1986 graduate of the United States Naval Academy. Kilby's sea tours include USS Sampson (DDG 10), USS Philippine Sea (CG 58) and two tours aboard USS San Jacinto (CG 56). He commanded USS Russell (DDG 59) where he received the Vice Adm. James B. Stockdale Award for inspirational leadership. His major command was aboard USS Monterey (CG 61) and included its maiden Ballistic Missile Defense (BMD) deployment in 2011. His shore tours include the Naval Postgraduate School; two tours in the Chief of Naval Operations' Surface Warfare Directorate, N96; Navy Personnel Command's Surface Warfare Division, PERS-41; and the Aegis BMD Program Office in the Missile Defense Agency. Kilby's flag assignments include Commander, Naval Surface and Mine Warfighting Development Center; Commander, Carrier Strike Group 1; director of Warfare Integration, N9I; Deputy Chief of Naval Operations for Warfighting Requirements and Capabilities, N9; Deputy Commander, U.S. Fleet Forces Command; and Commander, Task Force EIGHT ZERO. Kilby assumed the duties of Vice Chief of Naval Operations, Jan. 5, 2024.

LIEUTENANT GENERAL BENJAMIN T. WATSON, USMC
Commanding General, Training and Education Command

UNITED STATES MARINE CORPS

LIEUTENANT GENERAL WATSON graduated from Cornell University in 1991 and was commissioned through the NROTC program. After The Basic School and Infantry Officer Course, he reported to 3rd Battalion, 8th Marine Regiment, in Camp Lejeune, NC, where he served as a Platoon Commander and Executive Officer with Company K. His other operational assignments include: Commanding Officer, Weapons Company, and Operations Officer, 2nd Battalion, 6th Marines, from 1999-2002; G-3 Future Operations Planner, I Marine Expeditionary Force (Forward), from 2006-; G-3 Plans Officer, 1st Marine Division, from 2007-2008; Commanding Officer, 3rd Battalion, 1st Marines, from 2008-2011; Assistant Division Commander, 2nd Marine Division, from 2016-2017; and Commanding General (CG), Task Force Southwest in Helmand and Nimroz Provinces, Afghanistan, from January to November 2018. From 2022-2024, LtGen Watson commanded the 1st Marine Division. His service outside the operating forces includes duty as an instructor at The Basic School from 1995-1997, the Infantry Officer Course from 1997-1998, and the Expeditionary Warfare School from 2002-2005. From 2012-2013, he served in the Office of the Secretary of Defense as Senior Military Assistant to the Assistant Secretary of Defense for Asian & Pacific Security Affairs. From 2013-2014, he was assigned to the Office of the Secretary of Defense as Special Assistant to the Chief of Staff. LtGen Watson served as the Commanding Officer of Marine Barracks, Washington D.C. (8th & I), from 2014-16. From 2018-2019, he served as the CG of Marine Corps Installations East / Marine Corps Base Camp Lejeune, and from 2019-2022 as CG of the Marine Corps Warfighting Laboratory / Futures Directorate and Vice Chief of the Office of Naval Research. In August of 2024, LtGen Watson assumed duties as Commanding General, Training & Education Command.

INDUSTRY KEYNOTE

RICK SCHMIDT
President/Chief Executive Officer, Tipping Point Solutions, Inc.

RICK SCHMIDT, the 2019 Colorado SBA Small Business "Person of the Year," has forged a distinguished career as a creative visionary and a highly successful business leader. As the CEO and President of Tipping Point Solutions (TPS), Inc., Rick leads the company's strategic growth and operations, supporting instructional design, media production, and the development of cutting-edge courseware and technology.

Rick founded TPS, a Native American and Veteran-Owned enterprise, and a Service-Disabled Veteran-Owned, SBA-certified 8(a) small business, in 2011 after a distinguished 20-year career as a Naval Information Warfare Officer. Rick culminated his outstanding Navy career serving as Training Director at the Center for Information Dominance in Pensacola, Florida, where he illuminated the need for impactful, high-quality training solutions in the industry.

Over the past thirteen years, Rick has grown TPS into an award-winning, respected business with over one hundred full-time employees across its Colorado headquarters, satellite offices in Arizona and Michigan, and remote locations nationwide. Specializing in immersive, interactive video, TPS stands out in the industry for delivering engaging, results-driven training experiences.

Rick holds a Bachelor of Science degree in Computer Science, a Master of Science in Information Systems, and holds certifications in Information Systems Security (CISSP) and Radio Frequency Identification (RFID+). Rick, a proud member of the Sault Tribe of Chippewa Indians in Sault Saint Marie, Michigan. He is also involved in an SBA-approved Mentor/Protégé relationship with Chippewa Government Solutions (CGS) LLC, where he, and TPS, provides guidance to support CGS's growth and success.

In recognition of its success, TPS received the prestigious "Gold" Stevie Award as the "Veteran-Owned Business of the Year" in 2020 and was honored by the Denver Business Journal with the 2020 Small Business Award. The company's steady growth, achieved without external investment or partners, has earned it a place on the Inc. 5000 list for the past five years, with an average growth rate of over 420%, most recently ranking 581st among America's top 5000 companies. Additionally, TPS has been recognized by the VET100 as one of the top veteran-owned businesses in the country for three consecutive years.

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SENIOR LEADER PANEL

VICE ADMIRAL SEAN S. BUCK, USN (RET.)
President, National Training and Simulation Association (NTSA)

VICE ADMIRAL DANIEL L. CHEEVER, USN
Commander, Naval Air Forces/ Commander, Naval Air Force, U.S. Pacific Fleet

LIEUTENANT GENERAL BENJAMIN T. WATSON, USMC
Commanding General, Training and Education Command

THOMAS J. LAWHEAD, SES
Assistant Deputy Chief of Staff, Strategy, Integration and Requirements, U.S. Air Force

MAJOR GENERAL TIMOTHY A. SEJBA, USSF
Commander, Space Training and Readiness Command

BRIGADIER GENERAL DAVID ZINN, USA
Director of Training, Headquarters U.S. Army G-3/5/7, Former Commander 3rd Multi-Domain Task Force (MDTF)

BRIGADIER GENERAL RICKARD JOHANSSON
Commanding General 1. Division, Swedish Army

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 *Assuring Deterrence through Integrated Training and Readiness – The Need is Now!*

The Senior Leader Panel will include senior representatives from U.S. Military Services, OSD, and International Allies. Following opening remarks, the audience will interact with the panel through a Q&A feature. Don't miss the opportunity to hear from national leaders on the way ahead.

TUESDAY, 3 DECEMBER • 1400 – 1445 • ROOM 330ABCD

A FIRESIDE CHAT WITH ADMIRAL CHRISTOPHER W. GRADY, VICE CHAIRMAN, JOINT CHIEFS OF STAFF

MODERATOR

VICE ADMIRAL SEAN S. BUCK, USN (RET.)
President, National Training and Simulation Association (NTSA)

SPEAKER

ADMIRAL CHRISTOPHER W. GRADY, USN
Vice Chairman,
Joint Chiefs of Staff

A native of Newport, Rhode Island, Admiral Christopher W. Grady graduated from the University of Notre Dame in 1984 and received his commission through the Naval Reserve Officers Training Corps program. Grady is also a distinguished graduate of both Georgetown University, where he participated as a fellow in Foreign Service at the Edmund A. Walsh School of Foreign Service, and the National War College.

A career Surface Warfare Officer, Grady served aboard USS Moosbrugger (DD 980) as combat information center officer and antisubmarine warfare officer. As a department head, he served as weapons control officer and combat systems officer aboard USS Princeton (CG 59). He then commanded Mine Countermeasures Rotational Crew Echo aboard USS Chief (MCM 14), and later deployed to the Arabian Gulf in command of USS Ardent (MCM 12). Grady subsequently commanded USS Cole (DDG 67), deploying as part of NATO's Standing Naval Forces Mediterranean. In command of Destroyer Squadron 22, he deployed to the Arabian Gulf as sea combat commander for the Theodore Roosevelt Carrier Strike Group in support of Operations ENDURING FREEDOM and IRAQI FREEDOM.

Ashore, Grady served in the Joint Chiefs of Staff and then as naval aide to the Chief of Naval Operations, as the assistant branch head of the Europe and Eurasia Politico-Military Affairs Branch (OPNAV N524), as executive assistant to the Navy's Chief of Legislative Affairs, as the deputy executive secretary of the National Security Council in the White House, and as the executive assistant to the Chief of Naval Operations.

As a flag officer, he first served as Director of Maritime Operations, Commander, U.S. Pacific Fleet (N2/3/5/7), then subsequently commanded Carrier Strike Group 1/Carl Vinson Carrier Strike Group, where he deployed for nearly 10 months to the Western Pacific and the Arabian Gulf conducting combat operations in support of Operation INHERENT RESOLVE. He later served as Commander, Naval Surface Force Atlantic; Commander, U.S. 6th Fleet/Commander, Naval Striking and Support Forces NATO/Deputy Commander, U.S. Naval Forces Europe and U.S. Naval Forces Africa. From May 2018 until December 2021, he served as the Commander, U.S. Fleet Forces Command, and the Naval Component Commander to both U.S. Northern Command and U.S. Strategic Command, as the Joint Force Maritime Component Commander for U.S. Strategic Command and executed Task Force Atlantic in coordination with U.S. Naval Forces Europe.

Admiral Grady was sworn-in as the twelfth Vice Chairman of the Joint Chiefs of Staff, the nation's second highest-ranking military officer, on 20 December 2021. The admiral represents the Chairman of the Joint Chiefs of Staff on the Deputies Committee of the National Security Council and chairs the Joint Requirement Oversight Council (JROC) which is responsible for reviewing and establishing acquisition priorities for major weapon systems amongst the military branches. He also co-chairs the Deputy's Management Action Group (DMAG) and the Deputy's Workforce Council (DWC) with the deputy secretary of defense to address departmental budgetary priorities and serves as the senior member of the Nuclear Weapons Council, responsible for managing the atomic stockpile and coordinating nuclear weapon-related programs and budgets.

The admiral is currently the Navy's "Old Salt", its longest-serving surface warfare officer on active duty.

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CONFERENCE LEADERSHIP

CONFERENCE CHAIR

JIM THRELFALL
Tipping Point Solutions
I/ITSEC 2024 Conference Chair

JIM THRELFALL is Vice President of Operations /Business Development at Tipping Point Solutions, Inc. Jim has more than 40 years of progressive managerial, educational, and financial experience in the fields of Organizational Performance and Human Resource Development for industry, corporations, and the U.S. Government. He worked in the areas of human resource development/performance to include: implementing and managing training systems and programs; curriculum development; instructional strategies; instructional technology; traditional through electronic-based training; gaming and immersive environments; mixed/virtual/augments reality; and research analysis. In his current role at Tipping Point Solutions, Jim is responsible for the management and support of Federal Agencies, DoD, and commercial engagements to include: assisting organizations to define learning and/or training solutions for system or product implementation; planning and resourcing the execution of the development projects; and successful integration of those training/learning solutions. Jim was also the Division Manager under the Army Capabilities Integration Center (ARCIC) "Connecting Soldiers to Digital Applications" and provided TRADOC with the first mobile device and tablet application for Patriot Missile Crew Training. This innovative training product was the Winner of the first Mobile Category for the Serious Games Showcase & Challenge in 2011. Jim has been a member of the I/ITSEC community since 2008, serving as subcommittee chair for HSE and Education, as well as chairing Special Events and Program Chair for the I/ITSEC 2022 Conference. Jim is a retired Army Field Artillery Officer and holds a Master of Science degree in Education (Training Technology) from Old Dominion University and Bachelor of Arts degree in Military Studies from Norwich University.

PROGRAM CHAIR

FRED FLEURY
4SimVision, LLC
I/ITSEC 2024 Program Chair

FRED FLEURY is the owner of 4SimVision LLC, a consulting company with a passion for helping small businesses navigate and win government contracts. He has over 39 years of experience in the management and architecture of simulation testing and computer integration projects. Mr. Fleury has supported NTSA and I/ITSEC for over 25 combined years publishing his first network simulation paper in 1992, then serving as chairperson on various subcommittees, and now in senior leadership positions. Previously with ZedaSoft, Inc., his team integrated role-player simulators and drone stations as immersive learning devices (ILD) into the USAF Academy, Multi-Domain Laboratory (MDL) for Strategic Studies. This team developed an innovative MOSA simulator container plugin system that has been awarded four U.S. patents. Other important projects include the design and development of the AFRL/Lockheed Martin Integrated Collision Avoidance System (ICAS) laboratory which led to the ground and air collision avoidance technology integration into the F-16 and now F-35 aircraft saving over 11 aircraft and 12 pilots to date. This same simulation team tested the Manned-Unmanned Teaming (MUM-T) protocol between their virtual AH-64E Apache simulator at the U.S. Army Redstone Arsenal networked to a live Gray Eagle UAS flying over the Dugway Proving Grounds. At General Dynamics and Lockheed Martin, he provided project engineering to F-16 and F-111 flight controls and AFTI/F-16 simulator testbeds. In 1993, Fred co-founded and developed an IT solutions company that was awarded the INC 500 fastest-growing companies list two years in a row. This company developed database-driven internet solutions for Consumers Digest's first product comparison tool and the first internet package tracking tool for the U.S. Postal Service (USPS). Fred received his Bachelor of Science in Engineering from Texas A&M University and a Bachelor of Science in Physics from Sam Houston State University in 1985.

CONFERENCE SPONSOR

VADM SEAN S. BUCK, USN (RET.)
President, National Training and Simulation Association

Vice Admiral Sean S. Buck, USN (Ret.) is the President of the National Training and Simulation Association (NTSA). VADM Buck is a seasoned leader with over 40 years of experience in commissioned military service and higher education. He served as the 63rd Superintendent of the U.S. Naval Academy, where he led the institution through significant challenges, including the COVID-19 pandemic, ensuring continuous operations in support of its critical mission of developing the leaders of tomorrow for our nation. Throughout his career, he commanded at many levels, including as Commander of U.S. Fourth Fleet & Naval Forces Southern Command, where he was responsible for key security and humanitarian operations across the Americas. In his current role, VADM Buck leads NTSA in advancing the training, modeling, and simulation industry, representing and advocating for its membership that drives innovation in defense and technology sectors. His leadership extends to serving on advisory boards for Academy Securities, Synergist Technology, and First Command Financial Services, and contributing to the development of the U.S. Naval Academy's athletic programs. VADM Buck holds a Master's in Security Policy Studies from The George Washington University and has completed executive education at Harvard and MIT. His commitment to excellence continues to shape the future of training and simulation.

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.

INTERSERVICE EXECUTIVES

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 management 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, USMC, 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 CARLOS QUINONES, USAF, is the acting Program Executive Officer, PEO Training. In this role, he leads a team of nearly 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 Quinones received his commission from the University of Puerto-Rico-Mayaguez in 1996 and completed an MS degree in Engineering Management and Systems from the University of Dayton. He is a graduate of Air Command and Staff College as well as Air War College. He has held numerous positions, including: Systems Engineer, Program Manager, Flight Commander, Executive Office, Materiel Leader and server staff positions. Program Office tours include; 412 Test Wing Test Wing, Advanced Weapons and Fire Control Division, MQ-9, KC-46, Space Launch Division, and DoD Space Test.

U.S. SPACE FORCE SERVICE EXECUTIVE

COLONEL COREY KLOPSTEIN, USSF, is the Program Executive Officer (PEO), Operational Test and Training Infrastructure (OTTI), Space Systems Command, Los Angeles Air Force Base, California. Col. Klopstein leads a combined team of military, government civilians, and contractors at two geographically separated units in the execution of a $4B+ portfolio to create a robust, enduring OTTI. These advanced systems provide the foundation for High-End Advanced Test, Training, and Tactics Development by all Guardians. As PEO OTTI, Col. Klopstein's portfolio includes the National Space Test and Training Complex (NSTTC) and enterprise Space Training systems providing interconnected, scalable, and distributed physical and digital ranges for full-spectrum test and training capabilities for the joint Warfighter. Col. Klopstein has served in a variety of acquisition, staff, and command assignments at many levels across the Space Force, Air Force, and Department of Defense. He recently served as Chief of the Analysis Branch in the Force Structure, Resources, and Assessment Directorate on the Joint Staff, Executive Officer to the Space and Missile Systems Center (SMC) Commander, Materiel Leader of the Enhanced Polar System, and Branch Chief on the United States Air Forces in Europe staff.

U.S. ARMY SERVICE EXECUTIVE

BRIGADIER GENERAL CHRISTINE A. BEELER, USA, is the program executive officer (PEO) of the U. S. Army Program Executive Office Simulation Training and Instrumentation (PEO STRI) headquartered in Orlando. Florida. PEO STRI executes a multi-billion-dollar testing, training, and threat portfolio annually, and is staffed by more than 1,200 military, government civilian and service support contractors. The organization also manages a Foreign Military Sales program which supports more than 65 countries. Before assuming the charter as PEO, Brigadier General Beeler served as the commanding general of the U. S. Army Contracting Command (ACC) headquartered at Redstone Arsenal, Huntsville, Alabama. Prior to ACC, Brigadier General Beeler served as the Commanding General for the U.S. Army Mission and Installation Contracting Command at Joint Base San Antonio-Sam Houston, Texas. Brigadier General Beeler was a distinguished military graduate and commissioned as a second lieutenant in the Ordnance Corps through the Army ROTC program at Boston University in 1991, where she earned a Bachelor of Science in Business Administration. She began her Army Acquisition career in 2001, and is certified in Defense Contracting, Program Management and Logistics. Her advanced education includes a Master of Arts in Administration and Management from Bowie State University, Prince George's County, Maryland; a Master of Public Administration in Environmental Management from Jacksonville State University, Jacksonville, Alabama; and a Master of Business Administration from Webster University. Brigadier General Beeler's military education includes a Master of Science in Strategic Studies from the U.S. Army War College. She is a graduate of the U.S. Army Command and General Staff College.

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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PRINCIPALS

SERVICE PRINCIPALS

CRAIG SNODERLY
U.S. NAVY
Head, Advanced Simulation Division, 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)

KING MOLDER
U.S. SPACE FORCE
Director of Engineering, Operational Test and Training Infrastructure (OTTI)

DEBRA A. DAWSON
U.S. ARMY
Office of the Director, Strategic Engagements, U.S. Army Combat Capabilities Developmental Command Soldier Center (DEVCOM SC)

OSD PRINCIPAL

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

SERVICE BOOTHS

USAF	1333/249
USSF	1333
U.S. Army PEO STRI	1339/1935
PM TRASYS/TECOM	1233
NAWCTSD/U.S. Navy	1239/149
U.S. Army DEVCOM	2135

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AGENDA

TIME	SESSION	LOCATION
WEDNESDAY • 27 NOVEMBER 2024		
0800	**EXHIBITOR REGISTRATION OPENS**	SOUTH CONCOURSE
1700	**EXHIBITOR REGISTRATION CLOSES**	
THURSDAY • 28 NOVEMBER 2024 • CLOSED FOR THANKSGIVING		
FRIDAY • 29 NOVEMBER 2024 AND SATURDAY • 30 NOVEMBER 2024		
0800	**EXHIBITOR REGISTRATION OPENS**	SOUTH CONCOURSE
1700	**EXHIBITOR REGISTRATION CLOSES**	
SUNDAY • 1 DECEMBER 2024		
0800	**EXHIBITOR REGISTRATION OPENS**	SOUTH CONCOURSE
1200	**CONFERENCE REGISTRATION OPENS**	SOUTH CONCOURSE
1200	**SATELLITE REGISTRATION OPENS**	HYATT REGENCY MAIN LOBBY
1800	**ALL REGISTRATIONS CLOSE**	
MONDAY • 2 DECEMBER 2024		
0700	**CONFERENCE AND EXHIBIT REGISTRATION OPEN**	SOUTH CONCOURSE
0730	**SATELLITE REGISTRATION OPENS**	HYATT REGENCY MAIN LOBBY
0830 – 1000	**TUTORIALS** (SYNOPSES BEGIN ON PAGE 81)	
	Navigating the Generative AI Revolution	ROOM 330EF
	Introduction to Defense Modeling and Simulation	ROOM 310AB
	Introduction to HLA 4	ROOM 310CD
	Digital Engineering Basic Principles	ROOM 320A
	Harnessing Physiology for Peak Human Performance in Training and Simulation	ROOM 320B
	Simulation Conceptual Modeling Theory and Use Cases	ROOM 320C
	Remodeling Readiness: Making Sense of Jobs, Tasks, and Skills in a Digital World	ROOM 320D
	Evolution of Radio Signal Visualization from Spectrum Analyzers to Mixed Reality	ROOM 320E
	Enhancing CBRN Response Readiness Using a Mental Model Matrix	ROOM 320F
	Securing Distributed LVC: Harnessing OMG DDS for Interoperability at Scale	ROOM 320G
	A Practitioner's Guide to Human-Machine Teaming Research	ROOM 330GH
1030 – 1200	**SIGNATURE EVENT:** Congressional M&S Caucus	ROOM 330ABCD
1030 – 1200	**TUTORIALS** (SYNOPSES BEGIN ON PAGE 85)	
	An Introduction to Cognitive Systems for Modeling & Simulation	ROOM 330EF
	Live, Virtual and Constructive (LVC) Interoperability 101	ROOM 310AB
	IEEE 1278™ Standard for Distributed Interactive Simulation (DIS): Concepts and Techniques	ROOM 310CD
	Digital Twins: KISS	ROOM 320A
	Motion Sickness in Virtual Environments: Theory and Practical Considerations	ROOM 320B
	Making the Case: Building Strong Modeling and Simulation (M&S) Verification and Validation Evidence	ROOM 320C
	Harnessing the Power of Simulation-Based Tools to Enhance Warfighter Brain Health	ROOM 320D
	Accessible, Adaptable, Adoptable eXtended Reality (XR) Training – The Need is Now, Are You Ready?	ROOM 320E
	The Development of a Resilient ADL Capacity Trough Long Term Nordic Military Partnership	ROOM 320F
	Introduction to Quantum Computing — It'll be Fine Man (Feynman)	ROOM 320G
	Applied Generative AI for 3D Simulation and Modeling Assets	ROOM 330GH
1245 – 1415	**TUTORIALS** (SYNOPSES BEGIN ON PAGE 89)	
	Unleashing the Potential: Harnessing Large Language Models and Generative AI in Military and Industry Applications	ROOM 330EF
	A Process for Distributed LVC Integration and Execution	ROOM 310AB
	TENA: The Test and Training Enabling Architecture	ROOM 310CD
	Simulated Systems — Real Return on Investment	ROOM 320A
	Mitigation and Management of Minimize Cybersickness in the Design and Implementation of Learning Systems with Virtual Environments	ROOM 320B
	Accreditation of Simulation-Based Experiments: Beyond the M&S	ROOM 320C
	Spell Casting: Calling the Power of Accessible Design to Your Serious Games and Simulations	ROOM 320D
	Mission XRpossible: Navigating Novice-to-Expert Assessment Design in Medical & Military Training	ROOM 320E
	U.S. Export Controls, National Security, and the Simulation Industry in 2024	ROOM 320F
	How the Brain Creates Reality; Enhancing the Reality Experience with Large Area Haptic Feedback	ROOM 320G
	Machine Learning: An Introduction for Humans	ROOM 330GH

1400	**EXHIBITS OPEN**	EXHIBIT HALL
1415 – 1545	**FOCUS EVENT:** Black Swan: The Singularity Paradox	ROOM 330ABCD
1415 – 1545	**COMMUNITY OF INTEREST:** Implications of Artificial Intelligence for Human Systems Integration in the DoD	ROOM 320H
1430 – 1600	**FOCUS EVENT:** America's Seed Fund: Planting Seeds for Success Under the SBIR/STTR Program	ROOM 310CD
1430 – 1600	**FOCUS EVENT:** Certified Modeling and Simulation Professional 3.0	ROOM 310AB
1430 – 1600	**FOCUS EVENT:** Different Makes Us Stronger: How to Build Diverse Thinking for Today's Defense Dominance	ROOM 330GH
1430 – 1600	**PROGRAM BRIEF:** USMC PM TRASYS – Acquisition Update	ROOM 330EF
1600 – 1730	**FOCUS EVENT:** 2024 I/ITSEC Fellows Presentation	ROOM 330ABCD
1800	**EXHIBITS CLOSE**	
1800	**ALL REGISTRATION STATIONS CLOSE**	

TUESDAY • 3 DECEMBER 2024

0700	**CONFERENCE AND EXHIBIT REGISTRATION OPEN**	SOUTH CONCOURSE
0730	**SATELLITE REGISTRATION OPENS**	HYATT REGENCY MAIN LOBBY
0800 – 1000	**OPENING CEREMONIES** Call to Order • Presentation of Colors • National Anthem • Invocation **OPENING REMARKS** Jim Threlfall, I/ITSEC 2024 Conference Chair **NAVAL SERVICES FIRESIDE CHAT**  U.S. NAVY Admiral James W. Kilby, USN Vice Chief of Naval Operations  U.S. MARINE CORPS Lieutenant General Benjamin T. Watson, USMC Commanding General, Training and Education Command **INDUSTRY KEYNOTE**  Rick Schmidt President/Chief Executive Officer Tipping Point Solutions, Inc.	HYATT WINDERMERE BALLROOM
1000 – 1130	**SIGNATURE EVENT:** Senior Leader Panel	HYATT WINDERMERE BALLROOM
1130 – 1200	**GOVERNMENT KEYNOTE**  Honorable Carlos Del Toro Secretary of the Navy	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 Government Keynote)	EXHIBIT HALL
1400 – 1530	**PAPER SESSIONS** (Title/Author list begins on page 99. Session schedules for this time frame are on page 95.)	ROOMS 320ABCDEFG
1400 – 1445	**SIGNATURE EVENT:** A Fireside Chat with Admiral Christopher W. Grady, Vice Chairman, Joint Chiefs of Staff	ROOM 330ABCD
1400 – 1530	**FOCUS EVENT:** Joint & Multi-National Constructive Training Exercise	ROOM 310CD
1400 – 1530	**NEXT BIG THING:** Large Language Models	DESTINATION LOUNGE
1400 – 1530	**PROGRAM BRIEF:** Joint Simulation Environment (JSE)	ROOM 310AB
1500 – 1615	**SIGNATURE EVENT:** Naval Aviation Flag Officer Panel	ROOM 330ABCD
1600	**SATELLITE REGISTRATION STATION AT HYATT REGENCY CLOSES**	
1600 – 1730	**PAPER SESSIONS** (Title/Author list begins on page 99. Session schedules for this time frame are on page 95.)	ROOMS 320BCDF
1600 – 1730	**SIGNATURE EVENT:** GenAI: Transforming Defense Operations — Bridging AI Innovation with DoD Strategy	ROOM 310AB
1600 – 1730	**FOCUS EVENT:** Implementing Learning Engineering in Military Environments: An Operational & Tactical Perspective	ROOM 310CD
1600 – 1730	**FOCUS EVENT:** Maximizing the Emerging Wargaming Capabilities	ROOM 330GH
1600 – 1730	**NEXT BIG THING:** Human & Machine Teaming	DESTINATION LOUNGE
1630 – 1745	**SIGNATURE EVENT:** Army General Officer Panel	ROOM 330ABCD
1700 – 1830	**EXHIBITOR NETWORKING EVENT**	EXHIBIT HALL
1800	**CONVENTION CENTER REGISTRATION CLOSES**	
1800	Senior Leaders Networking Hour and NTSA M&S Awards Dinner (INVITATION ONLY)	HYATT REGENCY
1830	**EXHIBITS CLOSE**	

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AGENDA

WEDNESDAY • 4 DECEMBER 2024

0630	**5K WALK, RUN OR ROLL CHARITY RACE**	SOUTH CONCOURSE
0700	**CONFERENCE AND EXHIBIT REGISTRATION OPEN**	SOUTH CONCOURSE
0830 – 1000	**PAPER SESSIONS** (Title/Author list begins on page 99. Session schedules for this time frame are on page 96.)	ROOMS 320ABCDEFG
0830 – 1000	**SIGNATURE EVENT:** Leadership Perspectives on Development, Education and Training	ROOM 330ABCD
0830 – 1000	**FOCUS EVENT:** Department of the Air Force (DAF) — Noncommissioned Officer (NCO) Panel	ROOM 330EF
0830 – 1000	**FOCUS EVENT:** Navy Continuous Training Environment	ROOM 310AB
0830 – 1000	**FOCUS EVENT:** Marine Corps Senior Enlisted Panel	ROOM 320H
0830 – 1000	**FOCUS EVENT:** Evolution vs. Revolution: Special Operations' Path to Integrated Training in a Synthetic Environment	ROOM 310CD
0830 – 1000	**COMMUNITY OF INTEREST:** Data & Cyber Considerations to M&S	ROOM 330GH
0930	**EXHIBITS OPEN**	EXHIBIT HALL
1030 – 1200	**PAPER SESSIONS** (Title/Author list begins on page 99. Session schedules for this time frame are on page 96.)	ROOMS 320ABCDEFG
1030 – 1200	**SIGNATURE EVENT:** Navy Warfighting Requirements and Capabilities	ROOM 310AB
1030 – 1200	**SIGNATURE EVENT:** Department of the Air Force Panel	ROOM 330ABCD
1030 – 1200	**SIGNATURE EVENT:** Marine Corps General Officer Panel	ROOM 330EF
1030 – 1200	**FOCUS EVENT:** Army Senior NCO Perspective	ROOM 310CD
1030 – 1200	**NEXT BIG THING:** Novel Applications of Data	DESTINATION LOUNGE
1030 – 1200	**COMMUNITY OF INTEREST:** How Stakeholders in Niche Markets Can Benefit from, and Drive, Interoperability Standards and MOSA	ROOM 330GH
1200 – 1330	**LUNCH**	EXHIBIT HALL
1300 – 1700	**COMMUNITY OF INTEREST:** NTSA Career Fair at I/ITSEC	ROOM 210A
1330 – 1500	**PAPER SESSIONS** (Title/Author list begins on page 99. Session schedules for this time frame are on page 97.)	ROOMS 320ABCDEFG
1330 – 1500	**SIGNATURE EVENT:** Integrated Defense Against Cognitive Warfare	ROOM 330EF
1330 – 1500	**SIGNATURE EVENT:** Investing in Technology that Increases Training Realism to Enhance Readiness and Deterrence	ROOM 310CD
1330 – 1500	**FOCUS EVENT:** Space Capabilities Panel	ROOM 330ABCD
1330 – 1500	**FOCUS EVENT:** Women in Modeling and Simulation	ROOM 330GH
1330 – 1500	**FOCUS EVENT:** Ethical, Legal, and Social Implications of Human-AI Teaming	ROOM 310AB
1400 – 1530	**FOCUS EVENT:** Navy Senior Enlisted Panel	ROOM 320H
1400 – 1530	**FOCUS EVENT:** Best from Around the Globe	BOOTH 2909
1400 – 1530	**COMMUNITY OF INTEREST:** Value Proposition of STEM in Acquisition Talent Management	BOOTH 2395
1530 – 1700	**PAPER SESSIONS** (Title/Author list begins on page 99. Session schedules for this time frame are on page 97.)	ROOMS 320ABCDEFG
1530 – 1700	**SIGNATURE EVENT:** Supporting the Future of Training and Experimentation Infrastructure	ROOM 310AB
1530 – 1700	**SIGNATURE EVENT:** Cyberspace – Perspectives on Future Multi-Domain Challenges Panel	ROOM 330EF
1530 – 1700	**SIGNATURE EVENT:** Uncrewed & Autonomous Systems — Trends & Challenges	ROOM 330ABCD
1530 – 1700	**COMMUNITY OF INTEREST:** Digital Materiel Management	ROOM 330GH
1530 – 1700	**COMMUNITY OF INTEREST:** Artificial Intelligence (AI) – Training, Analytics, Experimentation and Acquisitions	ROOM 310CD
1600 – 1730	**NEXT BIG THING:** Catalysts to Adoption	DESTINATION LOUNGE
1745 – 1900	**NEXT BIG THING:** Next Big Thing Social	DESTINATION LOUNGE
1800	**ALL REGISTRATIONS CLOSE**	
1800	**EXHIBITS CLOSE**	

THURSDAY • 5 DECEMBER 2024

0700	**CONFERENCE AND EXHIBIT REGISTRATION OPEN**	SOUTH CONCOURSE
0830 – 1000	**PAPER SESSIONS** (Title/Author list begins on page 99. Session schedules for this time frame are on page 98.)	ROOMS 320BCEFG
0830 – 1000	**SIGNATURE EVENT:** Great Power Competition	ROOM 330ABCD
0830 – 1000	**FOCUS EVENT:** M&S Requirements: Urgency, Innovation To Meet Tomorrow's Globally Connected Training Gaps	ROOM 310AB
0830 – 1000	**NEXT BIG THING:** The Future of XR-Based, AI-Driven Simulation Technologies: What Effective Human Focused Systems Will Look Like Beyond the Next 5 Years	DESTINATION LOUNGE

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AGENDA

0830 – 1000	**COMMUNITY OF INTEREST:** NATO M&S Development and Opportunities	ROOM 320H
0830 – 1000	**COMMUNITY OF INTEREST:** Transforming Simulation Supported Training with Project Tripoli	ROOM 330GH
0830 – 1000	**PROGRAM BRIEF:** Navy Training Programs Vision	ROOM 330EF
0830 – 1200	**PROGRAM BRIEF:** Army Acquisition Update (TSIS Updates)	ROOM 310CD
0930	**EXHIBITS OPEN**	EXHIBIT HALL
1030 – 1200	**PAPER SESSIONS** (Title/Author list begins on page 99. Session schedules for this time frame are on page 98.)	ROOMS 320ABCEG
1030 – 1200	**SIGNATURE EVENT:** Army Science Board Human Machine Interface Study Panel	ROOM 320H
1030 – 1200	**NEXT BIG THING:** Biometrics/Government Innovation Labs	DESTINATION LOUNGE
1030 – 1200	**COMMUNITY OF INTEREST:** The M&S Standards Landscape for NATO Distributed Synthetic Training	ROOM 310AB
1030 – 1200	**COMMUNITY OF INTEREST:** Training as a Service: Flipping the Script	ROOM 330GH
1030 – 1200	**PROGRAM BRIEF:** Navy Vision from Training Systems Program Managers	ROOM 330EF
1030 – 1200	**PROGRAM BRIEF:** Air Force Acquisition Update	ROOM 330ABCD
1200 – 1330	**LUNCH**	EXHIBIT HALL
1300	**SERIOUS GAMES SHOWCASE & CHALLENGE AWARDS CEREMONY**	BOOTH 2909
1300 – 1430	**NEXT BIG THING:** NATO Tech Grove AI Showcase	DESTINATION LOUNGE
1330 – 1500	**PAPER SESSIONS** (Title/Author list begins on page 99. Session schedules for this time frame are on page 98.)	ROOMS 320ACEG
1330 – 1500	**FOCUS EVENT:** Air Force MAJCOM O-6 Panel	ROOM 330ABCD
1330 – 1500	**COMMUNITY OF INTEREST:** Training Information Advantage: Using Modeling and Simulation to Enable the Information Warfighter	ROOM 320H
1330 – 1500	**COMMUNITY OF INTEREST:** Army Live Training	ROOM 310AB
1500	**EXHIBIT HALL AND REGISTRATION CLOSE**	
1800	**HOSTED RECEPTION** Sponsored by Lockheed Martin Corporation	HYATT WINDERMERE BALLROOM
1900	**CONFERENCE AWARDS BANQUET**	HYATT WINDERMERE BALLROOM

I/ITSEC 2024 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 2025
Post Dinner Networking

FRIDAY • 6 DECEMBER 2024

0800 – 1200	**PROFESSIONAL DEVELOPMENT WORKSHOPS** (SYNOPSES ON PAGES 108 – 111)	
	PDW 2: Beyond the Basics – An Interactive "Deep Dive" into Vehicle Modeling & Simulation (M&S) Fundamentals	ROOM 331D
	PDW 3: Year 2 — From the Last of Us to the First of Us: Rebuilding after a Zombie Crisis	ROOM 330GH
	PDW 4: Fundamentals of Artificial Intelligence in Simulation-based Training	ROOM 330EF
	PDW 5: Navigating the Evolving Landscape of Distributed Simulation: Strategies for Success Using DDS	ROOM 320E
	PDW 6: From Zero to Hero: VR Design and Assessment for Novice-to-Expert Progression	ROOM 331C
	PDW 7: Serious Game Design Workshop	ROOM 331A
	PDW 9: Human Centered Design for Learning-Performance Integration	ROOM 331B
	PDW 11: Certified Modeling and Simulation Professional 3.0 (CMSP)	ROOM 320F
	PDW 15: Starship Bridge Simulations as a Serious Game for Team Development	ROOM 330ABCD

DRESS CODE

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

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 2023, the I/ITSEC community was able to contribute over $9,000 to help our service members and we hope to contribute even more this year! The I/ITSEC 5K will be held Wednesday, 4 December at 0630 in front of the OCCC South Concourse.

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

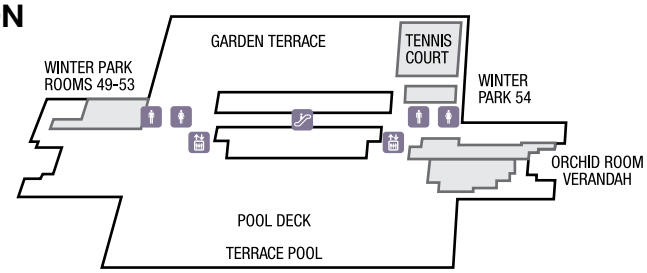
DISCOVERY DEN
PLATFORMS PROMOTING PRESENTATION SKILLS AND SHARING OF SUBJECT MATTER EXPERTISE.
- Informative Exhibits
- Serious Games Showcase & Challenge
- Presentation Theatre

BOOTHS 2285 – 2594

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

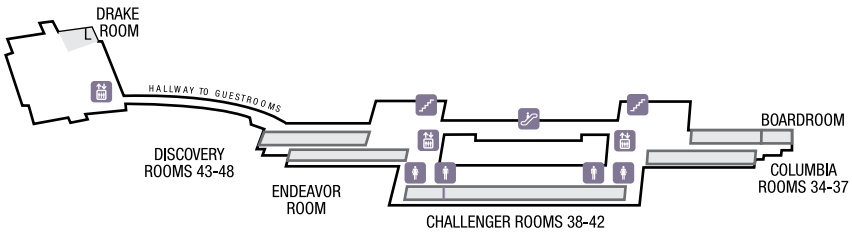
RECREATION LEVEL



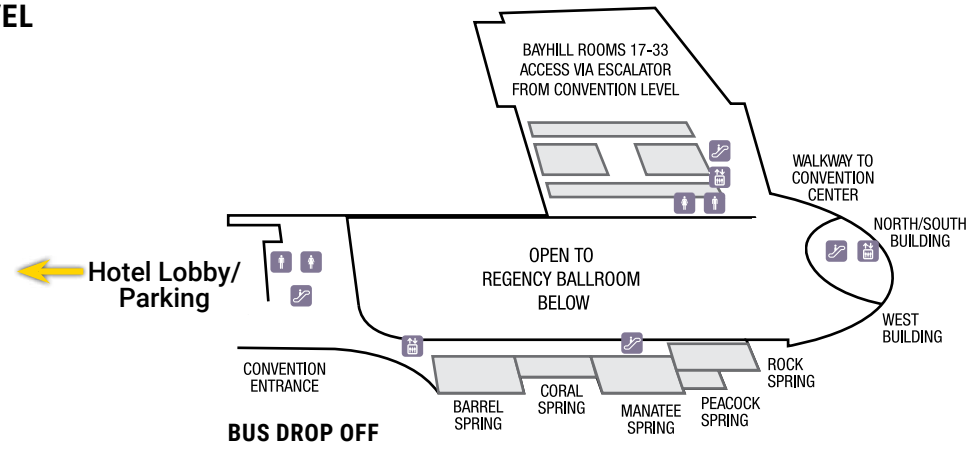
KEY

- Restrooms
- Escalator
- Stairway
- Elevator
- Information
- ATM

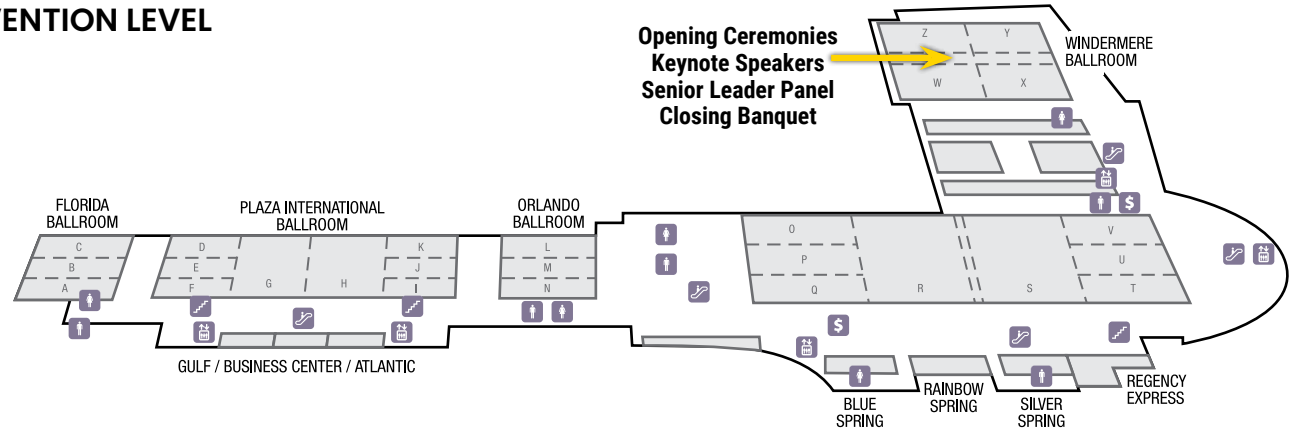
MEZZANINE LEVEL



ENTRY LEVEL



CONVENTION LEVEL

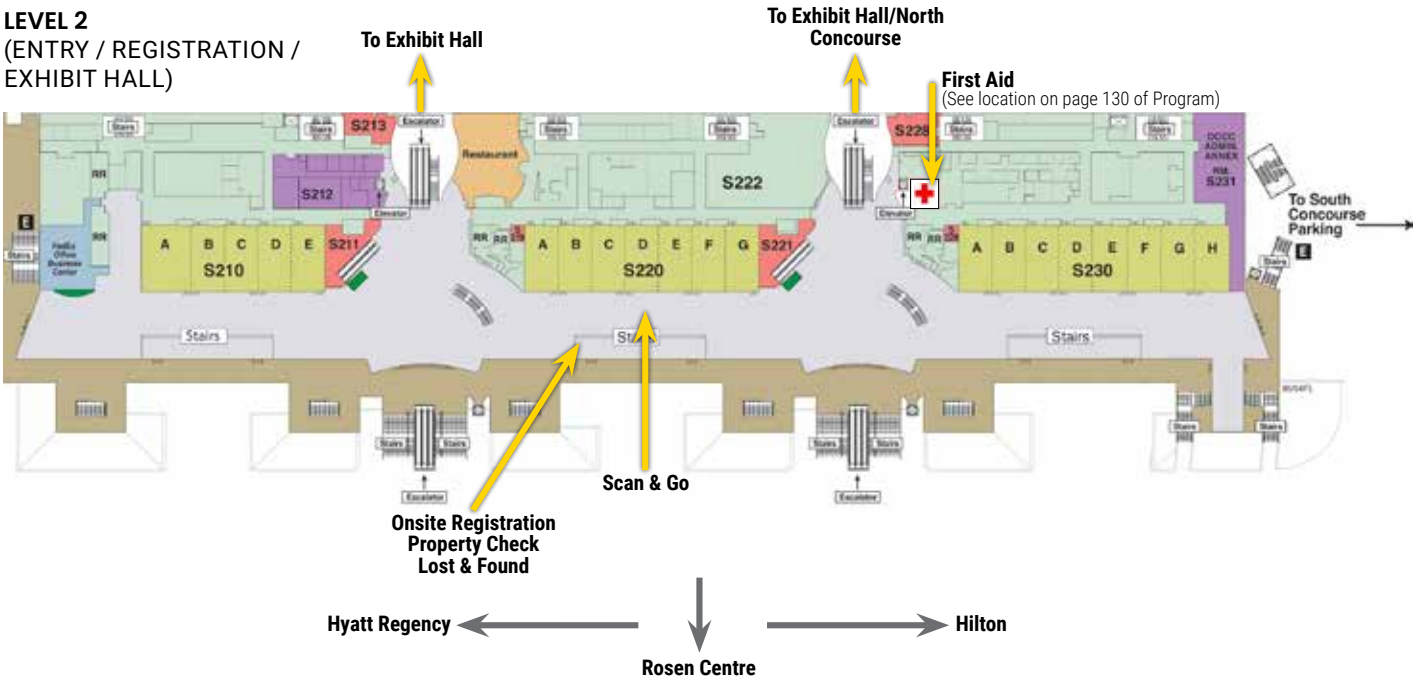


ORANGE COUNTY CONVENTION CENTER

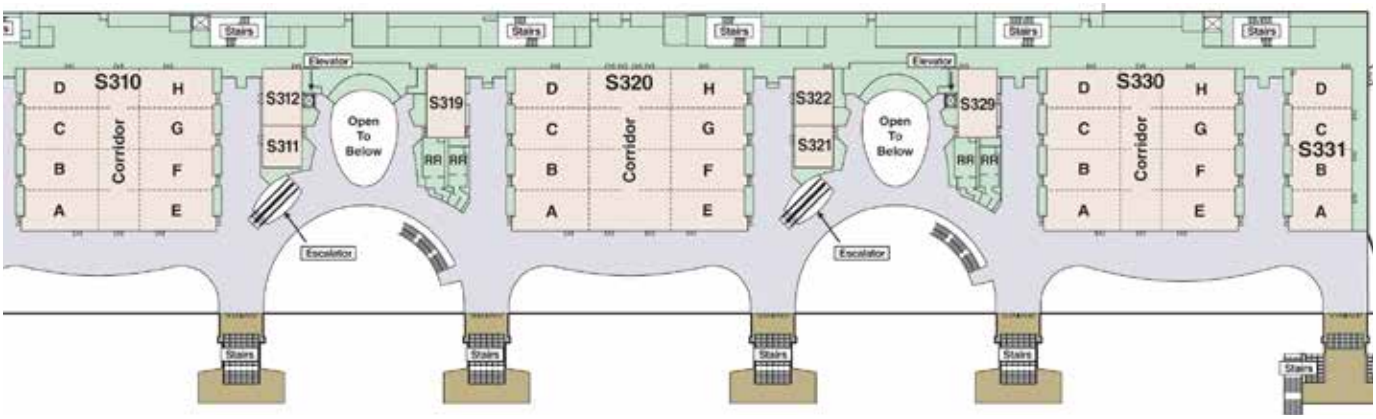
NORTH CONCOURSE

SOUTH CONCOURSE

LEVEL 2
(ENTRY / REGISTRATION / EXHIBIT HALL)



LEVEL 3 (TUTORIALS / PRESENTATIONS / EVENTS / PRACTICE ROOMS / PROFESSIONAL DEVELOPMENT WORKSHOPS)



MONDAY, 2 DECEMBER • 1030 – 1200 • ROOM 330ABCD

CONGRESSIONAL M&S CAUCUS

STRONG ADVOCACY FOR TRAINING AND READINESS

MODERATOR

VICE ADMIRAL SEAN S. BUCK, USN (RET.)
President, National Training and Simulation Association (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 2024 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 M&S CAUCUS MEMBERS

BOBBY SCOTT
Caucus Co-Chair
3rd District, Virginia

JACK BERGMAN
Caucus Co-Chair
1st District, Michigan

JOHN RUTHERFORD
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5th District, Florida

ERIC SORENSEN
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2nd District, Maryland

DARREN SOTO
9th District, Florida

MICHAEL TURNER
10th District, Ohio

JOE WILSON
2nd District, South Carolina

ROBERT J. WITTMAN
1st District, Virginia

TUESDAY, 3 DECEMBER • 1000 – 1130 • HYATT WINDERMERE BALLROOM

SENIOR LEADER PANEL

ASSURING DETERRENCE THROUGH INTEGRATED TRAINING AND READINESS — THE NEED IS NOW!

MODERATOR

VICE ADMIRAL SEAN S. BUCK, USN (RET.)
President, National Training and Simulation Association (NTSA)

PANELISTS

VICE ADMIRAL DANIEL L. CHEEVER, USN
Commander, Naval Air Forces/ Commander, Naval Air Force, U.S. Pacific Fleet

LIEUTENANT GENERAL BENJAMIN T. WATSON, USMC
Commanding General, Training and Education Command

THOMAS J. LAWHEAD, SES
Assistant Deputy Chief of Staff, Strategy, Integration and Requirements, U.S. Air Force

MAJOR GENERAL TIMOTHY A. SEJBA, USSF
Commander, Space Training and Readiness Command

BRIGADIER GENERAL DAVID ZINN, USA
Director of Training, Headquarters U.S. Army G-3/5/7, Former Commander 3rd Multi-Domain Task Force (MDTF)

BRIGADIER GENERAL RICKARD JOHANSSON
Commanding General 1. Division, Swedish Army


VADM BUCK, USN (RET.)


VADM CHEEVER, USN


LTGEN WATSON, USMC


MR. LAWHEAD, SES


MAJ GEN SEJBA, USSF


BG ZINN, USA


BG JOHANSSON

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 *Assuring Deterrence through Integrated Training and Readiness — The Need is Now!*

The Senior Leader Panel will include senior representatives from U.S. Military Services, OSD, and International Allies. Following opening remarks, the audience will interact with the panel through a Q&A feature. Don't miss the opportunity to hear from national leaders on the way ahead.

TUESDAY, 3 DECEMBER • 1400 – 1445 • ROOM 330ABCD

A FIRESIDE CHAT WITH ADMIRAL CHRISTOPHER W. GRADY, VICE CHAIRMAN, JOINT CHIEFS OF STAFF

MODERATOR

VICE ADMIRAL SEAN S. BUCK, USN (RET.)
President, National Training and Simulation Association (NTSA)

SPEAKER

ADMIRAL CHRISTOPHER W. GRADY, USN
Vice Chairman,
Joint Chiefs of Staff

A native of Newport, Rhode Island, Admiral Christopher W. Grady graduated from the University of Notre Dame in 1984 and received his commission through the Naval Reserve Officers Training Corps program. Grady is also a distinguished graduate of both Georgetown University, where he participated as a fellow in Foreign Service at the Edmund A. Walsh School of Foreign Service, and the National War College.

A career Surface Warfare Officer, Grady served aboard USS Moosbrugger (DD 980) as combat information center officer and antisubmarine warfare officer. As a department head, he served as weapons control officer and combat systems officer aboard USS Princeton (CG 59). He then commanded Mine Countermeasures Rotational Crew Echo aboard USS Chief (MCM 14), and later deployed to the Arabian Gulf in command of USS Ardent (MCM 12). Grady subsequently commanded USS Cole (DDG 67), deploying as part of NATO's Standing Naval Forces Mediterranean. In command of Destroyer Squadron 22, he deployed to the Arabian Gulf as sea combat commander for the Theodore Roosevelt Carrier Strike Group in support of Operations ENDURING FREEDOM and IRAQI FREEDOM.

Ashore, Grady served in the Joint Chiefs of Staff and then as naval aide to the Chief of Naval Operations, as the assistant branch head of the Europe and Eurasia Politico-Military Affairs Branch (OPNAV N524), as executive assistant to the Navy's Chief of Legislative Affairs, as the deputy executive secretary of the National Security Council in the White House, and as the executive assistant to the Chief of Naval Operations.

As a flag officer, he first served as Director of Maritime Operations, Commander, U.S. Pacific Fleet (N2/3/5/7), then subsequently commanded Carrier Strike Group 1/Carl Vinson Carrier Strike Group, where he deployed for nearly 10 months to the Western Pacific and the Arabian Gulf conducting combat operations in support of Operation INHERENT RESOLVE. He later served as Commander, Naval Surface Force Atlantic; Commander, U.S. 6th Fleet/Commander, Naval Striking and Support Forces NATO/Deputy Commander, U.S. Naval Forces Europe and U.S. Naval Forces Africa. From May 2018 until December 2021, he served as the Commander, U.S. Fleet Forces Command, and the Naval Component Commander to both U.S. Northern Command and U.S. Strategic Command, as the Joint Force Maritime Component Commander for U.S. Strategic Command and executed Task Force Atlantic in coordination with U.S. Naval Forces Europe.

Admiral Grady was sworn-in as the twelfth Vice Chairman of the Joint Chiefs of Staff, the nation's second highest-ranking military officer, on 20 December 2021. The admiral represents the Chairman of the Joint Chiefs of Staff on the Deputies Committee of the National Security Council and chairs the Joint Requirement Oversight Council (JROC) which is responsible for reviewing and establishing acquisition priorities for major weapon systems amongst the military branches. He also co-chairs the Deputy's Management Action Group (DMAG) and the Deputy's Workforce Council (DWC) with the deputy secretary of defense to address departmental budgetary priorities and serves as the senior member of the Nuclear Weapons Council, responsible for managing the atomic stockpile and coordinating nuclear weapon-related programs and budgets.

The admiral is currently the Navy's "Old Salt", its longest-serving surface warfare officer on active duty.

TUESDAY, 3 DECEMBER • 1500 – 1615 • ROOM 330ABCD

NAVAL AVIATION FLAG OFFICER PANEL

MODERATOR

REAR ADMIRAL KEITH HASH, USN
Commander, NAWCWD;
Assistant Commander for Test and Evaluation, NAVAIR

PANELISTS

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

CAPTAIN ANDREW PETER MARINER, USN
Deputy Commander, NAWDC

DEREK GREER
Director, Integrated Battlespace Simulation and Test Department, Digital Analytics Infrastructure and Technology Advancement Group, NAWCAD


RDML HASH, USN


RADM VERISSIMO, USN


CAPT MARINER, USN


MR. GREER

The Navy has been called upon to deter or prevail in combat across a wide variety of locations and adversaries across the years. In the CNO's revised NAVPLAN it is clear the Navy will be expected to prevail in a new challenge, the High End Fight. This new fight will be marked with novel issues such as classified training via LVC vice out in the open, contested logistics on the other side of the world, stealth platforms with demanding maintenance regimens, and a peer adversary with home turf advantage, more assets, and an unimaginably hostile electro-magnetic spectrum. This panel represents the range of Naval Aviation Enterprise's leadership that will be responsible for solving these hard problems – from the tactics and training needed, to the engineering acumen employed, through the validation of developed systems, and into the deployment stage. Come hear how naval aviation is responding to its newest and most demanding directive.

TUESDAY, 3 DECEMBER • 1600 – 1730 • ROOM 310AB

GenAI: TRANSFORMING DEFENSE OPERATIONS

BRIDGING AI INNOVATION WITH DOD STRATEGY

MODERATOR

JENNIFER ARNOLD
Omniverse Executive, NVIDIA

PANELISTS

CYNTHIA BEDELL
Director, Army Research Directorate, U.S. Army DEVCOM Army Research Laboratory

SHERI BACHSTEIN
President, The Weather Company

KAITIE PENRY
Director, Emerging Tech & Innovation, Office of Research & Innovation, Naval Postgraduate School


MS. ARNOLD


MS. BEDELL


MS. BACHSTEIN


MS. PENRY

This panel will explore the profound challenges and opportunities that Generative AI (GenAI) brings to our industry. This discussion will illuminate both the potential benefits and the hurdles that must be overcome to fully integrate GenAI. This includes:

GenAI Solutions: The panelists will share insights into current GenAI solutions being developed and implemented to enhance mission operations. These solutions range from advanced hardware infrastructure to sophisticated software applications designed to support and protect.

Barriers to Adoption: The panel will address several critical barriers to the adoption of GenAI within mission operations. First, these senior leaders will discuss technological challenges, focusing on the technical limitations and the need for robust infrastructure to support GenAI implementations. Second, the panel will examine logistical hurdles, exploring the complexities involved in deploying GenAI solutions across various sectors. Third, insights into cultural resistance will be provided, highlighting the barriers that may hinder the adoption of new technologies.

Recommendations for Accelerated Adoption: The panelists will delve into several key strategies for accelerating the integration of GenAI into mission operations. First, policy and funding recommendations will be discussed, highlighting necessary changes and allocations to support GenAI initiatives effectively. Second, the panel will explore strategies to enhance public-private collaboration, fostering a synergistic approach to technology development and implementation. Third, the discussion will cover innovation incentive ideas for incentivizing innovation.

By bringing together these senior leaders from the fields of AI, the public sector, and environmental intelligence, this panel aims to chart a course for the effective and accelerated adoption of GenAI. The insights and recommendations provided will be invaluable for policymakers, technologists, and strategists committed to maintaining a technological edge.

TUESDAY, 3 DECEMBER • 1630 – 1745 • ROOM 330ABCD

ARMY GENERAL OFFICER PANEL

MODERATOR

LIEUTENANT GENERAL MICHAEL WILLIAMSON, USA (RET.)
Chair, Army Science Board

PANELISTS

MAJOR GENERAL PATRICK L. GAYDON, USA
Commander, U.S. Army Test and Evaluation Command (ATEC)

BRIGADIER GENERAL CHRISTINE BEELER, USA
Program Executive Officer Simulation, Training and Instrumentation, U.S. Army PEO STRI

BRIGADIER GENERAL JEREMY WILSON, USA
Deputy Commanding General, U.S. Army Combined Arms Center-Training (CAC-T)


LTG WILLIAMSON, USA (RET.)


MG GAYDON, USA


BG BEELER, USA


BG WILSON, USA

This panel brings together Senior Army leaders to provide operational concepts for the Army's simulation, testing, training, cyber, and instrumentation community. Panel members will provide insight and perspectives from their broad operational backgrounds to the challenges facing simulation, training, and instrumentation to meet the Army's modernization and transformation goals (Transformation in Contact). 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.

WEDNESDAY, 4 DECEMBER • 0830 – 1000 • ROOM 330ABCD

LEADERSHIP PERSPECTIVES ON DEVELOPMENT, EDUCATION AND TRAINING

A MULTI-SERVICE READINESS VIEW

MODERATOR

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

PANELISTS

LIEUTENANT GENERAL ANDREA D. TULLOS, USAF
President, Air University

LIEUTENANT GENERAL BENJAMIN T. WATSON, USMC (INVITED)
Commanding General, Training and Education Command

REAR ADMIRAL ROBERT NOWAKOWSKI, USN
Deputy Commander, Naval Education and Training Command


DR. WALSH


LT GEN TULLOS, USAF


LTGEN WATSON, USMC


RADM NOWAKOWSKI, USN

This panel will provide a multi-service commanders' perspective on military training and readiness. It will bring together the leaders from the training commands of the Army, Navy, Air Force, Marine Corps, and Space Force, providing insight into current and future strategies in military training. The panel will highlight the integration of cutting-edge technologies, innovations in simulation, virtual training environments, and the challenges and successes in preparing service members for modern combat and operational readiness. Attendees will gain valuable insights into the collaborative efforts and unique approaches each branch employs to ensure the highest standards of preparedness across the U.S. Armed Forces.

WEDNESDAY, 4 DECEMBER • 1030 – 1200 • ROOM 310AB

NAVY WARFIGHTING REQUIREMENTS AND CAPABILITIES

MODERATOR

REAR ADMIRAL PAUL A. SOHL, USN (RET.)
CEO, Florida High Tech Corridor

PANELIST

VICE ADMIRAL JAMES PITTS, USN
Deputy Chief of Naval Operations for Warfighting Requirements and Capabilities, N9, Office of the Chief of Naval Operations


RADM SOHL, USN (RET.)


VADM PITTS, USN

"The threats to our nation and our interests are real and growing. The strategic environment has changed; gone are the days of operating from a maritime sanctuary against competitors who cannot threaten us." – ADM Lisa Franchetti, USN, Chief of Naval Operations

These words from the CNO stress the urgency and importance of maintaining the world's premier naval force to deter aggression. This message is captured by the I/ITSEC 2024's theme: *Assuring Deterrence Through Integrated Training and Readiness – The Need is Now!*

Deterrence is not merely in raw capability, we must demonstrate the skill and the 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 funding and acquiring these capabilities.

In this special event, VADM Pitts will discuss our Navy's requirements within key acquisition, research and technology and mission readiness domains that the I/ITSEC community can work together to address and to ensure that we remain postured to deter aggression and win the fight if necessary.

WEDNESDAY, 4 DECEMBER • 1030 – 1200 • ROOM 330ABCD

DEPARTMENT OF THE AIR FORCE PANEL

MODERATOR

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

PANELISTS

LIEUTENANT GENERAL ANDREA D. TULLOS, USAF
President, Air University

THOMAS J. LAWHEAD, SES
Assistant Deputy Chief of Staff, Strategy, Integration and Requirements, U.S. Air Force

LIEUTENANT GENERAL DAVID H. TABOR, USAF
Deputy Chief of Staff of Plans and Programs, Headquarters U.S. Air Force

BRIGADIER GENERAL TRAVOLIS A. SIMMONS, USAF
Director of Training and Readiness, Deputy Chief of Staff for Operations, Headquarters U.S. Air Force


BRIG GEN WALSH, USAF (RET.)


LT GEN TULLOS, USAF


MR. LAWHEAD, SES


LT GEN TABOR, USAF


BRIG GEN SIMMONS, USAF

This panel brings together Air Force leaders and organizations to address the Great Power Competition and the Operational Imperatives as it relates to the training community. The Air Force leaders will provide insight from their acquisition, research and technology, and mission readiness perspectives into 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 Air Force leaders involved with sustaining a global force in training technology across the enterprise to increase readiness and lethality in a digital world.

WEDNESDAY, 4 DECEMBER • 1030 – 1200 • ROOM 330EF

USMC GENERAL OFFICER PANEL

INSIGHTS AND PERSPECTIVES

MODERATOR

COLONEL MARCUS J. REYNOLDS, USMC
Program Manager, Training Systems (PM TRASYS)
Marine Corps System Command

PANELISTS

BRIGADIER GENERAL DAVID C. WALSH, USMC
Program Executive Officer, Air Anti-Submarine Warfare, Assaults and Special Mission Programs (PEO(A))

BRIGADIER GENERAL TAMARA CAMPBELL, USMC
Commander, Marine Corps Systems Command

BRIGADIER GENERAL ANTHONY HENDERSON, USMC
Commanding General, Training Command


COL REYNOLDS, USMC


BRIG GEN WALSH, USMC


BRIG GEN CAMPBELL, USMC


BRIG GEN HENDERSON, USMC

This panel brings together Senior Marine Corps leaders to provide operational concepts for the Marine Corps' simulation, training, and instrumentation community. The panel members will provide insights and perspectives from their broad operational backgrounds to the challenges facing simulation, training, and instrumentation to meet the emerging Marine Corps operational concepts. This panel provides an opportunity for I/ITSEC participants to engage with Marine Corps leaders involved with developing the models, training, and processes to sustain the Nation's premiere Force In Readiness.

WEDNESDAY, 4 DECEMBER • 1330 – 1500 • ROOM 330EF

INTEGRATED DEFENSE AGAINST COGNITIVE WARFARE

STRENGTHENING MINDS, FORTIFYING NATIONS, RESILIENCE IN THE FACE OF HYBRID THREATS

MODERATOR

SAE SCHATZ, PH.D. (US)
Executive Director, Partnership for Peace Consortium, U.S. Defense Civilian

PANELISTS

TODOR TAGAREV, PH.D. (BGR)
Former Minister of Defense Bulgaria (2013, 2023-2024)

HONORABLE CHRISTOPHER P. MAIER (US) (INVITED)
Assistant Secretary of Defense Special Operations and Low-Intensity Conflict

YEVGENIYA GABER, PH.D. (UKR)
Professor, Marshall Center Foreign Policy Advisor to the Prime Minister of Ukraine (2021); Deputy Director, Diplomatic Academy of Ukraine (2018-2021)

ALEKSANDRA NESIC, PH.D. (US)
Chair, Europe and Eurasian Area Studies, Foreign Service Institute, U.S. Department of State

JEAN-MARC RICKLI, PH.D. (CHE)
Head of Global and Emerging Risks, Geneva Centre for Security Policy


DR. SCHATZ


DR. TAGAREV


HON. MAIER


DR. GABER


DR. NESIC


DR. RICKLI

Cognitive Warfare manipulates how people think and perceive reality in order to undermine decision-making, erode trust, and destabilize societies.

As a form of Hybrid Warfare, it targets cognitive abilities by attacking perceptions, trust in processes, decision-making mechanisms, and the cohesiveness of our social organizations. Using information, cognitive science, digital tools, and potentially neuroscience, it influences thoughts, attitudes, and behaviors within the human-centric battlespace of beliefs, emotions, and ideologies.

Over the past five years, NATO's Concept Development Branch has explored this domain, proposing it as a formal dimension of warfare alongside Sea, Air, Land, Space, and Cyber. It has also been studied under other names by various nations and think tanks under the auspices of Hybrid Threats, Information Operations, and Liminal Warfare. By whatever title, these threats endanger stability, democracy, and the rules-based order.

Our response to Cognitive Warfare must be multifaceted, both in its design as well as its participants. This international panel will explore the foundations of Cognitive Warfare and present real-world examples from Ukraine and Bulgaria. Discussions will cover military considerations, such as operator training as well as the senior policymaker actions needed to facilitate an integrated, Whole of Society defense—both nationally and in cooperation with allies and partners.

WEDNESDAY, 4 DECEMBER • 1330 – 1500 • ROOM 310CD

INVESTING IN TECHNOLOGY THAT INCREASES TRAINING REALISM TO ENHANCE READINESS AND DETERRENCE

MODERATOR

COLONEL TIMOTHY RUSTAD, USA
Chief, Environmental Operations Division, Joint Staff J-7

PANELISTS

LIEUTENANT GENERAL DAGVIN ANDERSON, USAF
Director, Joint Staff J-7

BRIGADIER GENERAL RICHARD GOODMAN, USAF
Director, J-7 Training and Exercises U.S. INDOPACOM

BRIGADIER DAMIAN HILL
Director, General Joint Collective Training Branch (J-7), Joint Operations Command, Australia

MAJOR GENERAL DOMINQUE LUZEAUX
ACT Digital Transformation Champion and Special Advisor, Général de division - OF-7, FRA Army


COL RUSTAD, USA


LT GEN ANDERSON, USAF


BRIG GEN GOODMAN, USAF


BRIG HILL


MG LUZEAUX

The Joint M&S community is racing to innovate new technology within the synthetic training environment based on forecasted future threats. Collaboration across DoD, allies and partners, academia, and industry to address training gaps and ensure shared understanding is required in a shrinking globe where the actions of one have ripple effects around the world. This panel will drive discussion on ethical AI behavior within the DoD training apparatus, the importance of updated inter-service agreements, accessibility of authoritative data, and how AI/ML can revolutionize global training in the future. This group of participants has perspectives on policy, cross-domain limitations, and the importance of interoperability from a strategic viewpoint.

WEDNESDAY, 4 DECEMBER • 1530 – 1700 • ROOM 310AB

SUPPORTING THE FUTURE OF TRAINING AND EXPERIMENTATION INFRASTRUCTURE

THE TIME IS NOW!

MODERATOR

CHRIS DUNCAN
Director, 5th Gen, CAE

PANELISTS

BRIGADIER GENERAL TRAVOLIS SIMMONS, USAF
Director, USAF Training and Readiness, U.S. Air Force

CAPTAIN TIM JAMES, USN
Commanding Officer, NAWCTSD and NSA Orlando

COLONEL COREY KLOPSTEIN, USSF
Program Executive Officer, Operational Test and Training Infrastructure, Space Systems Command, U.S. Space Force

RON KETER
JLVC Modernization Lead, Joint Staff J-7

MR. DUNCAN

BRIG GEN SIMMONS, USAF

CAPT JAMES, USN

COL KLOPSTEIN, USSF

MR. KETER

As the U.S. postures for great power competition, each military service will require more robust experimentation and training environments to hone their Warfighter skills and future operational concepts for high-end combat. Interoperable test, experimentation, and training infrastructure will be pivotal to ensure Warfighter readiness for evolving threats. This panel featuring military and government speakers across the U.S. services and Joint Staff will examine present opportunities and roadblocks for supporting interoperable training and experimentation infrastructure.

WEDNESDAY, 4 DECEMBER • 1530 – 1700 • ROOM 330EF

CYBERSPACE – PERSPECTIVES ON CHALLENGES OF FUTURE MULTI-DOMAIN OPERATIONS PANEL

HIGHLIGHTING TRAINING AND READINESS CHALLENGES AND SOLUTIONS TO COMPETE ON FUTURE BATTLEFIELDS

MODERATOR

COLONEL CHAD BATES, PH.D., USA (RET.)
Senior Principal Research Scientist

PANELISTS

LIEUTENANT GENERAL STEPHEN FOGARTY, USA (RET.)
National Cyber Senior Executive Advisor, Booz Allen Hamilton

BRIGADIER GENERAL DAVID ZINN, USA
Director of Training, Headquarters U.S. Army G-3/5/7; Former Commander 3rd Multi-Domain Task Force (MDTF)

BRIGADIER GENERAL JOHN NIPP, USA
Commander, 184th Sustainment (Expeditionary)


DR. BATES, USA (RET.)


LTG FOGARTY, USA (RET.)


BG ZINN, USA


BG NIPP, USA

Panelists will discuss training and readiness aspects for our forces as they prepare for multi-domain operations. They will provide global context and current state of near peer competition with China, Russia, and other threats. Discussion will focus on how to better incorporate cyber, electronic warfare, and information warfare into how our forces prepare for these battlefields, and how these challenges change how we train and prepare our forces.

WEDNESDAY, 4 DECEMBER • 1530 – 1700 • ROOM 330ABCD

UNCREWED & AUTONOMOUS SYSTEMS — TRENDS & CHALLENGES

MODERATOR

GREGORY KNAPP, SES (RET.)
CEO and President, Wilbur Engineering Consultants

PANELISTS

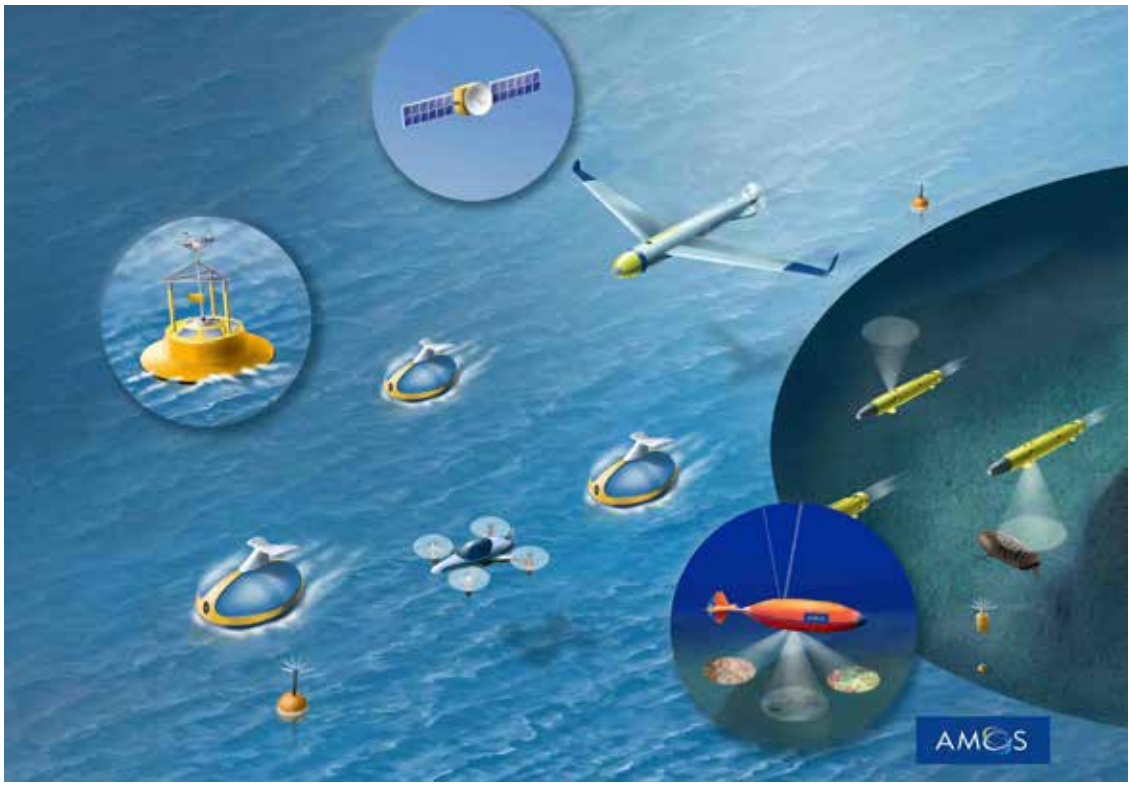
DANETTE ALLEN, PH.D., SES
Senior Leader of Autonomy, NASA

BRIGADIER GENERAL RICKARD JOHANSSON
Commanding General 1. Division, Swedish Army

ZACHARY JOHNS
Chief Executive Officer, Hush Aerospace

JOHN MAGGIO
Vice President of Strategic Operations, London Bridge Trading Company

DUSTAN HELLWIG
Founder/Chief Strategy Officer, CTI - Chesapeake Technology International




MR. KNAPP


DR. ALLEN, SES


BG JOHANSSON


MR. JOHNS


MR. MAGGIO


MR. HELLWIG

Uncrewed & Autonomous Systems (UAS) has emerged as a powerful disruptive technology in the current battle space. The dramatic and rapid evolution of these systems challenges traditional operational paradigms and outpace training programs' relevance. The panelists will address critical UAS technology trends, Training and Readiness, manufacturing challenges, counter UAS operations, and future opportunities. Included in this panel discussion will be lessons learned and feedback from today's operations.

The panel consists of a world class training expert, a leading automation expert from NASA, an operational leader from Ukraine military, an industry leader and a U.S. veteran UAS operational pioneer. The broad experience of the panelists will provide a holistic landscape of trends and challenges of Uncrewed & Autonomous Systems.

THURSDAY, 5 DECEMBER • 0830 – 1000 • ROOM 330ABCD

GREAT POWER COMPETITION

USAF CHANGES - PART 1

MODERATOR

COLONEL C. MATT RYAN, USAF
Senior Materiel Leader, Advanced Training Capabilities Division, AFLCMC/WNR

PANELISTS

DENNIS L. D'ANGELO, SES
Executive Director, AFLCMC

DARRELL K. PHILLIPSON, SES
Director, Materials and Manufacturing Directorate, AFRL

COLONEL RICARDO JAIME, USAF
Deputy Director, AFMC Integrated Development Office (IDO)

COLONEL CARLOS QUINONES, USAF
Acting PEO for PEO Training, AFLCMC/WNS

RODNEY STEVENS
Deputy Program Executive Officer and Deputy Director for the Fighters and Advanced Aircraft Directorate


COL RYAN, USAF


MR. D'ANGELO, SES


MR. PHILLIPSON, SES


COL JAIME, USAF


COL QUINONES, USAF


MR. STEVENS

This panel will introduce the audience to changes within Air Force Materiel Command as part of the Air Force's Re-Optimizing for Great Power Competition Initiative, an initiative set forth by Secretary Kendall.

THURSDAY, 5 DECEMBER • 1030 – 1200 • ROOM 320H

ARMY SCIENCE BOARD INTRODUCTION AND HUMAN MACHINE INTERFACE STUDY PANEL

TO INTRODUCE I/ITSEC TO THE ARMY SCIENCE BOARD AND TO SHARE AN EXAMPLE OF A SUCCESSFUL STUDY

MODERATOR

LIEUTENANT GENERAL MICHAEL WILLIAMSON, USA (RET.)
Chair, Army Science Board

PANELISTS

LIEUTENANT GENERAL ROBERT LENNOX, USA (RET.)
Member, Army Science Board

COLONEL JASON L. WEST, USA
Director, Synthetic Training Environment, Cross Functional Team

GARRY LAMBERT, PH.D., SES
Operations Director, The Research and Analysis Center (TRAC) WSMR

COLONEL SCOTT SHAW, USA
Director, Maneuver Capabilities Development and Integration Directorate


LTG WILLIAMSON, USA (RET.)


LTG LENNOX, USA (RET.)


COL WEST, USA


DR. LAMBERT, SES


COL SHAW, USA

PURPOSE

ASB Chair introduces to I/ITSEC the ASB and its new study and subcommittee processes and highlights recent successes

- Then ASB Chair introduces HMI 2024 Study Member, LTG (Ret) Bob Lennox to discuss the ASB's HMI study
- Using the HMI 2024 study as an example, LTG (Ret) Lennox demonstrates how ASB study efforts have resulted in positive momentum in the modeling and simulation community specifically through a focused discussion on HMI Study's Task 2: Evaluate how HMI might be implemented across Armored and Light formations in the future (lethality, sustainability, deployability and protection)
- The panel discusses the ASB's work with TRAC, the Maneuver Center, and STE CFT on Task 2 and how improvements were made to STE CFT's model (with regards to autonomy and small formations). The panel will then demonstrate the model during the panel brief

MONDAY, 2 DECEMBER • 1415 – 1545 • ROOM 330ABCD

BLACK SWAN: THE SINGULARITY PARADOX

NAVIGATING THE UNINTENDED CONSEQUENCES OF TECHNOLOGY

MODERATOR

MARRYAM CHAUDHRY
President & Chief Executive Officer, XR-2 LEAD

CO-MODERATOR — SCENE NARRATOR

COLONEL RAYMOND COMPTON, USA (RET.)
Fellow, LMI

PANELISTS

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

ROBERT SADOWSKI, PH.D.
Army Chief Roboticist, Army Future Command (AFC)/ DEVCOM

JEREMY LANMAN, PH.D.
APEO, Project Support, U.S. Army PEO STRI

MARWANE BAHBAZ
Chief Technology Officer, U.S. Army PEO STRI


MS. CHAUDHRY


COL COMPTON, USA (RET.)


MS. BEDELL, SES


DR. SADOWSKI


DR. LANMAN


MR. BAHBAZ

Get ready to embark on a thrilling journey into a future shaped by unchecked technological advancements at I/ITSEC 2024. "The Singularity Paradox" invites you to explore a world where the boundaries between human and machine have blurred, leading to unintended consequences that present both incredible possibilities and profound challenges.

Step into an immersive experience that highlights the potential paradox of unbridled progress in artificial intelligence, robotics, and Extended Reality (XR). Our thought-provoking presentation will transport you to a city where holographic advertisements flicker through the air, autonomous vehicles navigate the streets, and XR displays create captivating digital illusions.

This session isn't about doom and gloom – it's a call to action and innovation. We'll examine how cutting-edge technologies, if left unchecked, could reshape our world in unexpected ways. More importantly, we'll explore how we can responsibly harness these advancements to create a brighter future.

Distinguished speakers will guide you through this odyssey of AI, Autonomy and Robotics, and XR and the Metaverse. Each presenter will not only address the challenges but also offer insights into how we can steer technological progress toward beneficial outcomes.

Join us for this eye-opening session that promises to challenge your perceptions, spark your imagination, and inspire innovative solutions. Together, we'll explore how to shape a future where technology enhances rather than overshadows our humanity. Don't miss this opportunity to be part of a crucial conversation that will help define the path forward in our rapidly evolving technological landscape.

MONDAY, 2 DECEMBER • 1430 – 1600 • ROOM 310CD

AMERICA'S SEED FUND: PLANTING SEEDS FOR SUCCESS UNDER THE SBIR/STTR PROGRAM

LEARN HOW TO STAY COMPLIANT UNDER POPULAR SMALL BUSINESS AWARD PROGRAMS

MODERATOR

KATELYN RIGLE
Small Business Liaison, Operations Audit Liaison Division, Defense Contract Audit Agency

PANELISTS

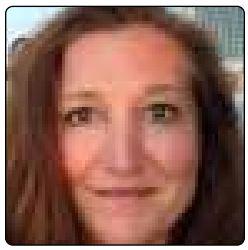
MICHELE CURRERI
Financial Liaison Advisor (FLA), DCMA International Division-FMS Operations Audit Liaison Division, Defense Contract Audit Agency

JOHN HODAK
Small Business Innovation Research (SBIR) Coordinator, NAWCTSD

DUSTY LANG
Director, Small Business Innovation Research (SBIR) Program, DHS

MATTHEW WILLIS, PH.D.
Director, Small Business Innovation Research (SBIR) Program, Office of the Assistant Secretary of the Army for Acquisition, Logistics and Technology


MS. RIGLE


MS. CURRERI


MR. HODAK


MS. LANG


DR. WILLIS

Often referred to as "America's Seed Fund", the Small Business Innovative Research Program/ Small Business Technology Transfer Program awards over 5,000 contracts totaling well over $4.5 billion. What does this mean for small businesses in terms of government compliance?

Join DCAA as we learn more about these programs and how your company may benefit from these types of contract awards. During this presentation, we will discuss DCAA's role, outline potential audits under these programs, communicate ways small businesses can prepare for audits, and provide resources available for small businesses. Stay after our presentation for a front row seat to an exclusive panel of leaders from Departments of Army, Navy, and Homeland Security SBIR/ STTR programs as we discuss how the programs differ from agency to agency and upcoming opportunities under each program.

MONDAY, 2 DECEMBER • 1430 – 1600 • ROOM 310AB

CERTIFIED MODELING AND SIMULATION PROFESSIONAL 3.0

THE LATEST IN CMSP DEVELOPMENT AND DISTINCTION

MODERATOR

IVAR OSWALT, PH.D., CMSP
MS&A Team Lead, The MIL Corporation (USA)

PANELISTS

JOHN NICOL, CMSP
Chief Executive Officer, Corona Aerospace (CAN)

EDENILSON LOPES DE MEIRA, CMSP
Senior Software Engineer, SIMTIES, ADGA Group Consultants, Inc. (CAN)

CMSP
CERTIFIED MODELING AND SIMULATION PROFESSIONAL


DR. OSWALT, CMSP


MR. NICOL, CMSP


MR. DE MEIRA, 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.
- How CMSP provides value as a discrimination and mark of distinction.
- Personal narratives on why CMSP is valuable and applicable.

THE PURPOSE OF FOCUS EVENT:

- Describe the motivation behind the creation of CMSP, its evolution, and CMSP 3.0.
- Summarize the new levels of CMSP, the use of an LMS, the new examination, and describe the improved infrastructure that includes 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 international CMSP awardees and their stories of achievement. These CMSPs will provide a summary of their experience and answer questions from the audience.
- The panel will be moderated by an experienced M&S professional and CMSP holder who has moderated previous panel sessions and CMSP events.

MONDAY, 2 DECEMBER • 1430 – 1600 • ROOM 330GH

DIFFERENT MAKES US STRONGER: HOW TO BUILD DIVERSE THINKING FOR TODAY'S DEFENSE DOMINANCE

OUR SECRET WEAPON IN GREAT POWER COMPETITION

MODERATOR

KAREN FRAY
Architecture and Experimentation, Digital Capabilities, AFRL

MODERATOR Q&A SESSION

JEFFREY RAVER
VP/ESG Integration and DEI Initiatives, SAIC

PANELISTS

MARCY MULDROW SANDERS, DR.P.H.
Regional Engagement Principal, Florida; NSIN - National Security Innovation Network; Professor, Florida State University (Visiting Scholar)

JARET RIDDICK, PH.D.
Senior Fellow, CSET
Georgetown University


MS. FRAY


MR. RAVER


DR. MILDROW SANDERS


DR. RIDDICK

Join us for an enlightening and thought-provoking discussion, moderated by Karen Fray, former Central Florida Women in Defense Chapter President and currently the Solutions and Services Transition Adoption Lead at the Air Force Research Lab (AFRL), as well as a National Security Fellow at Truman National Security Project/Class of 2024. This special event brings together distinguished speakers to discuss the critical impacts to be gained in the Modeling, Simulation, and Training (MS&T) industry, particularly concerning the National Security Field when diverse voices are at the table.

Marcy Muldrow Sanders, DrPH, MBA, is the Regional Engagement Principal (REP) for Florida with DIU NSIN. She is embedded in the FAMU-FSU College of Engineering as a Visiting Scholar Professor at Florida State University. A retired Navy Commander, Dr. Muldrow Sanders' warfare specialty was Anti-Submarine Warfare. Her experience extends to Navy program and policy development and implementation, and she possesses extensive expertise in programming, budgeting, and workforce development at both the Federal and State levels.

Jaret C. Riddick, Ph.D., a Senior Fellow at Georgetown University's Center for Security and Emerging Technology (CSET), will provide unique perspectives on how adversaries can exploit societal divisions and how unity, inclusivity, and diverse viewpoints in our training and readiness programs can effectively counter and deter these threats.

This panel will examine how harnessing and amplifying our nation's rich diversity—a potent national security asset—can dramatically enhance our strategic edge in the Great Power Competition. By cultivating an inclusive culture across our operational MS&T community, we unlock innovation, elevate problem-solving, and sharpen our adaptability to navigate complex DoD challenges.

Our diverse cognitive arsenal is the key to maintaining America's competitive advantage in an ever-evolving global landscape. The speakers will also address and highlight the importance of increasing the mentoring and sponsoring within the MS&T community for optimal outcomes toward sustainability and diverse growth.

Following the discussion, a Q&A session, hosted by Jeffrey Raver, VP/ESG Integration and DEI Initiatives at SAIC, will be encouraged to further engage participants in the conversation.

By the end of this session, participants will gain insights into how embracing diversity can bolster our deterrence capabilities and overall defense resilience. Don't miss out on this unique opportunity to engage in a conversation that can shape the future of National Security and the MS&T industry.

MONDAY, 2 DECEMBER • 1600 – 1730 • ROOM 330ABCD

2024 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 is proud to announce Dr. Winston "Wink" Bennett has been selected as the 2024 I/ITSEC Fellow. This prestigious recognition is a testament to Dr. Bennett's outstanding contributions in the fields of Training, Education, and Modeling and Simulation which span four decades. His leadership has directly improved the quality of training of the Warfighter and has injected advancements into the field of Model and Simulation. His leadership has been instrumental in ensuring Air Force's success at Interservice/Industry Training, Simulation and Education Conference (I/ITSEC) both in committees, program work, panels, demonstrations, and STEM activities for many years. His leadership in the Simulation Interoperability Standards Organization (SISO) paved the way for Live Virtual Constructive simulations by helping to co-author and evolve the relevant standards. This work also helped to inform Air Combat Command and HQ Air Force, blended training requirements and alternatives. As part of his passion for learning and the development of the future STEM workforce, he established the Gaming Research Integration for Learning Lab® (GRILL®), inspiring students interested in modeling and simulation to pursue careers in M&S. Dr. Bennett's numerous accomplishments include serving as USAF Member at Large, then USAF representative, to the NATO modeling and simulation group; leading the creation and initial execution of the Science, Technology, and ops-centered investment portfolio for the 711th HPW Human Effectiveness Directorate, Readiness Product Line; and defining several visionary products and capabilities that have become foundational as ways to create and evaluate training and readiness investments and impacts. Wink was inducted into the National Center for Simulation – Modeling and Simulation Hall of Fame in 2022. He was also awarded the Thomas J Wells Senior Leadership Award, the Florida Governor's award for Modeling and Simulation, and over 30 other honors and awards.

MODERATOR

BRIAN HOLMES
Chair, I/ITSEC Fellow Committee

2024 I/ITSEC FELLOW

WINSTON "WINK" BENNETT, PH.D.
SAIC | Mod and Sim Engineer Senior Principal Support, DAF Chief Modeling and Simulation Office, HAF SAF/SAM

WHAT YOU WILL LEARN FROM THE 2024 I/ITSEC FELLOW

Dr. Winston "Wink" Bennett's I/ITSEC Fellows paper and presentation focuses on his 39+ years of M&S and related experiences that have not only advanced science and practice, but impacted how the operational communities leverage innovative M&S technology and tools to improve proficiency and readiness. He will touch on the importance of building a strong requirements-driven foundation for creating, applying, and evaluating modeling and simulation innovations in real-world contexts. He'll also describe some of the hardest challenges the teams he has worked with have had to overcome, and what lessons can come from those efforts for the broader application of modeling and simulation innovations. He will also highlight some of the current and emerging trends from both the operational contexts the drive new requirements, as well as potential technology and tools that are coming along to advance both our science and our practices. Finally, he will discuss the implications of where we need to go, as a community, on the workforce we need for today and for the future.

TUESDAY, 3 DECEMBER • 1400 – 1530 • ROOM 310CD

JOINT & MULTI-NATIONAL CONSTRUCTIVE TRAINING EXERCISE

OVERCOMING THE TECHNICAL CHALLENGES FOR MULTI-DOMAIN OPERATIONS

MODERATOR

LIEUTENANT COLONEL BRIAN VARNS, USA
U.S. Army PEO STRI

PANELISTS

COLONEL TIMOTHY RUSTAD, USA
Chief, Environmental Operations Division, Joint Staff J-7

COLONEL STEPHEN BANKS, USA
Branch Head, Modeling & Simulation, and Learning Technologies, NATO Allied Command Transformation

COLONEL MARK MADDEN, USA
7ATC-JMSC

ALEXANDER ACKERMAN
KBSC


LTC VARNS, USA


COL RUSTAD, USA


COL BANKS, USA


COL MADDEN, USA


MR. ACKERMAN

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, 3 DECEMBER • 1600 – 1730 • ROOM 310CD

IMPLEMENTING LEARNING ENGINEERING IN MILITARY ENVIRONMENTS: AN OPERATIONAL & TACTICAL PERSPECTIVE

MODERATOR

WENDY WALSH, ED.D.
Chief Learning Officer, HQ AETC

PANELISTS

LINDSEY FREDMAN
Director, Air Force Career Development Academy, ADC/2AF/AFCDA

BENJAMIN GOLDBERG, PH.D.
Senior Scientist, U.S. Army DEVCOM SC STTC

RALUCCA GERA, PH.D.
Professor of Mathematics
Academic Associate Chair, Department of Applied Mathematics, Naval Postgraduate School

JENNIFER SINCLAIR
Deputy Commander and Chief Learning Officer, USCG Force Readiness Command


DR. WALSH


MS. FREDMAN


DR. GOLDBERG


DR. GERA


MS. SINCLAIR

PURPOSE:

Learning Engineering is defined as the iterative systematic application of evidence-based principles, scientific methods, and standardized practices from the learning sciences, education research, and systems thinking to produce effective learning outcomes. It functions as a sense making framework for institutional and operational learning and emphasizes a workforce-centered design approach. Learning engineering is enabled through interdisciplinary, mission-focused collaboration and measured by competency acquisition to actualize mission readiness.

OVERVIEW:

This session examines the balance and synergy between human-centered design and mission command, which involves the exploration of building trust and netcentric information flow within hierarchical, bureaucratic system. With this in mind, there will be a focus on sharing the progress made and/or planned to advance competency-based learning and evidence-based decision making. The panel is intended to represent the perspectives of the civilian joint service, highlighting convergence and divergence in force development approaches.

TUESDAY, 3 DECEMBER • 1600 – 1730 • ROOM 330GH

MAXIMIZING THE EMERGING WARGAMING CAPABILITIES

NELLER CENTER OVERVIEW

MODERATOR

LIEUTENANT COLONEL WYNNDEE YOUNG, USMC
Program Manager, Wargaming Capability

PANELISTS

COLONEL CHARLES E. ANKLAM III, PH.D., USMC
Marine Corps Director, Wargaming Division, Marine Corps Warfighting Laboratory/ Futures Directorate Combat Development and Integration

CAPTAIN MICHAEL O'HARA, PH.D., USN
Naval Warfare Center

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

LIEUTENANT COLONEL SCOTTY BLACK, USMC
Marine Corps Warfighting Laboratory

TYSON KACKLEY
Marine Corps System Command


LTCOL YOUNG, USMC


COL ANKLAM, USMC


CAPT O'HARA, USN


COL BARRICK, USMC (RET.)


LTCOL BLACK, USMC


MR. KACKLEY

Wargaming and analytics are integral to successful force design, force development, operational planning, education and training. Just south of Washington DC, the Neller Center is being completed to support all of these activites.

Join this event as the panel provides an overview and insight into the capabilities being developed and those planned at the Neller Center to support the Warfighter through wargaming, analytics and more!

WEDNESDAY, 4 DECEMBER • 0830 – 1000 • ROOM 330EF

DEPARTMENT OF THE AIR FORCE (DAF) — NONCOMMISSIONED OFFICER (NCO) PANEL

MODERATOR

CHIEF MASTER SERGEANT CHRISTOPHER S. COLE, USSF
Senior Enlisted Advisor, Chief Technology & Innovation Office (CTIO)

PANELISTS

CHIEF MASTER SERGEANT T. POWELL CRIDER, USAF
Senior Enlisted Advisor (ANG), Kelly Johnson Joint All Domain Innovation Center (KJJADIC)/ Joint Warfighting Experimentation Center (JWEC)

MASTER SERGEANT NATHAN J. GANSTER, USAF
Flight Chief, Airman Development Analytics
HQ AETC/A9/Studies and Analysis Squadron

MASTER SERGEANT SHANNON L. VAN ROEKEL, USAF
Operations Superintendent, HQ 2AF/DET 23


CMSGT COLE, USSF


CMSGT CRIDER, USAF


MSGT GANSTER, USAF


MSGT VAN ROEKEL, USAF

PURPOSE:
To offer an enlisted perspective on M&S initiatives across the Department of the Air Force.

OVERVIEW:
This session will offer a practical perspective to discuss how the DAF is leveraging M&S to improve operations, and highlight unique emerging trends seen in the field. How can M&S be embedded in unit training/advanced training for quickly evolving career fields (i.e., cyber)? How do we improve collaboration between DAF and Industry in order to streamline realistic M&S solutions to better train and equip our forces? How can M&S tools be used to effectively train Airmen and Guardians in ethically ambiguous situations, such as those arising in cyber defense and autonomous weapons systems — (i.e. mission systems, Electronic Warfare, Orbital Warfare, etc.)?

OTHER RELEVANT INFO:
Our panel will have representation from NCOs in both the USAF and the USSF.

WEDNESDAY, 4 DECEMBER • 0830 – 1000 • ROOM 310AB

NAVY CONTINUOUS TRAINING ENVIRONMENT

MODERATOR

CHRISTOPHER BOYLE
Training Technology Director, United States Fleet Forces Command N72

PANELISTS

TOM DALY
Enterprise Services Manager, Naval Surface Warfare Center Corona

ERIC FOX
NCTE Sites Manager, Naval Surface Warfare Center Corona

KEVIN KOHL
NCTE Program Manager, Naval Surface Warfare Center Corona

MIKE STEEN
LVC Operations Manager, Naval Surface Warfare Center Corona


MR. BOYLE


MR. DALY


MR. FOX


MR. KOHL


MR. STEEN

The importance of Live, Virtual, and Constructive (LVC) training is at the heart of this year's I/ITSEC theme: *Assuring Deterrence Through Integrated Training and Readiness — The Need is Now!* The Navy Continuous Training Environment (NCTE) is the integrating architecture that forms the Navy's LVC range for distributed training. This panel will bring together the United States Fleet Forces Command Training Technology Director with the heads of the NCTE program management, operations, engineering, and ranges pillars to set the stage for an engaging discussion centered on NCTE and how the pillars work together to provide LVC training to the Navy Warfighter.

WEDNESDAY, 4 DECEMBER • 0830 – 1000 • ROOM 310CD

EVOLUTION vs. REVOLUTION: SPECIAL OPERATIONS' PATH TO INTEGRATED TRAINING IN A SYNTHETIC ENVIRONMENT

MODERATOR

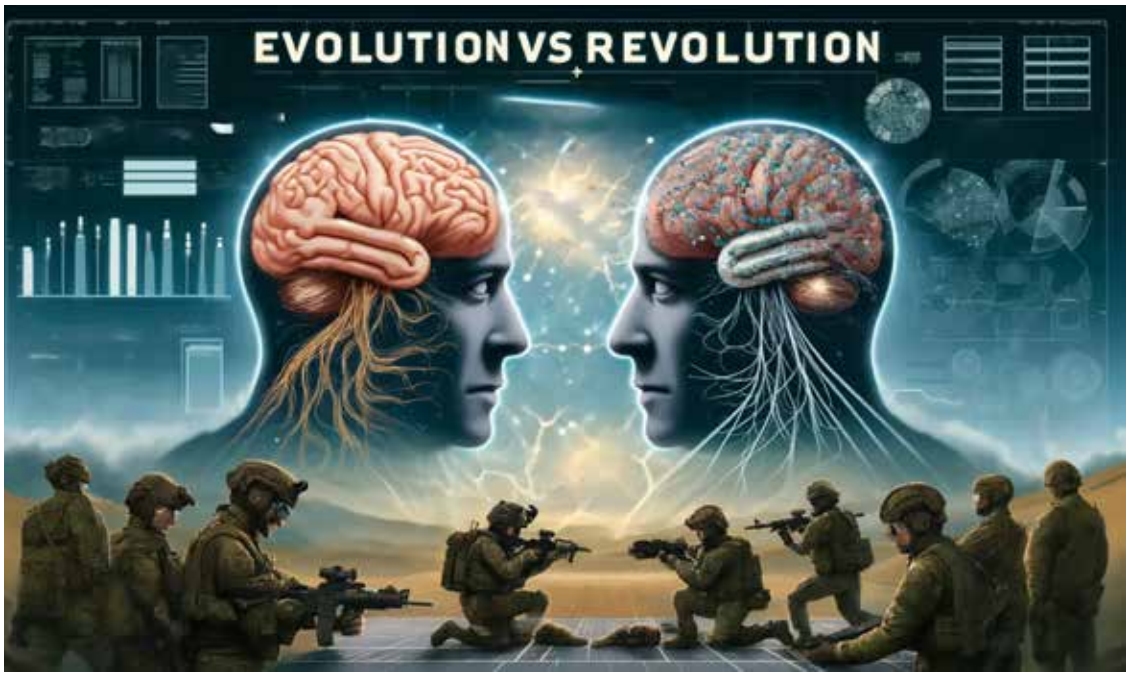
BRIGADIER GENERAL PAUL ROWLETT, USAF (RET.)
Civilian Branch Chief, SOFPREP, USSOCOM

PANELISTS

COLONEL DAVID M. ROBERTSON, USAF
Chief, Operations Training Division, U.S. Air Force Special Operations Command

WILLIAM "JOE" MILLER, SES
Deputy to the Commanding General, U.S. Army Special Operations Command

LISA R. SANDERS, SES
Science and Technology Director, Special Operations Forces, Acquisition, Technology & Logistics, USSOCOM




BRIG GEN ROWLETT, USAF (RET.)


COL ROBERTSON, USAF


MR. MILLER, SES


MS. SANDERS, SES

Special Operations Forces' (SOF) value proposition lies in its global perspective, transcending regional boundaries, and its ability to operate with a diverse array of options. To maintain this edge, SOF must continuously evolve, embodying adaptability, agility, flexibility, and innovation. A panel of senior SOF leaders will discuss the critical need for integrating reality-virtuality continuum into Joint Force training, exercises, experimentation, and rehearsals to fulfill SOF's global objectives. Emerging technologies — such as virtual/augmented reality and artificial intelligence — offer significant enhancements to virtuality continuum-based force-on-force engagements, yet their adoption within the Joint Force has been slow and fragmented. Despite rapid advancements in technologies that significantly enrich mission readiness, perceptions and acceptance of these capabilities lag. Amongst others, Collaborative Autonomy will enable the Joint Force to deploy teamed, unmanned systems in contested environments. To fully leverage these technological enhancements within the Joint environment, we must cultivate a revolutionary mindset. Augmented training, seamlessly integrated with live training, represents the future. The future and need are now.

WEDNESDAY, 4 DECEMBER • 0830 – 1000 • ROOM 320H

MARINE CORPS SENIOR ENLISTED PANEL

DEVELOPING AND TRAINING THE NATION'S PREMIERE FORCE IN READINESS

MODERATOR

MASTER SARGEANT JOSHUA HAYES, USMC
NAWCTSD

PANELISTS

SERGEANT MAJOR STEPHEN GRIFFIN, USMC
Training and Educaton Command (TECOM)

SERGEANT MAJOR JESSE DORSEY, JR., USMC
Marine Corps System Command

SERGEANT MAJOR DAVID ELLIOT, USMC
Command SgtMaj Training Command

MASTER GUNNERY SERGEANT JASON TAYLOR, USMC
Aviation Training Systems Analyst, Training and Education Command


MSGT HAYES, USMC


SGTMAJ GRIFFIN, USMC


SGTMAJ DORSEY, USMC


SGTMAJ ELLIOT, USMC

This panel brings together senior enlisted Navy/Marine Corps leaders to provide operational training concepts for the Marine Corps. 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 Navy/Marine Corps operational concepts. This panel provides an opportunity for I/ITSEC participants to engage with enlisted Navy/Marine Corps leaders involved with developing and training the Nation's premiere Force In Readiness.

WEDNESDAY, 4 DECEMBER • 1030 – 1200 • ROOM 310CD

ARMY SENIOR NCO PERSPECTIVE

OPERATIONAL READINESS LEVERAGING SIMULATIONS FOR TRAINING & MISSION REHEARSAL

MODERATOR

SERGEANT MAJOR TOM DOW, JR., USA
U.S. Army, Program Executive Office for Simulation, Training, and Instrumentation (Proposed)

PANELISTS

COMMAND SERGEANT MAJOR STEPHEN H. HELTON, USA
U.S. Army Futures Command

SERGEANT MAJOR ROBERT M. HAYNIE, USA
ASA (ALT)

SERGEANT MAJOR JAMES CARD, USA
U.S. Army, Training Support Center

COMMAND SERGEANT MAJOR BRIAN HAYDT, USA
U.S. Army DEVCOM

COMMAND SERGEANT MAJOR BRADFORD L. SMITH, USA
U.S. Army Test and Evaluation Command (ATEC)


SGM DOW, JR., USA


CSM HELTON, USA


SGM HAYNIE, USA


SGM CARD, USA


CSM HAYDT, USA


CSM SMITH, 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.

WEDNESDAY, 4 DECEMBER • 1330 – 1500 • ROOM 310AB

ETHICAL, LEGAL, AND SOCIAL IMPLICATIONS OF HUMAN-AI TEAMING

CRITICAL ELSI NEEDS AND OPPORTUNITIES TO INTEGRATE TRAINING AND READINESS

MODERATOR

SYLVAIN BRUNI
Interim Director & Principal Engineer, Performance Augmentation Systems Division, Aptima, Inc.

PANELISTS

REBECCA CROOTOF, PH.D.
ELSI Visiting Scholar, DARPA
Professor of Law, University of Richmond School of Law

VALARIE YERDON, PH.D.
Senior Human System Integration Analyst, THOR Solutions

GRANT ENGBERSON
Artificial Intelligence Engineer, Intelligent Performance Analytics Division, Aptima, Inc.

KELLY HALE, PH.D.
Principal Engineer & Group Leader, UX/Human Performance Group, Draper

LAUREN REINERMAN JONES, PH.D.
Acting Section Manager & Principal Analyst, SwRI Div 16, Southwest Research Institute


MR. BRUNI


DR. CROOTOF


DR. YERDON


MR. ENGBERSON


DR. HALE


DR. JONES

The NATO SG-278 study on Cognitive Augmentation for Military Applications identified a series of challenges and opportunities related to the ethical, legal, and social implications (ELSI) of leveraging new forms of training and operational support (including neurostimulation, neuroaugmentation, and human-AI teaming). This topic is under-addressed and requires more depth and visibility in our community, as evidenced by questions and requests from the 2023 I/ITSEC conference when SG-278 was briefed.

This vast new field is actively being researched in several critical domains, such as healthcare, transportation, and public policy. Engaging with and hearing from those working at the forefront of ELSI will preview and inform future work that aligns with the needs of the I/ITSEC community, specifically as we seek to integrate training and readiness more closely and rapidly with artificial intelligence and other advanced technologies.

This moderated panel will feature perspectives from scientists and practitioners in Government, industry, and non-profit research organizations. The purpose of this special event is (1) to raise awareness about challenges and opportunities related to ELSI in training and ops, (2) to build a network of interested practitioners and decision-makers across government and industry, and (3) to identify priority areas for training and simulation research.

WEDNESDAY, 4 DECEMBER • 1330 – 1500 • ROOM 330ABCD

SPACE CAPABILITIES PANEL

MODERATOR

SUSAN SORENSON, PH.D.
Chief Analyst, Test Enterprise Division, HQ STARCOM S2/3V

PANELISTS

BRIAN McBEE, PH.D.
Portfolio Lead, Space Control Technologies; Model-Based Systems Engineering & Analysis
AFRL Space Vehicles Directorate

LIEUTENANT COLONEL M. SCOTT PEEPLES, USSF
Materiel Leader, Space Force Digital Test & Training Operational Test & Training Infrastructure (OTTI)
Space Systems Command (SSC/TIDV)

MAJOR SEAN P. MITCHAM, USA
Deputy Branch Chief, USSPACECOM J812 Advanced Analytics

RICH SHERTZER, PH.D.
Combat Analysis Team Lead, Space Operations Command (SpOC)/S739


DR. SORENSON


DR. McBEE


LT COL PEEPLES, USSF


MAJ MITCHAM, USA


DR. SHERTZER

PURPOSE:
Introduce the audience to advanced M&S functions across the Space Force and Space Command landscape.

OVERVIEW:
This session discusses how space-related M&S issues contribute towards joint lethality. How is M&S employed to leverage the greatest effect so that more informed decisions and trade-offs can be made to allocate limited resources in the face of advanced persistent threat? What are key M&S challenges associated with delivering a robust LVC environment? How do we use M&S to best understand near/mid/far-term capability gaps that can only be addressed by R&D? What are we doing right in the space analyic community, and how can we double down on those successes? What is the most important capability needed to simulate space systems effectively?

OTHER RELEVANT INFO:
Our panel will have diverse voices across USSF, as well as operational insight from SPACECOM M&S Leadership.

WEDNESDAY, 4 DECEMBER • 1330 – 1500 • ROOM 330GH

WOMEN IN MODELING AND SIMULATION

MODERATOR

JENNIFER SOLBERG, PH.D.
Chief Executive Officer, Quantum Improvements Consulting

PANELISTS

TAMI GRIFFITH, PH.D.
Chief Engineer, Training and Simulation Division (TSD), U.S. Army DEVCOM SC STTC

TARA KILCULLEN-OLIVA
Principal, ZYGOS Consulting

HEATHER PRIEST, PH.D.
Senior Scientific Technical Manager (SSTM) for LVC Training Solutions, NAWCTSD

RACHAEL GERMANSKY
Lead Acquisition Engineer for Range Training Systems, PM TRASYS

HEATHER DEMIS
Director of Corporate Development, HAVIK


DR. SOLBERG


DR. GRIFFITH


MS. KILCULLEN-OLIVA


DR. PRIEST


MS. DEMIS

Over the past decades, the defense industry has shifted toward including women in every level of operations and decision-making. Despite these positive steps, women still navigate specific challenges in the workplace. To maintain a competitive edge in today's climate, organizations should be aware of barriers to recruiting and retaining top talent. Understanding women's experiences in modeling and simulation, and in defense broadly, will help organizations make smart human resources and policy decisions.

In this panel, women from a variety of career paths — Active Duty, DoD civilian, and industry — will share their workplace experiences. Our discussion will cover topics such as leadership, mentorship, and other issues women face. We will talk about how women's experiences have changed over time, and how emerging technology can increase opportunities for everyone who wants to contribute to this industry.

YOU WILL LEARN:

- How organizational policy can be used as a recruiting and retention tool to bring women into our industry
- How the post-pandemic job landscape has shifted for women
- How women's roles could change in the future

WEDNESDAY, 4 DECEMBER • 1400 – 1530 • ROOM 320H

NAVY SENIOR ENLISTED PANEL

MODERATOR

FLEET MASTER CHIEF JOHN PERRYMAN, USN
U.S. Fleet Forces Command

PANELISTS

FORCE MASTER CHIEF RICK MENGEL, USN
Naval Education and Training Command

COMMAND MASTER CHIEF NORMAN W. CLARKE, USN
Submarine Learning Center

COMMAND MASTER CHIEF HUGH J. RAPE, USN
Surface Warfare Schools Command

MASTER CHIEF ELECTRONICS TECHNICIAN EDWARD A. JACKSON, JR., USN
Naval Reactors Headquarters


FLTCM PERRYMAN, USN


FORCM MENGEL, USN


CMDCM CLARKE, USN


CMDCM RAPE, USN


ETNCM JACKSON, JR., USN

This panel will bring together a group of the Navy's senior enlisted leaders to provide their unique experiences training our sailors to ensure that they are ready for the fight. This panel will highlight areas where the use of modeling and simulation technology has provided positive impact to the mission while drawing attention the curent capability gaps that the collective I/ITSEC community can work together to resolve for the benefit of our Nation's Warfighters.

THURSDAY, 5 DECEMBER • 0830 – 1000 • ROOM 310AB

M&S REQUIREMENTS: URGENCY, INNOVATION TO MEET TOMORROW'S GLOBALLY CONNECTED TRAINING GAPS

MODERATOR

MAJOR DES BRAZIEL, USA
Modeling & Simulations Planner, Joint Staff J-7

PANELISTS

COLONEL THOMAS TABAKA, USA
Chief, G3/7 Training and Exercises, U.S. Army Europe and Africa

COLONEL SANGHYOUN PARK (KOR)
Director of Analysis and Assessment, Air and Space Combat Development Wing, Republic of Korea Air Force Headquarters

COLONEL GREG PAVLICHKO, USA
Director, U.S. Army National Simulation Center

LIEUTENANT COLONEL SEBASTIAN ALEKSANDROWICZ (AUS)
J-7 Joint Collective Training Branch, AUS Joint Operations Command

BIJAL MISTRY (UK)
Head of Defence Modelling & Simulation Officer, UK Integrated Warfare Centre


MAJ BRAZIEL, USA


COL PARK (KOR)


COL PAVLICHKO, USA


LTCOL ALEKSANDROWICZ (AUS)


MS. MISTRY

This panel will feature real-world stakeholder examples of using innovation involving live instrumented forces, virtual simulators, constructive models and military war-gaming to replicate emerging and complex challenges of tomorrow's battlefield. Key themes include addressing barriers to a fully-informed Joint M&S environment and discussing actions to grow the Joint Training Synthetic Enviornment by expanding the current M&S catalog. Panelists will promote Joint / Service specific cross-domain initiatives, training requirements "at scale" that increase M&S interoperability, and build a better trained and interconnected global force. Finally, this panel will feature discussion on the vision forward of the expanded Joint Training Synthetic Enviornment, which is nested with the Joint Operational Training Gaps.

THURSDAY, 5 DECEMBER • 1330 – 1500 • ROOM 330ABCD

AIR FORCE MAJCOM O-6 PANEL

MODERATOR

COLONEL ANTHONY GRAHAM, USAF
AFAMS Commander

PANELISTS

COLONEL CHRISTOPHER FINCH, USAF
HAF/A3TI

COLONEL MATT MCDANIEL, USAF
AFGSC/A3

COLONEL SHANE GARNER, USAF
Chief, Test and Training Division, ACC/A5T

COLONEL JUSTIN DAHMAN, USAF
AMC/A3T

JASON MILLER
HQ AFSOC A3/A3TS


COL GRAHAM, USAF


COL FINCH, USAF


COL MCDANIEL, USAF


COL GARNER, USAF


COL DAHMAN, USAF


MR. MILLER

This panel brings together training command leaders to provide insights into the needs of the user. The Air Force leaders will provide insight from a mission readiness perspectives and near term needs to meet operational imperative to meet readiness. This panel provides an opportunity for I/ITSEC participants to engage with the Air Force leaders with sustaining a global force in training technology across the Air Force enterprise to increase readiness and lethality in a digital world.

ALL EVENTS IN THE DESTINATION LOUNGE ON THIRD FLOOR, SOUTH CONCOURSE

TalX ACCELERATING THE ADOPTION OF EMERGING TECHNOLOGIES

SERIES OF TED STYLE TALKS (TALX), AND EVENTS DESIGNED TO INSPIRE, INFORM, AND COLLABORATE

TUESDAY, 3 DECEMBER • 1400 – 1530 • LARGE LANGUAGE MODELS

The Great Hallucination

Speaker: Brian Stensrud, Ph.D., CAE

The year is 2025. Catching the wave of excitement over its possibilities, many government organizations began rolling out generative AI capabilities for a range of applications, and many of those capabilities are now in place. However, something horrible happened. One of the systems has 'hallucinated', producing catastrophically incorrect content that has led to a spectacular failure. It makes national news, and a congressional investigation follows. In the fallout, the DoD adopts a policy banning the use of GenAI, and ongoing AI programs are paused indefinitely. Luckily it is still 2024, and this is a future we can avoid. How?

Augmenting Humans with Compound AI: The Future of Military Training and Wargaming

Speakers: Svitlana Volkova, Ph.D., Aptima, Inc.; Summer Rebensky, Ph.D., Aptima, Inc.

This TalX unveils a groundbreaking vision of compound AI that seamlessly blends human intuition with AI, transforming military training and wargaming. We'll explore how cutting-edge AI models, rigorously evaluated for transparency and robustness, work in concert to create immersive, adaptive experiences tailored to everyone. Witness the power of AI-generated scenarios that push the boundaries of strategic thinking. Discover how human-AI synergy could redefine operational readiness. Join us on a journey to the frontiers of technology, where the fusion of human creativity and AI capabilities promises to unlock unprecedented levels of performance and decision making across military operations.

LLM Co-pilots for Domain Specific Modeling Languages

Speaker: Matt Naveau, Tangram Flex

The DoD's digital transformation is advancing with domain specific modeling languages (DSMLs) for precise design specifications, which are better suited than general purpose modeling languages, like SysML, when implementing complex designs. Tangram Flex has successfully used Retrieval-Augmented Generation (RAG) with large language models (LLMs) to generate DSML code quickly and accurately. Experiments showed significant time savings when using LLMs, reducing development from months to weeks. Additional benefits include easier verification and a reduced learning curve for new users. LLMs thus enhance rapid, confident development of DSMLs, easing adoption for systems and software engineers.

TUESDAY, 3 DECEMBER • 1600 – 1730 • HUMAN & MACHINE TEAMING

From Simulation to Autonomy: Evolving Needs for Humans and Machines

Speaker: Shane Arnott, Anduril Industries

This TalX will discuss the evolving requirements, challenges and opportunities as simulation is now used to enable humans to prepare for missions alongside autonomous systems, as well as train the autonomous systems to get them ready for the future fight. Considering the different abilities of humans and machines to go beyond visual and leverage additional signals and spectral bands, or the speed with which each participant can go through a simulation or training plan and how to harmonize these discrete requirements come to the forefront, as will the need to consider new testing and validation.

Optimizing for Human Performance in Human Machine Teams

Speaker: Dan Javorsek, Ph.D., EpiSci

The future of competition and conflict will be defined by the effective employment of human machine teams. To date, the focus has been on developing exquisite AI-driven solutions, like AI pilots for collaborative combat aircraft, to work alongside human pilots. This TalX will explore these advancements, while discussing how the I/ITSEC community can optimize for human performance in those human-machine teams through new and novel training methodologies.

Bridging the Gap: Overcoming Barriers in the DoD's Adoption of Novel Immersive Reality Technology Solutions

Speakers: Leah Rowe, Ph.D., Booz Allen Hamilton; Christopher Palmer, Ph.D., Office of the Under Secretary of Defense for Research and Engineering

DoD has been slow to adopt and integrate cutting-edge immersive reality technology particularly in the critical area of HMI. Specifically in regard to technologies that enhance human machine teaming and augmented and virtual reality. Rapid advancements and adoption in this technology area will have a multitude of benefits for our service members. This session will explore the barriers for adoption, focusing on the lack of formalized requirements and funding, and ultimately support from the government for these transformative technologies. We highlight the approach that Office of the Assistant Secretary for Defense for Critical Technologies is taking for technology adoption, addressing the dynamic demands of modern warfare, and identify the most significant gaps that must be addressed to spur immediate investment and development in HMI.

HAVE QUESTIONS? ASK BLU!
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THE NEXT BIG THING AT I/ITSEC

WEDNESDAY, 4 DECEMBER • 1030 – 1200 • NOVEL APPLICATIONS OF DATA

Synthetic Training Data for Autonomous System Training Generated with AI

Speaker: Hannes Walter, Blackshark.ai

Several machine learning and generative AI technologies are employed in the approach discussed in this TalX to produce high-quality synthetic sensor data for autonomous system training. Real sensor data as initial input ensures focus on target areas and generative AI creates synthetic variation. A novel machine-learning approach extracts relevant custom features from the sensor data sets. These features are used as input to reconstruct realistic 3D training environments. Aspects too detailed to be captured by the sensor data, environmental conditions and dynamic scenarios, are augmented generatively. The workflow allows permutations of any parameter, ensuring high-quality synthetic sensor training data. To make truly autonomous systems as robust as possible, it needs as much training and training data as possible which can only be achieved via synthetic training data. The introduced approach ensures targeted synthetic sensor training generation, aligned with current, realistic, localized, training scenarios to avoid misstraining.

The Evolution of Autonomous Tactical AI – Learning the Lessons from Ukraine

Speaker: Peter Morrison, Bohemia Interactive Simulations

The Ukrainian conflict has seen trench warfare coupled with new technology including drones and modern sensors. Militaries are updating their doctrine to exploit and defend against these new technologies. Simulation and AI will enable new tactics to be tested in a safe, virtual environment before expensive acquisitions and field deployments. While semi-autonomous AI has been used for decades, recent advancements will deliver intelligent and autonomous computer-generated forces with utility from training to operations. This TalX looks at the biggest advancements and predicts when these force-multiplying technologies will make a meaningful difference to the Warfighter. Attendees will leave educated on how current / near-future advances in AI will actually impact training and operations, focusing on entity-level AI and COA analysis.

The Data Mesh and Zero Trust

Speakers: Erica Dretzka, OSD Chief Digital and AI Office; Jordan Gottlieb, Zero Trust Portfolio Management Office

This TalX will explore the co-dependency between the Data Mesh and Zero Trust and their intersection with MS&T. We will discuss the strategic need, emphasizing the rapid change in technology. For example, the fear that quantum computing, with a horizon of about 3-4 years hence, is the first technology able to break traditional encryption methods. Other examples are the ability for LLMs and other bots to perform rapid, nearly undiscernible security attack and the increased need for scalable, real-time security measures that are flexible and trustworthy as the data mesh adoption enables collaboration while needing to protect their Intellectual Property.

WEDNESDAY, 4 DECEMBER • 1600 – 1730 • CATALYSTS TO ADOPTION

Why Can't We Innovate?

Speaker: CAPT Tim Hill, USN (Ret.), Intuitive Research and Technology Corp

This discussion will focus around barriers to adopting innovative technologies and what the MS&T community might do to mitigate those barriers. This TalX center around three main barriers to innovation, regardless of specific technology, and what we can do about it.

Accelerating Software Accreditation in the Department of Defense

Speaker: Tyler Sweatt, Second Front Systems

Software accreditation – obtaining an Authority to Operate (ATO) – and deployment can be a thorny challenge for new and small businesses when attempting to work with the Department of Defense (DoD). This TalX will discuss new pathways to onboard, secure, and run commercial SaaS applications on DoD networks at a fraction of the cost and time through new DevSecOps platforms that provide an alternative to the traditional ATO process, allowing software to be delivered at the speed of relevance.

Modeling and Simulation in Software Defined Conflict

Speaker: Chris Morales, Point72 Ventures

The defense technology innovation system is changing with new venture-capital backed entrants developing new novel digital technologies, modeling and simulation capabilities, and training tools for the government. This TalX will explore the impact venture capital can have on defense acquisitions and modernization. It will address how venture capital firms try to identify talented new startups and the types of attributes they look for when making funding decisions.

Accelerating Adoption via an AI Framework

Speaker: Charles Newton, Soar Technology, LLC

The commercial world is quickly adopting AI in their workflows. These enhancements make users more efficient, organized, and more timely and consistent on meeting tasks. This TalX will present design patterns for adopting AI that match existing workflows for accelerating the realization of AI in government organizations.

WEDNESDAY • 4 DECEMBER 2024 • 1745 – 1900

NEXT BIG THING SOCIAL

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FOR HORS D'OEUVRES AND BEVERAGES

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THE NEXT BIG THING AT I/ITSEC

THURSDAY, 5 DECEMBER • 0830 – 1000
THE FUTURE OF XR-BASED, AI-DRIVEN SIMULATION TECHNOLOGIES: WHAT EFFECTIVE HUMAN FOCUSED SYSTEMS WILL LOOK LIKE BEYOND THE NEXT 5 YEARS

Massive Scale, Unprecedented Complexity: The Challenges & Advantages of AI-Enabled Modelling & Simulation Tech

Speakers: Jason Kennedy, Skyral; Naomi Hulme, Skyral

Traditional modeling of civilians walking down a road, ignoring traffic, gunshots, and explosions is worthless, even at scale. Training our warfighters for today must include more than "Move, Shoot, Communicate." Warfighters need simulations that model human behavior and reactions with accuracy, and this accuracy relies on delivering immense scale. Simulations capable of complex, reactive behaviors of 5M+ civilians civilians in a city are necessary to prepare our Warfighters for the challenges they face today, and in the future. While artificial intelligence (AI) is capable of producing assets on a massive scale, incorporating these assets into extended reality (XR) simulations introduces a new set of challenges. Designers and engineers of these simulation systems need to be able to engage and influence "populations" of AI-generated entities into a virtual training environment, which requires interoperability with other complex M&S technologies. This TalX will explore how to incorporate human needs, goals, fears, and sentiment into simulation technologies and provide an example delivered to the UK MoD and Western Allied Nations.

Extended Reality (XR) and Human Computer Interaction (HCI) – What's Coming Beyond the Next 5 Years

Moderator: Eliot Winer, Ph.D., Iowa State University

Speakers: Doug Bowman, Ph.D., Virginia Tech; Mark Dennison, Ph.D., U.S. Army DEVCOM Army Research Laboratory West; Daniel O'Brien, HTC VIVE

Extended Reality (XR) and Human Computer Interaction (HCI) have been covered quite a bit in NBT events the last few years. This moderated discussion will focus on what is coming beyond the typical five (5) year technology horizon. XR and HCI are often discussed as mature areas of research and implementation, while in reality they are in their infancy. This group of experts from industry, academic, and government will discuss the next major advancements coming, the technological challenges that exist, and the barriers to adoption that must be addressed to move these fields into the next decade and more.

THURSDAY, 5 DECEMBER • 1030 – 1200 • BIOMETRICS / GOVERNMENT INNOVATION LABS

Leveraging Labs for Accelerated Adoption

Speakers: Glenn Gunzelmann, 711th Human Performance Wing, AFRL; Luis Velazquez, MARCORSYSCOM; Mike Cannizzaro, Army Futures Command, STE CFT

We will hear from Government representatives from several labs describing how they create an environment for technology experimentation, maturation, and transition that helps speed the delivery of new capabilities to the force by providing an operationally relevant infrastructure that is connected to the broader operational training and test infrastructure (OTTI). A central motivation is to provide an environment that enables early contact with operators to explore human performance, integration, and machine teaming issues in a high-fidelity, operationally-relevant environment. The long-term objective is to provide an enterprise capability to rapidly integrate new technologies, capabilities, and concepts to facilitate adoption for operations.

Catch the Brain Wave and Make Metrics Matter

Speaker: Amy Bair, Ph.D., KBR

The intersection of computer science and the enigmas of brain performance represents an exhilarating fusion of technology and biology. This convergence is giving rise to a new generation of intelligent systems utilizing biometrics to establish a 'Brain Score' that leverages machine learning to track progress, offer data-driven insights, and foresee performance declines within a higher fidelity picture. The reach can expand to the field with asynchronous monitoring and intervention delivery tailored to WarFighter's schedule. It is crucial to address the current barriers to adoption and strategize how to capitalize on this meaningful crossover for performance optimization and neurocognition.

THURSDAY, 5 DECEMBER • 1300 – 1430 • NATO TECH GROVE AI SHOWCASE

AI Showcase – State of the Art in AI Applied to Military Training and Education

Moderators: Benjamin Goldberg, Ph.D., U.S. Army DEVCOM SC STTC; Erin Baker, Ph.D., Central Florida Tech Grove

The recent proliferation of AI has created new possibilities for training data analysis, assessment, and adaptive learning. To drive collaboration and information sharing, a new Exploratory Team managed by NATO's Human Factors & Medicine (HFM) and Modeling & Simulation Group (MSG) panels was established (HFM-MSG-ET-218 "AI Applied to Military Training and Education"). In collaboration with the Central Florida Tech Grove, the Exploratory Team is hosting this event, which provides a smaller, more intimate demonstration setting showcasing cutting-edge technologies that leverage AI techniques applied specifically to military-centric use cases. The event will start with short introductions on the fourteen (14) innovative technologies in play, followed by hands-on engagement with demonstrations.

MONDAY – THURSDAY, 2–5 DECEMBER • EXHIBIT HALL, BOOTH 2285

SERIOUS GAMES SHOWCASE & CHALLENGE

EXPERIENCE BEST-IN-CLASS SERIOUS GAMES IN BOOTH 2285!

SGS&C DIRECTOR

JENN McNAMARA
BreakAway Games

COMMITTEE LEADERSHIP

SGS&C INDUSTRY CHAIR
MATT BECCHIO
Engineering & Computer Simulations

SGS&C GOVERNMENT LEAD
LIEUTENANT COMMANDER STEVEN J. STASIK, USN
NAWCTSD

SGS&C GOVERNMENT LEAD
MAJOR MICHAEL ASHMORE, USMC
PM TRASYS

MS. McNAMARA

MR. BECCHIO

LCDR STASIK, USN

MAJ ASHMORE, USMC

In Booth 2285, the Serious Games Showcase & Challenge (SGS&C) provides a casual and interactive showcase of exemplar learning games from businesses, students, and government organizations competing for awards recognizing their achievements. Visit the booth anytime the Exhibit Hall is open to experience exciting PC, XR, and mobile learning games, meet the developers and our organizing committee members, and engage in conversations about applying serious games in your work.

CAST YOUR VOTE FOR THE PEOPLE'S CHOICE AWARD BY 1800 WEDNESDAY, 4 DECEMBER

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, 5 DECEMBER

Join us at 1300 in the Innovation Showcase, Booth 2909 for the live 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, BreakAway Games, Box.com, Engineering & Computer Simulations, Hatalom Corporation, HP, Mass Virtual, NTSA, and VMASC.

MONDAY, 2 DECEMBER • 1415 – 1545 • ROOM 320H

IMPLICATIONS OF ARTIFICIAL INTELLIGENCE FOR DOD HUMAN SYSTEMS TRAINING APPLICATIONS

TRAINING DESIGN IS A WHOLE NEW BALLGAME

MODERATOR

HENRY PHILLIPS, PH.D.
Program Manager, Advanced Distributed Learning (ADL) Initiative

PANELISTS

BRIAN STENSRUD, PH.D.
Technical Fellow, Artificial Intelligence, Defense & Security, CAE USA

ERIC STOHR
Sr. Human Factors Systems Engineer, Basic Commerce & Industries (BCI), Ltd.

BENJAMIN GOLDBERG, PH.D.
Senior Scientist, U.S. Army DEVCOM SC STTC

BRENT SMITH
Research, Development, and Engineering (RDE) Principal, Advanced Distributed Learning (ADL) Initiative


DR. PHILLIPS


DR. STENSRUD


MR. STOHR


DR. GOLDBERG


MR. SMITH

The maturity and capability of artificial intelligence (AI) applications has skyrocketed in the last several years with new advances in generative AI, large language models, autonomous agents, computer vision, dynamic interfaces, and adaptive training. These new capabilities have massive implications for the broad capabilities of the DoD's training tools and systems into which they are being integrated. They have similarly massive implications for how humans use these augmented tools and capabilities, and how the roles, needs, limitations, and risks assumed by human users, operators, trainees, and stakeholders may change as a result.

Human systems integration (HSI) technical warrant holders for DoD programs and program offices are expected to keep program managers and leadership informed about the opportunities, opportunity costs, and risks associated with resource allocation and design decisions affecting human users and stakeholders. The challenges and opportunities before training stakeholders are becoming more complex by the day.

This special event will bring together experts in AI, human factors, and training design and implementation for a discussion of how the challenges faced by training acquisition programs are changing with the maturation of AI, and how and where stakeholders and practitioners can incorporate understanding of those challenges and help manage their impacts on programs, learners, instructors, decision-makers, and stakeholders.

Questions to be explored here include what developers and acquisition stakeholders should know, and how these capabilities will be accommodated in the near and more distant term.

WEDNESDAY, 4 DECEMBER • 0830 – 1000 • ROOM 330GH

DATA & CYBER CONSIDERATIONS TO M&S

EFFICACY OF MODELS AND CYBERSECURITY ASSOCIATED WITH DOD TRAINING SYSTEMS

MODERATOR

GAURANG DÄVÉ
Cyber Technology Officer,
MARCORSYSCOM, Marine
Corps ACQ Authorizing Official

PANELISTS

COLIN CROSBY, PH.D.
Service Data Officer/Deputy
DON CDO (HQE)
DC Information

DAN CORBIN, PH.D.
Acting USMC CIO and AO
Chief Technology Advisor
DCI/IC4 Technical Director

SHERY THOMAS
MARFORCYBER CyTO

KEEGAN MILLS
HQE Marine Corps System
Command


MR. DÄVÉ


DR. CROSBY


DR. CORBIN


MR. THOMAS


MR. MILLS

- Efficacy of models and cybersecurity associated with training systems
- Joint Panel technical discussions on data & Cyber considerations to M&S
- Emphasizing training, engineering, experimentations and adversarial assessments
- Panel will highlight the importance of equipping professionals with the necessary skills to navigate the complexities of growing data requirements and importance of understanding the cyber

WEDNESDAY, 4 DECEMBER • 1030 – 1200 • ROOM 330GH

HOW STAKEHOLDERS IN NICHE MARKETS CAN BENEFIT FROM, AND DRIVE, INTEROPERABILITY STANDARDS AND MOSA

EXAMPLES FROM THE MEDICAL SIMULATION ARENA

MODERATOR

WILLIAM PIKE, PH.D.
Science & Technology Manager, U.S. Army DEVCOM SC STTC

PANELISTS

DAN IRIZARRY, M.D.
Medical Advisor, TacMed Solutions

DAN SILVERGLATE
Vice President, Systems Architecture and Development, Vcom3D

MICHAEL O'CONNOR
Chief Technologist, Trideum Corporation

BRIAN PARRISH
Principal Modeling & Simulation/Multi-Discipline Systems Engineer, The MITRE Corporation

M. BETH PETTITT, PH.D.
Chief, Medical Simulation Research, U.S. Army DEVCOM SC STTC

AMIT KAPADIA
Chief Engineer, Program Manager Synthetic Environments (PM SE), U.S. Army PEO STRI


DR. PIKE


DR. IRIZARRY


MR. SILVERGLATE


MR. O'CONNOR


MR. PARRISH


DR. PETTITT


MR. KAPADIA

The term interoperability is often co-mingled with the term modularity, which unfortunately allows for different definitions. To the government, the terms both indicate that a subsystem developed by Company ABC can be used in a system developed by Company XYZ. To some companies, the term simply means they can use swap their own subsystems in their systems. In the example of a human patient simulator, Company ABC could sell an arm capable of IV training, and a broken army for splint training, both guaranteed to work in their torso. While certainly modular, this does not align with the government's concept.

There are several players with interest in interoperable training systems. Within the Department of Defense (DoD) there is a stated preference to adhere to the tenets of MOSA — Modular Open Systems Approach — so DoD program managers have an interest. Research organizations, with their limited budgets, obviously prefer the reuse afforded by interoperable systems. Training centers and schoolhouses can't afford to purchase multiple manikins just to be able to train treatment of different injuries.

The government should not overlook the concerns of industry, both large and small businesses, however. Businesses, small and large, did not develop proprietary standards without considering the financial impact to their business. Still, in an era of dwindling financial resources, companies that offer true interoperability will be rewarded for their efforts.

While many in smaller, niche markets may consider interoperability and open systems as "the next new thing", they have been practiced for many years in other training arenas. By researching the lessons learned from other communities that have instituted more rigor into their MOSA policies, smaller modeling & simulation communities can leverage open systems to better take advantage of interoperability.

The purpose of this panel is to present multiple views and opinions on the promises — and pitfalls — of true interoperability and a MOSA-based approach to developing training simulations. Panel members will include industry members, acquisition program managers, and government R&D leaders, representing large and small communities. For some, interoperability is indeed "the next big thing". For others, interoperability and open systems have been applied for several years.

While medical simulation is represented heavily on the panel, the concepts and lessons learned can apply to many other smaller markets as well.

WEDNESDAY, 4 DECEMBER • 1400 – 1530
ECOSYSTEM OF LEARNING, EXHIBIT HALL, BOOTH 2395

VALUE PROPOSITION OF STEM IN ACQUISITION TALENT MANAGEMENT

MODERATOR

LINDA BRENT, ED.D., CMSP
Chief Executive Officer, The ASTA Group, LLC
STEM Coordinator, NTSA

PANELISTS

EMILY SHERKOW
STEM Program Manager, NAWCTSD

BRANDI PRIEBE
Electronics Engineer, U.S. Army PEO STRI

PAUL BOURGEOIS
APM Engineering, PM TRASYS


DR. BRENT


MS. SHERKOW


MS. PRIEBE


MR. BOURGEOIS

- DoD's STEM mission is to inspire, cultivate and develop exceptional STEM talent to enrich our current and future Military to tackle evolving defense technological challenges.
- Panel will provide insight on the value STEM knowledge in Acquisition Talent Management.
- Questions from the Moderator to get the discussion Going — Questions from the audience expected.

WEDNESDAY, 4 DECEMBER • 1530 – 1700 • ROOM 330GH

DIGITAL MATERIEL MANAGEMENT

MODERATOR

CHRIS GARRETT
Technical Advisor for Architectures, AFLCMC/EN-EZ

PANELISTS

JIM GUMP, PH.D.
Senior Technical Advisor (STA) for Modeling Simulation and Analysis (MS&A), AFRL and CMSO

ALEXIS BONNELL
Chief Information Officer, Director of the Digital Capabilities Directorate, AFRL

KYLE HURST
Digital Transformation Lead, AFMC

BRIAN KINKADE
Chief of Enterprise Digital Lifecycle Management, Air Force Product Lifecycle Management Lead


MR. GARRETT


DR. GUMP


MS. BONNELL


MR. HURST


MR. KINKADE

Digital Transformation is the disruptive enabler the DAF needs to maintain its competitive edge. Digital Materiel Management (DMM) is the concept of Digital Transformation applied to AFMC's mission to Organize, Train, and Equip the USAF. This panel will provide insights into DMM 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. With the renewed focus on great power competition and the recent standup of the DAF Integrated Development Office, the need is now!

WEDNESDAY, 4 DECEMBER • 1530 – 1700 • ROOM 310CD

ARTIFICIAL INTELLIGENCE (AI) – TRAINING, ANALYTICS, EXPERIMENTATION AND ACQUISITIONS

MODERATOR

LUIS VELAZQUEZ
Chief Technology Officer (CTO), Marine Corps Systems Command

PANELISTS

MARC PROULX
NAVMARCOL Wargaming
U.S. Navy

COLIN CROSBY, PH.D.
Deputy DON CDO, DC Information, U.S. Marine Corps

KEITH BRAWNER, PH.D.
Senior Engineer Artificial Intelligence, U.S. Army DEVCOM SC STTC

THOMAS HOLLAND, PH.D.
Georgia Technical Research Institute, Education and AI


MR. VELAZQUEZ


MR. PROULX


DR. CROSBY


DR. BRAWNER


DR. HOLLAND

- Joint panel discussion on Artificial Intelligence (AI)
- Discuss the impact on the future of Wargaming, Experimentation, Education, Cyber, and Acquisitions
- Artificial Intelligence Panel focuses on the integration of advanced technological solutions to optimize multi-domain functions from system engineering, training, experimentation, and acquisition processes

THURSDAY, 5 DECEMBER • 0830 – 1000 • ROOM 320H

NATO M&S DEVELOPMENT AND OPPORTUNITIES

MODERATOR

LIEUTENANT COLONEL JASON FRISCO, USA
NATO NexGen M&S Programme Coordinator, NATO Allied Command Transformation
Norfolk, USA

PANELISTS

STEFANO IZZO
Staff Officer (M&S), ACO Innovation Management Branch
Supreme Headquarters Allied Powers Europe (SHAPE), NATO
Brussels, Belgium

PHIL DRAPER
Computer Assisted Exercise Support Branch Head, NATO Joint Warfare Centre
Stavanger, Norway

COL OLAF WERNER
Training & Exercise Enabling Division Head, NATO Joint Force Training Center
Bydgoszcz, Poland

BHARAT PATEL, PH.D.
Chair, NATO Modelling & Simulation Group, NATO Science & Technology Organization
Brussels, Belgium

TONYA BONILLA
Staff Officer - Contracting, NATO Allied Command Transformation
Norfolk, USA


LTC FRISCO, USA


MR. IZZO


MR. DRAPER


COL WERNER


DR. PATEL


MS. BONILLA

NATO must rapidly and continuously examine the future operating environment and train nations across the alliance to stand ready to defend against sophisticated adversaries. NATO is currently developing the first NATO M&S capability to support computer-assisted exercises, operational planning, operational analysis, and computer-assisted wargaming – NATO Next Generation Modeling and Simulation (NexGen M&S). NATO is also examining Distributed Synthetic Training to enable nations across the alliance to conduct virtual training exercises together.

Industry M&S developers and leaders should attend to better understand the NATO environment to identify where they can engage in the future of NATO M&S. This event will also be thought provoking for U.S. military M&S leaders, managers, and practitioners.

ATTENDEES WILL LEARN ABOUT:

- NATO structure and NATO's unique requirements and procurement process
- Current NATO M&S research, development, implemention activities
- NATO challenges and opportunities for industry to engage in the future of NATO M&S

THURSDAY, 5 DECEMBER • 0830 – 1000 • ROOM 330GH

TRANSFORMING SIMULATION SUPPORTED TRAINING WITH PROJECT TRIPOLI

MODERATOR

HECTOR VIRAMONTES
Project Tripoli Technical Lead

PANELISTS

LIEUTENANT COLONEL MATTHEW MORSE, PH.D., USMC
Senior M&S Advisor, OAD, CD&I / Training and Education Command

LIEUTENANT COLONEL CHARLES P. ROWAN, PH.D., USA
Director, The Modeling, Virtual Environments, and Simulation (MOVES) Institute

MAJOR BRIAN PUGH, USMC
C4I Planner, Joint Staff J-7


MR. VIRAMONTES


LTCOL MORSE, USMC


LTC ROWAN, USA


MAJ PUGH, USMC

This panel discussion will explore how the Marine Corps is transforming its development and delivery of simulation-supported training and identify opportunities for collaboration with industry, academia, and government partners. This panel will identify how the Marine Corps is increasing effectiveness and efficiency in the delivery of simulation-supported training, with an emphasis on how the Marine Corps is partnering with other services and academia.

Attendees can expect to learn about available resources and opportunities for collaboration with the Project Tripoli team for the development, documentation, and implementation of Marine Corps LVC training environments.

The conversation will focus on how the Project Tripoli team is increasing effectiveness and efficiency in collaboration with other government partners.

Increased effectiveness in the delivery of sim-supported training is addressed with consideration of:

- Making a clear connection between capability development, mission engineering, and training environment design,
- Using training effectiveness evaluations to inform use of sim-supported training environments,
- Providing guidance for modeling methodologies for LVC constructs relative to operational capabilities,
- Supporting implementation of sim-supported training by more formally connecting organizations for training design and LVC integration, and
- Using organizations for their respective areas of expertise.

Increased efficiency in the delivery of sim-supported training is addressed with consideration of:

- Leveraging and investing in existing DoD simulations, exercise design/control tools, and M&S artifact repositories,
- Collaborating for the development of well-documented LVC constructs for use by all by connecting the TECOM Integration Center with other services' laboratories, schools, and integration centers, and
- This panel discussion will explore how the Marine Corps is transforming its development and delivery of simulation-supported training and identify opportunities for collaboration with industry, academia, and government partners.

THURSDAY, 5 DECEMBER • 1030 – 1200 • ROOM 310AB

THE M&S STANDARDS LANDSCAPE FOR NATO DISTRIBUTED SYNTHETIC TRAINING

TOWARDS A PERSISTENT NATO DISTRIBUTED SYNTHETIC TRAINING CAPABILITY

MODERATOR

WIM HUISKAMP
Chief Scientist Modelling & Simulation, TNO Defence Research; Scientific Advisor, NATO Modelling & Simulation Group (NMSG)

PANELISTS

LIONEL KHIMECHE
Head, M&S Department, DGA (Direction Générale de l'Armement); Chair, NATO M&S Standards Subgroup (MS3)

ROBERT SIEGFRIED, PH.D.
Senior M&S Consultant and Managing Director, Aditerna

BJÖRN LÖFSTRAND
Vice President, Pitch Technologies

DAVID LUSK
RAF Contractor, DST Architecture Tigerteam

KATHERINE MORSE, PH.D.
Principal Professional Staff, The Johns Hopkins University Applied Physics Laboratory (JHU/APL); Chair, SISO EXCOM


MR. HUISKAMP


MR. KHIMECHE


DR. SIEGFRIED


MR. LÖFSTRAND


MR. LUSK


DR. MORSE

Standards provide interoperability and reduce time and cost to deliver effective solutions. This is especially true in the synthetic training domain 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) will describe their ongoing efforts in the context of the NATO initiative for a persistent Distributed Synthetic Training (DST) capability.

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 on NATO and SISO standards development products for the training domain.

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

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

THURSDAY, 5 DECEMBER • 1030 – 1200 • ROOM 330GH

TRAINING AS A SERVICE: FLIPPING THE SCRIPT

MODERATOR

JAMES BROWN
Deputy Director, Range and Training Programs Division, Training and Education Command, United States Marine Corps

PANELISTS

COLONEL MARCUS J. REYNOLDS, USMC
Program Manager Training Systems, MARCORSYSCOM

JOSEPH LOMANGINO
Live, Virtual, Constructive-Training Environment Team Lead, Range and Training Programs Division, Training and Education Command

MICHAEL CHANEY
Senior Advisor, Joint Staff J-7

CHRISTOPHER BOYLE
USFFC N72 Training Technology Director, U.S. Navy


MR. BROWN


COL REYNOLDS, USMC


MR. LOMANGINO


MR. CHANEY


MR. BOYLE

INTRODUCTION:
The panel will discuss shifting from traditional procurement of simulators and training content to Training as a Service (TaaS). While commercial markets widely adopt TaaS, the U.S. Department of Defense increasingly leverages service contracts for training needs. This transition offers lessons on acquisition strategies and business case analysis.

BENEFITS INCLUDE:
- High-quality training.
- Reduced procurement times.
- Cost savings within budget cycles.
- Agility in meeting evolving requirements.

However, risks involve defining acquisition strategies, managing lifecycle costs, legal considerations, and data rights. TaaS is effective with shared risk and a comprehensive understanding of business and regulatory landscapes.

WHY ATTEND:
Training as a Service (TaaS) has been employed in procurement strategies for several years. However, navigating regulatory and statutory complexities becomes challenging when purchasing a service that may involve substantial contractor investment, potentially limiting long-term competition. Past procurements have taught valuable lessons in meeting demanding requirements. The types of funding allocated are closely linked to both the advantages and risks associated with acquiring TaaS.

WHAT WILL YOU LEARN:
This panel will provide invaluable insights into the transition from traditional procurement of simulators and training content to a service-based approach. Participants will learn about the benefits of TaaS, including high-quality training, reduced procurement times, cost savings within budget cycles, and the ability to adapt to evolving requirements. The panel will delve into the challenges of defining acquisition strategies, managing lifecycle costs, legal considerations, and data rights. Attendees will also explore the complexities of regulatory and statutory frameworks that impact the procurement of services requiring substantial contractor investment. By understanding past procurement lessons and the nuances of funding allocation, participants will gain a comprehensive understanding of how TaaS can meet demanding requirements and deliver trained students or specific outcomes to defined standards. This session will equip attendees with the knowledge to navigate the business and regulatory landscapes essential for successful implementation of TaaS in military training programs.

THURSDAY, 5 DECEMBER • 1330 – 1500 • ROOM 320H

TRAINING INFORMATION ADVANTAGE: USING MODELING AND SIMULATION TO ENABLE THE INFORMATION WARFIGHTER

DISCUSSION ON CURRENT AND FUTURE EFFORTS TO TRAIN IN THE INFORMATION SPACE

MODERATOR

LIEUTENANT COLONEL JOHN M. WILLIAMS II, PH.D., USA
Product Manager, Forces Training Systems, PM CT2, U.S. Army PEO STRI

PANELISTS

COLONEL TAMISHA R. NORRIS, USA
Director, Joint Information School

COLONEL ADAM BRYSON, USMC
Information Environment Battlespace Awareness (IEBA) Lead, DC-I LNO to Marine Corps Information Command (MCIC), Deputy Commandant for Information (DC-I)

LIEUTENANT COLONEL CHAVESO COOK, PH.D., USA
Division Chief, Strategic Competition Division, Joint Staff, J39

ALLEN GEDDES
S&T Manager, Advanced Modeling and Simulation Branch, U.S. Army DEVCOM SC STTC


LTC WILLIAMS II, PH.D., USA


COL NORRIS, USA


COL BRYSON, USMC


LTC COOK, PH.D., USA


MR. GEDDES

This panel includes leaders from PEO STRI, DEVCOM, and the Joint force to discuss training needs in the information advantage space. The discussion will include updates to information advantage doctrine and organizations, current training efforts, and developing training technologies. The panel of experts will also look to provide academia and industry with key friction points, and offer opportunities for synergy across the DoD.

THURSDAY, 5 DECEMBER • 1330 – 1500 • ROOM 310AB

ARMY LIVE TRAINING

STATE OF ARMY LIVE TRAINING

MODERATOR

COLONEL THOMAS R. MONAGHAN, JR., USA
Project Manager, Training Devices

PANELISTS

COLONEL DANA T. STOWELL, USA
Director, TRADOC Proponent-Live

JOHN McCABE
Division Chief, U.S. Army Contracting Command, Orlando

LIEUTENANT COLONEL JAMES E. FLOTT, USA
Product Manager, Tactical Training Systems

LIEUTENANT COLONEL JENNIFER C. BREWSTER, USA
Product Manager, Combat Training Instrumentation Systems

MICHAEL POWELL
Product Manager, Synthetic Training Environment, Live Training Systems

JOHNNY FIGEUROA
Product Director, Virtual Training Systems

This panel will provide insights on the current state and future vision of Army live training. The panel will discuss current initiatives, future plans, and alignment with Army modernization efforts, offering valuable information to the live training community. This forum encourages dialogue, promotes collaboration, and fosters a better understanding of Army live training, ultimately contributing to the achievement of Army modernization goals. Participants will have the opportunity to engage in dialogue, ask questions, and provide feedback on the topics covered. Please click on the link below if you would like to submit your questions early. **https://forms.osi.apps.mil/r/ExvXqDU8vG**

MONDAY, 2 DECEMBER • 1430 – 1545 • ROOM 330EF

USMC PM TRASYS – ACQUISITION UPDATE

MODERATOR

JOHN TAYLOR
Deputy Program Manager, Program Manager, Training Systems

PANELISTS

LIEUTENANT COLONEL RORY HERMAN, USMC
Product Manager, Range Training Systems, Program Manager, Training Systems

LIEUTENANT COLONEL MARCIAL GARCIA, USMC
Product Manager, Warfighter Training Support, Program Manager, Training Systems

ELIZABETH TYGART
Product Manager, Synthetic Training Systems, Program Manager, Training Systems

- Acquisition Updated from Program Manager Training Systems
- Most current look at opportunties now and into the future

TUESDAY, 3 DECEMBER • 1400 – 1530 • ROOM 310AB

JOINT SIMULATION ENVIRONMENT (JSE)

PANELISTS

COLONEL C. MATT RYAN, USAF
Senior Materiel Leader, Advanced Training Capabilities Division, AFLCMC/WNR

LT COL JOHN KOVACIC, USAF
JSE Materiel Leader, AFLCMC/WNRJ

DEREK GREER
Department Head, IBST/JSE, NAWCAD

NICHOLE WINGATE
JSE Technical Baseline Manager, NAWCAD

DOUGLAS ROSENSTOCK
JSE Chief Test Pilot, NAWCAD

JOHN PUGNALE
Chief Engineer, Blue Air Section, AFLCMC/WNRJ

This panel will introduce the audience to JSE, provide update on program status and near-term outlook. This session will also focus on current status of the JSE program, describing major efforts under way and identifying key interest areas for near-term capability enhancement, including industry partnership opportunities. Representation from across the government stakeholders will be available to answer industry questions on how to participate in the JSE eco-system.

THURSDAY, 5 DECEMBER • 0830 – 1000 • ROOM 330EF

NAVY TRAINING PROGRAMS VISION

MODERATOR

MIKE MERRITT
Acquisition Director, NAWCTSD

PANELISTS

CAPTAIN JIM RORER, USN
F-35 Training Systems and Simulation PMO

DAVID KEMP
Director, Ready Relevant Learning, PEO MLB

ARNOLD MALLORY
IW Training Department Head, Naval Information Warfare Systems Command

Navy Captains and senior civilian leaders representing key programs and capabilities pertinent to the Navy Training mission spanning weapons platforms, sailors, and the training environments the Navy uses. The panel members will discuss their program'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.

THURSDAY, 5 DECEMBER • 0830 – 1200 • ROOM 310CD

ARMY ACQUISITION UPDATE (TSIS UPDATES)

MODERATOR

LEE A. JAMES III, SES
Deputy Program Executive Officer, U.S. Army PEO STRI

PANELISTS

COLONEL THOMAS MONAGHAN, JR., USA
Project Manager, Training Devices (PM TRADE), U.S. Army PEO STRI

JOHN GILLETTE
Project Manager, Synthetic Environment (PM SE), U.S. Army PEO STRI

CHRISTINA BELL
Acting Cyber, Test and Training Project Manager (PMCT2), U.S. Army PEO STRI

DESTINY LASKI
Acting Project Lead Enterprise Transformation and Integration (PL ETI), U.S. Army PEO STRI

DALE WHITTAKER
Project Lead International Office (PL IPO), U.S. Army PEO STRI

MICHAEL WILLOUGHBY
Project Lead TADDS Support Operations (PL TSO), U.S. Army PEO STRI

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 2024 TSIS.

THURSDAY, 5 DECEMBER • 1030 – 1200 • ROOM 330EF

NAVY VISION FROM TRAINING SYSTEMS PROGRAM MANAGERS

MODERATOR

MIKE MERRITT
Acquisition Director, NAWCTSD

PANELISTS

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

CAPTAIN TIM JAMES, USN
Commanding Officer, NAWCTSD and NSA Orlando

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

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.

THURSDAY, 5 DECEMBER • 1030 – 1200 • ROOM 330ABCD

AIR FORCE ACQUISITION UPDATE

USAF CHANGES – PART 2

PANELISTS

COLONEL CARLOS QUINONES, USAF
Acting PEO for PEO Training, AFLCMC/WNS

COLONEL C. MATT RYAN, USAF
Senior Materiel Leader, Advanced Training Capabilities Division
AFLCMC/WNR

COLONEL NICHOLAS FERANEC, USAF
Senior Materiel Leader, Simulators Division
AFLCMC/WNS

COLONEL ROBERT A. VOLESKY, USAF
Senior Materiel Leader, T-7 Division
AFLCMC/WNB

ABBIGAIL H. POGORZELSKI, USAF
Senior Materiel Leader, Legacy Training Aircraft Division
AFLCMC/WND

This special event will present information about the stand up of PEO Training for the USAF as a part of the realignment to meet the challenges of the Great Power Competition. It will feature remarks from Col Carlos Quinones, the acting Air Force Program Executive Officer (PEO) Training. Col Quinones will share his perspective on the current state of the Air Force acquisition process along with ongoing initiatives. In addition, each Division which reports to the PEO will be available for questions on the restructure.

INTERNATIONAL PAVILION

ROOM S310E-H

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 the South 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, 2 December	0800 – 1800
Tuesday, 3 December	1200 – 1800
Wednesday, 4 December	0800 – 1500
Thursday, 5 December	0800 – 1500

International Pavilions

Australia	1961
Canada	1969

PAVILION SPONSOR: A. HAROLD AND ASSOCIATES, LLC

WEDNESDAY, 4 DECEMBER • 1400 – 1530 • INNOVATION SHOWCASE, BOOTH 2909

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.

IT²EC 2024 BEST PRESENTER

OPTIMIZATION OF VIRTUAL REALITY MEDICAL SIMULATION SCENARIOS FOR OPERATIONAL COMPETENCY AND MULTI-DISCIPLINARY TEAM TRAINING

Cheryl Lockhart, Senior Military Advisor, SimX

IT²EC 2024 BEST PAPER

ON-BOARD SYNTHETIC TRAINING – WHY IS IT SO HARD?

Nick Benedek, Capture Lead, BAE Systems

MODSIM WORLD 2024 BEST PAPER

CREATING VIRTUAL WORLD ENVIRONMENTS FOR OCEAN VEHICLES

Ryan Capozzi, Amanda Costa, and **Ian Friedrichs,** Umanned Systems, HII, Mission Technologies Division

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

EXHIBIT HALL: CYBER PAVILION

EXHIBIT HALL

CYBER PAVILION — BOOTH 2369

NTSA's CYBER PAVILION at I/ITSEC provides events and engagements with Cyber, Electromagnetic, Wargaming, and Information Warfare leaders, developers, and educators. Corporate sponsorship enables these areas:

- **Communication** about opportunities that span Cyberspace and Electromagnetic Warfare operations from the Tactical through Operational and Strategic levels; Integration support for policy makers and staffs, EW/Cyber/SIGINT operations; Information Warfare challenges, understanding about Mis/Dis-Information Campaigns, and Multi- Domain Operations.
- **Understanding** of current Defense Department service perspectives: U.S. Army Cyber Command, Army Cyber Center of Excellence, USAF (16th AF IW Command), Navy (U.S. Fleet Cyber Command) and Marines (USMC Force Cyber Command), Coast Guard (USCG Cyber Command); Department of Homeland Security (Cybersecurity and Infrastructure Security Agency CISA), International Partners perspectives.
- **Education** about Academic opportunities, studies and workforce development and model & tool development (i.e., Persistent Cyber Training Environment, Electronic Warfare Planning Management Tool {EWPMT}, and others).
- **Presentations and Demonstrations** of applications, training, and technology approaches in development or in use to support operational organizations.

As the capabilities enabling training and simulation support for cyber, electromagnetic, wargaming, and information warfare areas continue to evolve and expand across the U.S. Government and military services, the Cyber Pavilion serves as NTSA's enabling platform at I/ITSEC for professional dialog, networking, cooperation, and discovery of solutions to address the challenges presented by Cyberspace for Information Warfare and Multi-Domain Operations. Events and attendees span U.S. Government, Department of Defense, Department of Homeland Security, International Partner Nations, Industry and Academia. Senior leaders from many organizations will attend and speak at the Pavilion. Sponsorship delivers better understanding of current capabilities and assists in communicating the needs across organizations and services. Support the proven success of the Cyber Pavilion and the pursuit of solutions at I/ITSEC.

NOTABLE ATTENDEES • NETWORKING CONTACTS ALL AT THE CYBER PAVILION:

SPECIAL EVENT – COMMENTS FROM CURRENT AND FORMER OPERATIONAL GENERAL OFFICERS

- An I/ITSEC SPECIAL EVENT: *Cyberspace – Perspectives on Challenges of Future Multi-Domain Operations Panel*

DISCUSSIONS ON CURRENT TOPICS

- Panel on CMMC Impacts and How to Position Your Company for Success
- Mis/Dis Information – Impact on How We Prepare and Execute Conflicts
- AI Impact – LTG(R) Ed Cardon
- Bringing Cyber, Electronic, Information Warfare into M&S
- Cyber Readiness and Training
- And many more topics!

CYBER PAVILION SPONSORS

BAE-SYSTEMS, INC.

COMMAND POST TECHNOLOGIES

LOCKHEED MARTIN

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ULTIMATE KNOWLEDGE INSTITUTE (UKI)

Innovation Showcase

Exhibit Hall – South Hall • Booth 2909

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 31 OCTOBER 2024

MONDAY, 2 DECEMBER		
1500 – 1530	Hololight USA, Inc.	Hololight Hub: Revolutionizing Defense with XR - Explore the Tactical Advantages
1545 – 1615	HTC VIVE	Scaling Secure XR Training Deployments
1630 – 1700	Concurrent Real-Time	From Soft to Hard Real-Time: Integrating AI Across the Aerospace and Defense Spectrum
1715 – 1745	AVRT - Adaptive VR Training	AVRT - Adaptive Virtual Reality Training: The Application of Human-Centric Design to Dismounted Combat Simulation Training
TUESDAY, 3 DECEMBER		
1230 – 1300	The Weather Company	Weather Affects Outcomes: to be Mission Ready is to be Weather Ready
1315 – 1345	Bohemia Interactive Simulations	A Wind of Change: Bohemia Interactive Simulations Vision of the Future
1400 – 1430	Vrgineers, Inc.	Next-Gen Pilot Training: Mixed Reality Generic Cockpit Simulation
1445 – 1515	HTX Labs	Warfighter Readiness: AI and XR Training Solutions
1530 – 1600	Ruddy Nice	The Identification, Recruitment and Development of Talent in Professional Wargaming: An Analysis of Women, Gen Z, and Gen Alpha Wargaming Practices
1615 – 1645	Nutanix, Inc.	Generating Readiness with Generative AI
1700 – 1730	Avalon Holographics	Holographic Display for a New Mission Planning Experience
WEDNESDAY, 4 DECEMBER		
1000 – 1030	Loft Dynamics AG	Future of Pilot Training
1045 – 1115	Lone Star Analysis	The Alchemy of Innovation: Exploring Lone Star's Emerging Technologies
1130 – 1200	Air Force Agency for Modeling and Simulation (AFAMS)	Air Force Air Operations Center (AOC) Training Modernization
1215 – 1245	Panasonic Connect North America	Innovations in Rugged Mobile Technology for Military Training and Readiness
1300 – 1330	Bluemont Technology & Research, Inc.	Improving SOP Training Retention with Digital Twin Experiences
1400 – 1530	Best from Around the Globe	IT^{2}EC 2024 Best Presenter: Optimization of Virtual Reality Medical Simulation Scenarios for Operational Competency and Multi-Disciplinary Team Training; IT^{2}EC 2024 Best Paper: On-Board Synthetic Training – Why is it So Hard?; MODSIM World 2024 Best Paper: Creating Virtual World Environments for Ocean Vehicles
1600 – 1630	SIMTHETIQ, Inc.	Digital Twins and the Digital Twin Framework: Uses and Applications for Training
1645 – 1715	Radiation Emergency Services	Use of Digital Twin Simulations to Prepare the U.S. Disaster Assistance Response Team for Environments Complicated by Radiological Contamination
1730 – 1800	Deloitte Consulting, LLP	Beyond the Battlefield: How Deloitte is Using M&S Tools for Business and Enterprise Innovation
THURSDAY, 4 DECEMBER		
1000 – 1030	Scaled Foundations	GRID: General Robot Intelligence Development Developing, Validating and Integrating New Autonomous AI Skills with Human on the Loop Operator Training
1045 – 1115	Anthology	Leveraging Artificial Intelligence for Training Delivery in a COTS Based IL4 SaaS Environment
1130 – 1200	STM	Understanding Complexity: Tactical/Operational Decision Support
1215 – 1245	FedLearn	Advancing Warfighter Readiness with Adaptive Learning Enabled by AI
1300 – 1400	**Serious Games Showcase & Challenge Awards**	

HAVE QUESTIONS? ASK BLU!
TEXT "HI" TO 866.653.1575
OR
SCAN THE QR CODE! →

EXHIBITORS

AS OF 19 NOVEMBER 2024

NTSA Sustaining Member • NTSA Regular Member • NTSA Associate Member

2 Circle, Inc.	257
3D perception	859
4C Strategies	1023
19 AF Detachment 24	3000
A Square Games and Simulation, LLC	299
Ace Computers	1921
Acme Worldwide Enterprises, Inc.	571
Adaptive Immersion Technologies	269
Adder Technology	987
Aditerna	1649
Adobe	2463
ADS, INC.	1687
Advanced Technology International	726
Aechelon Technology	1101
Aerotronics LLC	217
AGENIUM IT & SYSTEMS	MR2748
Air Force Agency for Modeling and Simulation	249
Air Force Modeling and Simulation Square	249
Air Force Research Laboratory	457
Akima	965
Allen3D	2813
AMERICAN SYSTEMS	1390
Anatomage	329
ANSYS, Inc.	1090
Anthology	2524
Applied Training Solutions LLC	2288
Aptima, Inc.	1018
ARA Virtual Heroes Division	1309
Army Modeling & Simulation Office	1469
ASI (Aero Simulation, Inc.)	749
Association of the United States Army (AUSA)	373
ASTi	1458
Astrion	1843
Astronaut Scholarship Foundation	2389
Athena Technologies LLC	167
Atlantic Canada Aerospace & Defence Association	2161
Aurora InfoTech LLC	2298
AVADirect Custom Computers	1290
Avalon Holographics	2161
Avatar Partners, Inc.	287
Aviation Training Consulting. LLC (ATC)	995
AVRT - Adaptive Virtual Reality Training	1649
AVT Simulation	1230
Axelera Tehnologies	2195
Axiom AI	2526
Babcock International	871
BadVR	1837
BAE Systems	538
BAGIRA SYSTEMS LTD.	2449
Barco, Inc.	1735
Battle Road Digital, Inc.	2281
Battlespace Simulations, Inc.	1411
B-Design3D	593
Bernoullium	2199
Bihrle Applied Research, Inc.	657
BILT Incorporated	2186
Birket Engineering, Inc.	2901
Blackshark.ai	3001
Blue Marble Geographics	492
Bluedrop USA	1081
BlueHalo	469
Bluemont Technology & Research, Inc.	2189
BlueRoom Simulations	1961
BMC Software	139
BMK Ventures/Marketing Assessment	520
BNH Expert Software Inc.	333
Boeing	2301
Bohemia Interactive Simulations	538
Booz Allen Hamilton	1821
Boresight Aerial Targets	1961
Box	2900
Bugeye Technologies	833
By Light Professional IT Services LLC	1249
C2 Technologies	1660
CAE	1433
CAE Australia	1961
Calian Ltd.	1649
Calnex Solutions	2465
Camaraderie Foundation, Inc.	796
Capgemini	187
Carley Corporation	ICW Room S319
CATI Training Systems	2534
CDW & Google	894
CEA Technologies Pty Limited	1961
Central Florida Tech Grove	141
Cervus Defence and Security Ltd.	1927
CESI51390	MR2817, MR2917
Cesium	221
Circadence Corporation	2481
Clark Synthesis, Inc.	321
Cleemann Chair-Systems GmbH	1380
Clinkenbeard	540
Cole Engineering Services, Inc. (CESI), a By Light Company	1249
Collins Aerospace	2201
COLSA Corporation	2564
Command Post Technologies, Inc.	2365
Concurrent Real-Time	2309
Conflict Kinetics	1971
Connections Café	100
Control Products Corporation	1942
Corporate CourseWare	2296
Corsair for Business	530
Corvalent	428
Craftsmen Industries	174
CS GROUP	281
Cubic Defense	1013
Cyber Florida at USF	184
Cyber Pavilion	2369
CymSTAR LLC	1466
Dalcomm Tech LLC	393
DART Range Simulation Training	2116
DataRobot	698
Dataunitor AS	771
David Clark Company Incorporated	2017
Dedicated Computing	1909
Defense Acquisition University	2805
Defense Maritime Solutions/Wartsila North America	749
Defense Unicorns	2190
Delaware Resource Group of Oklahoma, LLC	1391
Deloitte	2027
Department of Homeland Security, S&T	173
DESAPRO, Inc.	794
Design Interactive, Inc.	1461
Diamond Visionics	1727
Digital University	166
Dignitas Technologies	2288
Discovery Machine, Inc.	1031
Displays & Optical Technologies, Inc.	1086
DiSTI Corporation	1171
DiversityBrothers LLC	697
DLH Corporation	1955
Docebo NA, Inc.	1487
DoD ATEA	2459
DOD Starbase	2393
Dogfight Boss	463
Doron Precision Systems, Inc.	581
DRAKEN	487
Driven Technologies, Inc.	2113
dSPACE, Inc.	2520
Dynamic Graphics, Inc.	2415
Dynepic, Inc.	1621
E2M Technologies BV	1857
EcosySTEM of Learning Discovery Den	2395
EcosySTEM of Learning Info Desk	2484
EDM Ltd.	1092
Education Management Solutions, Inc.	1412
EducationXR	1841
Eduworks Corporation	1026
Elasticsearch, Inc.	1995
Elbit Systems Ltd.	1635
Electric Picture Display Systems	1201
Embry-Riddle Aeronautical University	436
Emerging Technologies Institute (ETI)	2181
Emotional Intelligence Institute	2096
Engineering & Computer Simulations, Inc.	1949
Engineering Support Personnel (ESP) Inc.	757
Entrol	473
Ergoneers	422
eSim Games	2425
Esri	1827
EWA Government Systems, Inc.	1281
Explotrain, LLC	993
Exxar, Inc.	2912
EyeTracking LLC	693
FAAC	2349
FedLearn	1934
Fight Club International	1649
FIRST Robotics	2594
FLAIM Systems	1961
FN America, LLC	1001
Fortifyedge.AI	1961
FoxGuard Solutions	357
Frasca International, Inc.	1049
FSI Defense, A FlightSafety International Company	1049
Full Sail University	799
Fynd Reality AS	369
GameDriver	2098

EXHIBITORS

CONTINUING EDUCATION UNITS: AN I/ITSEC OPPORTUNITY

Continuing Education Units (CEUs) 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 Cori Best at cbest@NTSA.org or (703) 247-9487 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.

MONDAY, 2 DECEMBER

TUTORIAL GRID

ROOM	0830 – 1000	1030 – 1200	1245 – 1415
BEST TUTORIALS • CHAIR: LEE LACY, PH.D., CMSP, SOAR TECHNOLOGY, LLC			
330EF	Navigating the Generative AI Revolution 24T16	An Introduction to Cognitive Systems for Modeling & Simulation 24T21	Unleashing the Potential: Harnessing Large Language Models and Generative AI in Military and Industry Applications 24T26
TUT 1: M&S AND LVC BASICS • CHAIR: JOHN DIEM, TEXAS A&M / BUSH COMBAT DEVELOPMENT COMPLEX			
310AB	Introduction to Defense Modeling and Simulation 24T15	Live, Virtual and Constructive (LVC) Interoperability 101 24T40	A Process for Distributed LVC Integration and Execution 24T17
TUT 2: ALL ABOUT THE BASE-ICS • CHAIR: TARA KILCULLEN-OLIVA, ZYGOS CONSULTING			
310CD	Introduction to HLA 4 24T53	IEEE 1278™ Standard for Distributed Interactive Simulation (DIS): Concepts and Techniques 24T39	TENA: The Test and Training Enabling Architecture 24T27
TUT 3: DIGITAL ENGINEERING, DIGITAL TWINS, AND THE RETURN ON INVESTMENT • CHAIR: CHRIS MCGROARTY, U.S. ARMY DEVCOM SC STTC			
320A	Digital Engineering Basic Principles 24T33	Digital Twins: KISS 24T38	Simulated Systems – Real Return on Investment 24T51
TUT 4: IT STARTS WITH YOU (THE HUMAN) • CHAIR: KEVIN HULME, THE STEPHEN STILL INSTITUTE FOR SUSTAINABLE TRANSPORTATION AND LOGISTICS (SSISTL)			
320B	Harnessing Physiology for Peak Human Performance in Training and Simulation 24T43	Motion Sickness in Virtual Environments: Theory and Practical Considerations 24T29	Mitigation and Management of Minimize Cybersickness in the Design and Implementation of Learning Systems with Virtual Environments 24T36
TUT 5: LIFECYCLE OF M&S CONFIDENCE – FROM ACORN TO TREE • CHAIR: SIMONE YOUNGBLOOD, THE JOHNS HOPKINS UNIVERSITY APPLIED PHYSICS LABORATORY			
320C	Simulation Conceptual Modeling Theory and Use Cases 24T13	Making the Case: Building Strong Modeling and Simulation (M&S) Verification and Validation Evidence 24T46	Accreditation of Simulation-Based Experiments: Beyond the M&S 24T12
TUT 6: ACCESSIBILITY AND THE HUMAN ELEMENTS OF TRAINING • CHAIR: JEFFREY RAVER, SAIC			
320D	Remodeling Readiness: Making Sense of Jobs, Tasks, and Skills in a Digital World 24T25	Harnessing the Power of Simulation-Based Tools to Enhance Warfighter Brain Health 24T34	Spell Casting: Calling the Power of Accessible Design to Your Serious Games and Simulations 24T60
TUT 7: XR MR VR – GET REAL ^3 • CHAIR: STEVEN PARRISH, EDUCATION MANAGEMENT SOLUTIONS			
320E	Evolution of Radio Signal Visualization from Spectrum Analyzers to Mixed Reality 24T49	Accessible, Adaptable, Adoptable eXtended Reality (XR) Training – The Need is Now, Are You Ready? 24T45	Mission XRpossible: Navigating Novice-to-Expert Assessment Design in Medical & Military Training 24T31
TUT 8: NAVIGATING GLOBAL PARTNERSHIPS • CHAIR: NIR KEREN, IOWA STATE UNIVERSITY			
320F	Enhancing CBRN Response Readiness Using a Mental Model Matrix 24T62	The Development of a Resilient ADL Capacity Through Long Term Nordic Military Partnership 24T22	U.S. Export Controls, National Security, and the Simulation Industry in 2024 24T54
TUT 9: LAGNIAPPE • CHAIR: RONALD VENTURA-MOORE, MAXAR			
320G	Securing Distributed LVC: Harnessing OMG DDS for Interoperability at Scale 24T18	Introduction to Quantum Computing – It'll be Fine Man (Feynman) 24T19	How the Brain Creates Reality; Enhancing the Reality Experience with Large Area Haptic Feedback 24T61
TUT 10: AI & YOU • CHAIR: SCOTT HOOPER, BOHEMIA INTERACTIVE SIMULATIONS, INC.			
330GH	A Practitioner's Guide to Human-Machine Teaming Research 24T30	Applied Generative AI for 3D Simulation and Modeling Assets 24T48	Machine Learning: An Introduction for Humans 24T20

0830 – 1000

BEST TUTORIALS
0830 – 1000 • 330EF

NAVIGATING THE GENERATIVE AI REVOLUTION

24T16

There are plenty of books, articles, and workshops about Artificial Intelligence (AI) nowadays—some of which have no doubt been created by algorithms, such as ChatGPT. We've tried to approach this session a bit differently.

Our tutorial is quite human-centric. It's not a deep dive on software development or deep mathematics, nor is it another lazy walkthrough of "prompt engineering" recipes. Instead, we've approached Generative AI from a different lens, exploring the questions it raises about our structures and systems, ways of working, and the future of our communities. We've made the tutorial approachable and somewhat speculative, although grounded in science and technology as well as the authors' unique backgrounds in defense (Sae), organizational learning (Julian), and commercial entrepreneurship (Geoff).

Our tutorial includes several parts:

- We begin by reviewing the foundations, so that even those who've somehow avoided discussions of Generative AI can have a sense of what these algorithms can do and roughly how they work. This includes a no-nonsense overview of the relationships between Good Old-Fashioned AI, Machine Learning, Deep Learning, and Generative AI. It will also include a brief description of how Generative AI works.
- Next, we consider how the mirror held up by AI helps us see ourselves (as humans) in different ways, including our biases and baser natures and our concepts of intelligence and personhood. This section explores our very human responses to AI, including how real-world unfairness infects algorithms and how bad actors are using Generative AI.
- We then explore notions of change across art, culture, organizations, society, and security. How will these structures evolve as Generative AI grows more pervasive? Examples include structural changes to work, the ways we value and navigate information, new models of learning and assessment, and the increasing use of Augmented Intelligence (the pairing of humans with AI augmentation).
- Finally, we end with a practical discussion designed to guide attendees through thinking about different types of change (e.g., efficiencies gained within existing structures versus disruptive paradigmatic change that changes those structures all together). This section includes a focus on how Generative AI is likely to create change within their own organizations and communities and what they should be doing to influence and navigate these changes.

This is an exciting, if volatile new world, and perhaps, the ideas explored within this tutorial will help attendees find their ways a little bit better.

PRESENTERS
Sae Schatz, Ph.D., Partnership for Peace Consortium
Julian Stodd, Sea Salt Learning Ltd.
Geoff Stead, MyTutor

TUT 1: M&S AND LVC BASICS
0830 – 1000 • 310AB

INTRODUCTION TO DEFENSE MODELING AND SIMULATION

24T15

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

TUT 2: ALL ABOUT THE BASE-ICS
0830 – 1000 • 310CD

INTRODUCTION TO HLA 4

24T53

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.

It describes the requirements for interoperability, flexibility, composability and reuse and how HLA meets them. It shows how HLA can be used for LVC platform training, C2 training, analysis and wargaming

as well as space simulation. Several standardized Federation Object Models (FOMs) like the RPR FOM model for platform training, Link 11 and Link 16 FOMs, NATO FOM, Cyber DEM and Space FOM are also described.

After an overview of the technical features of HLA, the new version, HLA 4, is described. It adds new features in the area of scalability, security, cloud and live deployment. New features for extending FOMs are also presented. Additional considerations like gateways, tool chain, performance and implementation of Cross Domain Securiy are also covered.

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

PRESENTERS
Björn Moller, Pitch Technologies
Fredrik Antelius, Pitch Technologies

TUT 3: DIGITAL ENGINEERING, DIGITAL TWINS, AND THE RETURN ON INVESTMENT
0830 – 1000 • 320A

DIGITAL ENGINEERING BASIC PRINCIPLES

24T33

The Digital Engineering (DE) Basic Principles tutorial will provide an exclusive overview of foundational terms and concepts associated with DE development and application in the Department of Defense (DoD). During the session, attendees will become familiar with (a) DE terminology and concepts, (b) DE technology, architectures and standards and their role in enabling key functions, (c) the processes for developing valid models and simulations, or an "authoritative source of truth," that captures the current state and history of a system's technical baseline, and (d) the supporting DE ecosystem. Attendees will also be introduced to emerging DE methods in the DoD that support product development activities, including training development and delivery, organizational change management, DoD acquisition support, and other areas that directly support the Warfighter. Furthermore, this tutorial will identify key policies, procedures, and guidance, that emphasize the importance of Verification, Validation and Accreditation (VV&A) to ensure models meet user requirements, and the curation of those models may be trusted for use and reuse.

This tutorial will explore the characteristics and associated challenges of DE use in Test and Evaluation, Autonomy, Mission Engineering, DoD Research and Development/Acquisition and Manufacturing. It also highlights the key role DE plays in developing capabilities that support training, maintenance, and DoD operations. The tutorial will describe accessible DoD DE information resources and explain the role of the Office of the Under Secretary of Defense for Research and Engineering (OUSD (R&E)) and Modeling and Simulation (M&S) support to the engineering and acquisition Enterprise, which is the focal point of DoD DE and M&S information, practice, technology, and functional use.

The target audience for this tutorial are M&S professionals that work in various domains that may find utilization of their capability in another manner. Upon completion of this tutorial, the participant will better understand DE fundamentals that will contribute to their DE journey. Learners will further their knowledge of key terms and concepts and how they are being applied. The tutorial will also aid learners in driving DE principles and practices that will drive digital transformation initiatives within their own organizations.

PRESENTERS
Jeffrey Nartatez, OUSD (R&E) Digital Engineering Modeling & Simulation
Keith Henry, OUSD R&E Digital Engineering Modeling & Simulation
Scott Schutzmeister, Institute for Defense Analyses
Daniel Hettema, OUSD (R&E), DEM&S

TUT 4: IT STARTS WITH YOU (THE HUMAN)
0830 – 1000 • 320B

HARNESSING PHYSIOLOGY FOR PEAK HUMAN PERFORMANCE IN TRAINING AND SIMULATION

24T43

Hyper-realistic environments and on-demand training tools have experienced significant advancements in training and simulation use cases. Incorporating physiological monitoring into simulation and training environments provides crucial information to monitor and optimize performance, ensure individual competencies, provide adaptive support, and enable bi-directional communication between human users and AI collaborators. Training and simulation communities can remain at the forefront of innovation and assured deterrence by synergizing common needs and removing barriers to integrating human performance monitoring. The key to making these capabilities available to the community is streamlining an approach that is adaptive to a variety of use cases. Such an approach will support more advanced training environments, decision-making, and digital engineering to ensure readiness.

Attendees will be equipped with tools to understand and implement physiological monitoring, regardless of specific use cases. The session will provide engaging overviews of the current state-of-the-art in physiological monitoring and human performance, including use cases for training and simulation, current challenges, and example implementations. Attendees will learn best practices and a recommended approach to leverage physiological sensing in various environments. The approach will delve into understanding underlying physiological changes, selecting appropriate sensors, benchmarking to confirm accuracy, analyzing data, storing results, and translating data into action.

PRESENTERS
Emily Mills, Ph.D., Design Interactive, Inc.
Robert Furberg, Ph.D., JPEO-CBRND
Charles Rowan, Ph.D., The MOVES Institute, Naval Postgraduate School
Nina Fletcher, Ph.D., Design Interactive, Inc.
Rebecca Kwasinski, Design Interactive, Inc.
Victoria Olko, Design Interactive, Inc.

TUT 5: LIFECYCLE OF M&S CONFIDENCE — FROM ACORN TO TREE
0830 – 1000 • 320C

SIMULATION CONCEPTUAL MODELING THEORY AND USE CASES

24T13

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, Borah Enterprises LLC

TUT 6: ACCESSIBILITY AND THE HUMAN ELEMENTS OF TRAINING
0830 – 1000 • 320D

REMODELING READINESS: MAKING SENSE OF JOBS, TASKS, AND SKILLS IN A DIGITAL WORLD

24T25

Efficient and dynamic sustainment of force-wide training and readiness requires an organization to build and maintain digital representations of comprehensive personnel job requirements, training materials, performance criteria and expectations. These digital representations are used during the planning, development and tracking of both training and job performance, enabling real-time readiness computations and data-driven training effectiveness evaluations. Although the U.S. military has created numerous systems that seek to collect and maintain human performance data, a significant gap remains in the lack of shared digital expressions of readiness across the ecosystem. In this tutorial, we review and demonstrate techniques for implementing centralized, technical standards-based competency and skills frameworks using existing training materials, job descriptions, and performance criteria that can be leveraged for actionable insights across the full training and readiness lifecycle. Our "digitization" approach streamlines the framework construction process and has been implemented over numerous recent Navy, Army, and Air Force projects to convert legacy artifacts that describe human experience, capability, potential, and expectations into normalized digital frameworks that support analysis and tracking in a modern learning ecosystem. We demonstrate how our semi-automated digitization techniques could be applied to all available data that defines what personnel should know and do within a military organization, including (1) who a person is and their training background; (2) the job duties associated with a person's role and assignments; (3) what a person has demonstrated they know and can do; (4) what credentials a person has earned; and (5) what a person's capabilities and goals are according to their organization. We use a civilian/military medical simulation use case to illustrate how competency frameworks have been and would be employed for team and individual performance analysis, skills gap analysis, training needs analysis, instructional design, assessment, and evaluation. This tutorial provides insights into machine actionable URI-referenceable data known as Linked Data, discusses approaches for applying appropriate security measures based on the information it represents, and reviews how the use of linked data has allowed systems to perform rapid analysis by uniformly following data trails across the system, organizational, and authoritative boundaries. The tutorial concludes with a discussion of how taking steps to "digitize" knowledge, skills, tasks and duties can provide organizations with a foundation focused on the human element of training and readiness, enabling a data-driven accelerator for sustaining a global force in a digital world.

PRESENTERS
Evelyn Rowland, Eduworks Corporation
Debbie Brown, Eduworks Corporation
Tim Welch, Eduworks Corporation
Brooke Shields, Eduworks Corporation

TUT 7: XR MR VR - GET REAL ^3
0830 – 1000 • 320E

EVOLUTION OF RADIO SIGNAL VISUALIZATION FROM SPECTRUM ANALYZERS TO MIXED REALITY

24T49

We are surrounded by invisible radio frequency signals used for communications, navigation, and even health. 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, Starlink, 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 Mixed Reality displays and AI/ML algorithms is now capable of spatializing radio emissions at their natural 3D location for easier understanding and communication.

This tutorial will convey 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 holographic 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 upcoming innovations in the emerging field.

PRESENTERS
Jad Meouchy, BadVR
Suzanne Borders, BadVR

TUT 8: NAVIGATING GLOBAL PARTNERSHIPS
0830 – 1000 • 320F

ENHANCING CBRN RESPONSE READINESS USING A MENTAL MODEL MATRIX

24T62

Addressing chemical, biological, radiological, and nuclear (CBRN) threats effectively is critical for military and emergency response teams. These incidents, characterized by their complexity and infrequency, pose a unique challenge in preparing responders to act decisively and effectively. Traditional training methods may not fully encapsulate the unpredictable nature of CBRN events, leading to gaps in the mental models that responders develop to navigate these threats. In response to this challenge, this workshop introduces an innovative approach, rooted in advanced research, aimed at analyzing and enhancing the cognitive strategies responders employ when facing CBRN threats. Central to this approach is the introduction of the Expected Mental Model State (EMMS) Diagnostic Matrix, an analytical tool that captures the ideal cognitive frameworks based on established military doctrines or emergency response protocols. This matrix serves as a framework for developing evaluative instruments, such as simulations or structured surveys, to assess an individual's mental model, which are the cognitive depictions formed through lived experiences and previous instruction.

Participants in this workshop will be engaged in a blend of theoretical and practical discussion, aimed at illustrating the utility of this framework in developing targeted and robust simulation exercises and surveys mapped directly back to the original EMMS. Using case studies from existing research with responders and radiological threats, the audience will see how the matrix can highlight gaps and trends in the mental models of individuals and groups. These case studies will serve as a basis for group discussions, enabling participants to how these insights can be leveraged to refine current training modules and inform the development of new training methodologies to bridge identified gaps. Further, participants will consider how this framework could be applied specifically to CBRN response scenarios to identify and characterize the mental models of military personnel.

Integrating military doctrine into the formulation of the EMMS and the derivative diagnostic matrix, this workshop directly addresses the intricate requirements of military preparedness for CBRN incidents. Using this innovative approach to assessing response personnel, training resources can be targeted, and solutions can be developed to complete the identified gaps or misconceptions. This methodical approach aims to ensure that response teams possess a thorough understanding and enhanced readiness, equipping them to effectively navigate the complexities of CBRN response.

PRESENTERS
Angela Leek, Ph.D., Summit Exercises and Training, LLC and Iowa State University
Jeff Skinner, M.D., Summit Exercises and Training, LLC
Nir Keren, Ph.D., Iowa State University

TUT 9: LAGNIAPPE
0830 – 1000 • 320G

SECURING DISTRIBUTED LVC: HARNESSING OMG DDS FOR INTEROPERABILITY AT SCALE

24T18

In today's dynamic landscape of distributed simulation, ensuring both interoperability and security are paramount challenges. Traditional simulation environments, often utilizing disparate standards, must seamlessly integrate with modern architectures leveraging cloud-based assets. Moreover, the escalating demand for security mandates integrators to navigate the complex realm of information assurance. How can simulation systems integrators navigate this intricate terrain and accelerate integration timelines to meet demanding requirements?

This tutorial offers a comprehensive exploration of the Object Management Group's Data Distribution Service (OMG DDS) standard, showcasing its pivotal role in addressing the twin imperatives of interoperability and security within distributed Live, Virtual, and Constructive (LVC) simulation environments. OMG DDS stands as a cornerstone middleware solution, adept at facilitating hard real-time data distribution across diverse systems while providing robust security mechanisms to safeguard sensitive simulation data.

Throughout the tutorial, participants will embark on a journey through the fundamental principles of OMG DDS, starting with its configuration for seamless integration with LVC simulations. From designing OMG DDS entities and data models to fine-tuning performance and scalability through a suite of quality-of-service parameters, attendees will gain actionable insights into harnessing OMG DDS's capabilities to meet the diverse needs of distributed simulation environments.

A focal point of the tutorial will be an in-depth exploration of OMG DDS's security features, used for multi-layered security (MLS) within LVC systems today. OMG DDS ensures the confidentiality, integrity, and availability of simulation data, essential for safeguarding against unauthorized access and malicious threats. Furthermore, attendees will discover how the OMG DDS Security standard enables secure interoperability with real-world systems already leveraging OMG DDS, facilitating seamless communication across disparate simulation environments.

The tutorial will culminate in an exploration of examples of integrating OMG DDS with existing simulation standards, and object/data models. Participants will unlock the potential for enhanced interoperability and scalability while maintaining robust security protocols.

Join us for this tutorial to gain actionable insights into leveraging OMG DDS for secure, reliable, and interoperable data distribution in distributed LVC simulations. Whether you're a seasoned simulation systems integrator or an industry newcomer, this session promises to equip you with the knowledge and tools needed to navigate the complexities of distributed simulation environments with confidence and proficiency.

PRESENTERS
Robert Proctor, Jr., Real-Time Innovations
David Whitten, Real-Time Innovations

TUT 10: AI & YOU
0830 – 1000 • 330GH

A PRACTITIONER'S GUIDE TO HUMAN-MACHINE TEAMING RESEARCH

24T30

Human-Machine Team (HMT) research represents one of the fastest growing fields of inquiry in science and technology. The need for HMT research is accelerated by warfare requirements, the AI revolution, and technological advances yielding a wide variety of collaborative automated platforms to support Warfighters' and operators' decision-making in current and future warfare paradigms. However, there is a sizable confusion on what are the main factors and approaches for investigating HMTs to produce effective systems. Additionally, without referencing the vast existing knowledge of what makes human teams perform effectively and applying those lessons to HMTs, we risk reinventing the wheel, or worse, we risk neglecting human factors considerations, thereby leading to infamous "human error" outcomes and poor acceptance of HMT technologies.

The purpose of this tutorial is to provide HMT stakeholders, whether they be scientists, engineers, or decision-makers, with a practical guide to address HMT science and technology holistically. The goal of this tutorial is to present logically and simply the most salient aspects of HMT research for stakeholders to develop a robust understanding of HMT research and its desired impact on the development of HMT technologies that support and extend Warfighters' capabilities.

The tutorial begins by providing contextual and historical background on HMTs, pointing to a rapid paradigm shift where perceptions of machines evolved from simple subordinates with precise tasking, to collaborative synthetic teammates supporting decision-making processes and autonomously carrying out mission objectives. We illustrate how this accelerated shift is driven by the AI revolution, future warfare demands, and modern mythology. Next, we provide an overview of how this shift also impacts Level of Automation (LOA) taxonomies in terms of requiring additional definition for collaborative human-machine decision-making, while providing practical examples.

Our focus turns to HMT research, and the need to align to DoD priorities. To that end, we first introduce the automation vision from the DoD Communities of Interest (COI). Second, we outline HMT research gaps and roadmaps from a seminal consensus study. And finally, we introduce how AI-driven automation needs to follow risk management best practices as well as DoD ethical principles for developing responsible AI.

Finally, the tutorial addresses important HMT performance enablers, focusing on three main enablers: calibrated trust, team situation awareness, and adaptive Human-Machine Interfaces (HMI). Our conclusion will summarize the tutorial's main points under the lens of conducting effective HMT research while providing useful resources to the practitioner in support of that endeavor.

PRESENTER
Sandro Scielzo, Ph.D., CAE USA

1030 – 1200
BEST TUTORIALS
1030 – 1200 • 330EF

AN INTRODUCTION TO COGNITIVE SYSTEMS FOR MODELING & SIMULATION

24T21

There are increasing requirements for automated reasoning abilities across the broad spectrum of modeling and simulation, as well as in battlefield information and control systems. Additionally, the cognitive capabilities that have been developed and tested in simulation are migrating to real-world systems. Cognitive systems represent a maturing computational approach to intelligence that can provide robust, scalable, and adaptive decision making. This tutorial provides an introduction to cognitive systems, concentrating on production system computation and high-level design of human-like reasoning systems. We draw examples and comparisons from existing cognitive systems, focusing on the tradeoffs between cognitive and non-cognitive modeling approaches. The tutorial content does not require any specialized knowledge, but some experience with software engineering or behavior modeling can be helpful. Attendees will learn to recognize problems that suggest cognitively based solutions, and they will be better able to assess risks, costs, and benefits of different approaches. This tutorial is targeted toward developers who might be interested in cognitive approaches to software engineering, as well as customers who have problems that may be amenable to a cognitive approach.

PRESENTERS
Randolph Jones, Ph.D., CMSP, Soar Technology, LLC
Dylan Schmorrow, Ph.D., Soar Technology, LLC

TUT 1: M&S AND LVC BASICS
1030 – 1200 • 310AB

LIVE, VIRTUAL AND CONSTRUCTIVE (LVC) INTEROPERABILITY 101

24T40

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 2: ALL ABOUT THE BASE-ICS
1030 – 1200 • 310CD

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

24T39

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 1278.1™-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.

PRESENTERS
Robert Murray, SimPhonics, Inc.
Lance Call, AFRL

TUT 3: DIGITAL ENGINEERING, DIGITAL TWINS, AND THE RETURN ON INVESTMENT
1030 – 1200 • 320A

DIGITAL TWINS: KISS

24T38

Our objective is to leverage our extensive experience in digital twins across diverse private sector domains, including AEC, manufacturing, security, retail, and entertainment, to elucidate the multifaceted nature and potential applications of digital twins. To achieve this, our initial focus is on establishing a shared language, providing precise definitions, and categorizing the various levels and types of digital twins within the private sector. This foundational understanding will empower our audience to discern private sector solutions and how they may fit DoD needs.

The intricate landscape of digital twins encompasses varied types and levels, ranging from visual and maintenance-centric to those with IoT integrations facilitating rapid decision-making, and others designed explicitly for modeling, simulations, and predictive analysis. Following this comprehensive categorization in the initial section, our presentation proceeds to offer a high level overview of the intricate process involved in constructing digital twins. This section is intended to be a short and visual centric overview of how digital twins are built.

Subsequently, our presentation delves into a nuanced exploration of the evolving technologies integrated into digital twins. This segment aims to provide a deeper understanding of the technological foundations that underpin the diverse functionalities of digital twins.

Armed with a shared language, knowledge of the construction process, and insights into technological intricacies, we transition to demonstrating the potential applications of these solutions within the DoD, particularly in the realms of training and simulation.

In addressing potential concerns regarding the integration of digital twins in a DoD context, we proactively discuss best practices and industry standards observed in the private sector. By showcasing how these tools have been effectively leveraged alongside the regulatory frameworks governing them, we seek to instill confidence and understanding, laying the groundwork for the strategic incorporation of digital twins within defense operations.

PRESENTERS
John Niles, Gafcon Digital
Brett Moushon, TransformXD
Chris Hussey, TransformXD
Ryan Thomas, Allen3D

TUT 4: IT STARTS WITH YOU (THE HUMAN)
1030 – 1200 • 320B

MOTION SICKNESS IN VIRTUAL ENVIRONMENTS: THEORY AND PRACTICAL CONSIDERATIONS

24T29

Virtual Reality (VR) and simulation technologies are essential tools for training, education, research, healthcare, and entertainment, in military and civilian applications. With an estimated market value of 105.9B USD in 2030 and more than 171 million current users worldwide, VR technologies will have a major impact on our daily lives. Although VR and simulation technologies have improved significantly since they were first introduced, motion sickness is still a common side-effect for many users of VR and simulation technologies, resulting in various symptoms that can include nausea, dizziness, fatigue, headache, and eyestrain. As these symptoms are primarily caused by stimulation of the visual system while physical movement is typically limited (or fully absent), the term visually induced motion sickness (VIMS) has been used to describe motion sickness-like feelings in virtual environments (VEs). The occurrence of VIMS can cause users to stop VR or simulation sessions prematurely, with dropout rates being as high as 70% in some cases, posing a major problem for the training of military or civilian personnel that needs to be urgently addressed.

The goal of the present tutorial is to provide attendees with a systematic overview of the topic of VIMS while providing practical considerations when using or designing VEs. To achieve this, the tutorial is segmented into 5 parts. We will first introduce the attendees to the different theoretical foundations of VIMS (Part I) and discuss the role of different factors determining an individual's susceptibility to VIMS (Part II). Next, the tutorial will provide recommendations for measuring the severity of VIMS during and after VE exposure (Part III). An overview of the most effective countermeasures against VIMS will be provided (Part IV) before future research directions and open questions will be highlighted (Part V). Importantly, this tutorial is designed to provide helpful considerations and recommendations for users and designers of virtual environments (VR/AR applications, simulators). This tutorial does not require any existing knowledge on the topic of VIMS and is suitable for novice and expert users alike.

PRESENTERS

Behrang Keshavarz, Ph.D., University Health Network – KITE
Bruce Haycock, Ph.D., University Health Network – KITE

TUT 5: LIFECYCLE OF M&S CONFIDENCE — FROM ACORN TO TREE
1030 – 1200 • 320C

MAKING THE CASE: BUILDING STRONG MODELING AND SIMULATION (M&S) VERIFICATION AND VALIDATION EVIDENCE

24T46

The processes of Verification and Validation, 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 and Accreditation Agents 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 the conditions under which an M&S could and should be used.

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 V&V 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) and adapting them to various development paradigms
- Building and applying validation referent data (what the simulation results will be compared to)
- Defining the simulation measures and metrics to be compared
- 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
- V&V as it applies to other A's: Agile and Autonomous

The tutorial will enhance the learning experience by incorporating lessons learned derived from the many V&V 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

TUT 6: ACCESSIBILITY AND THE HUMAN ELEMENTS OF TRAINING
1030 – 1200 • 320D

HARNESSING THE POWER OF SIMULATION-BASED TOOLS TO ENHANCE WARFIGHTER BRAIN HEALTH

24T34

The integration of operational and medical communities in a unified approach for optimizing Warfighter brain health while also preventing, diagnosing, and treating traumatic brain injuries (TBIs) poses a unique opportunity for merging the worlds of simulation and healthcare. Specifically, the merging of these two worlds could produce assessments, interventions, and trainings with high levels of ecological validity while also facilitating adaptive neuroplasticity for enhancing Warfighter brain health. This tutorial is intended to introduce simulation professionals to the future opportunities related Warfighter brain health and promote

the development of new technology for optimizing performance. We will cover key concepts relating to the prevalence, symptoms, and diagnosis of TBI as well as review longstanding issues related to the assessment and treatment of service members after a TBI. We will then discuss how to measure cognitive function and improvement with commonly utilized TBI outcome measures that are seen in current simulation technology. With overviews from eye tracking, electroencephalographic (EEG), and behavioral studies we will discuss similarities and differences in measuring cognition with TBI and healthy controls that may influence outcomes within simulation-based platforms. Finally, we explore the need and opportunities to scale current simulation tools for healthcare application to harness the possibilities for enhancing cognition and mitigating the effects of TBI as a possible deterrent to the Warfighter.

The tutorial has four major sections:

- Overview of the Department of Defense (DoD) Brain Health Initiative.
- Current limitations in cognitive performance assessment and training.
- Facilitating neuroplasticity through simulation-based tools for optimizing cognitive performance and Warfighter readiness.
- Future healthcare applications of simulation-based tools to support Warfighter brain health.

PRESENTERS

DeAnna Pinnow, DHA Traumatic Brain Injury Center of Excellence
Jamie Hershaw, DHA Traumatic Brain Injury Center of Excellence

TUT 7: XR MR VR - GET REAL ^3
1030 – 1200 • 320E

ACCESSIBLE, ADAPTABLE, ADOPTABLE EXTENDED REALITY (XR) TRAINING – THE NEED IS NOW, ARE YOU READY?

24T45

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. The ability to practice skills contextually and obtain feedback to instill muscle memory, embody actions, and formulate critical thinking is needed now to assure deterrence and readiness in highly contested environments. By utilizing an integrated training approach of augmented, virtual, and mixed reality technologies, eXtended Reality (XR) 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) to create a fully immersive and highly engaging training environment that fosters force readiness. When XR training applications are coupled with automated content generation and computer vision models that facilitate automated detection, tracking, and analysis an opportunity exists to provide psychomotor practice and validation in a highly engaging environment leading to significant proficiency gains in both primary and refresher training.

XR training applications must be accessible, adaptable, and adoptable. 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. XR does not have a proven, common mental map for the way users expect to interact with XR content especially when spatial movement is required. It is critical to build systems with interaction capabilities that optimize users' expected interaction paradigm. Applications downloaded to mobile or head worn devices enable readily available consumption and action-oriented, learner-centered solutions that are very different from traditional classroom and remote training.

This Emerging and Innovative Concepts tutorial will dive into the key elements of XR immersive training leveraging andragogically-based activities, formative assessments, feedback measures, and documentation ingestion to infer trainee proficiency by providing insights into: Key drivers and barriers of accessible, adaptive, and adoptable XR training; methodologies and strategies for creating accessible, adaptable, and adoptable XR training; value-added case studies with end-user feedback; and user-centered guidelines for designing, developing and implementing XR training systems. By the end of this tutorial, attendees will be able to implement effective techniques for developing and implementing accessible, adaptable, and adoptable XR training applications based on experience and lessons learned from military ground operations, maintenance, and medical domains.

PRESENTERS

JoAnn Archer, Design Interactive, Inc.
Rebecca Kwasinski, Design Interactive, Inc.
Glenn Dennison, DAF, AETC, 338 TRS/TRR

TUT 8: NAVIGATING GLOBAL PARTNERSHIPS
1030 – 1200 • 320F

THE DEVELOPMENT OF A RESILIENT ADL CAPACITY THROUGH LONG TERM NORDIC MILITARY PARTNERSHIP

24T22

Advanced Distributed Learning (ADL) has become central to modern military training methodologies. The Nordic countries (Denmark, Finland, Norway, and Sweden) have capitalized on this trend through extensive cooperation under the NORDEFCO (Nordic Defence Cooperation) framework. This collaboration encompasses several key areas:

- The NORDEFCO ADL Forum of Experts provides a platform for strategic coordination, knowledge exchange, and resource sharing.
- Annual NORDEFCO ADL Conferences facilitate networking, presentations on best practices, and discussions on emerging technologies.
- Joint projects, ranging from shared technology development to the creation of standardized training modules, promote efficiency and interoperability.

This cooperation has yielded significant benefits for Nordic militaries since the early 2000s. Cost savings are achieved through reduced duplication, while knowledge exchange accelerates the adoption of effective ADL strategies. Joint projects directly enhance operational readiness by deliv-

ering flexible and accessible training. These collaborative efforts position the Nordic countries as leaders in military ADL, promoting innovation and ensuring a technologically advanced and adaptable defence forces.

This tutorial will tell the story of this collaboration effort and give a breakdown of the history and timeline, methods of cooperation, the benefits of Nordic ADL cooperation and highlight specific projects that have been instrumental in employing ADL to bolster readiness in the Nordic armed forces.

PRESENTERS
Geir Belgen Isaksen, Norwegian Defence University College
Ville Kostian, The Finnish Defence Forces Shared Services Centre
Steffen Waedeled-Moeller, Royal Danish Defence College
Michael Thorsen, Royal Danish Defence College
Major Niclas Ljung, Military Academy, Swedish Armed Forces
Major Tohmas Ax, Military Academy, Swedish Armed Forces

TUT 9: LAGNIAPPE
1030 – 1200 • 320G

INTRODUCTION TO QUANTUM COMPUTING – IT'LL BE FINE MAN (FEYNMAN)

24T19

The mystery and excitement surrounding quantum computing (QC) is on par with AI and machine learning. In fact, some believe QC is the future of machine learning, i.e., quantum machine learning (QML). In this tutorial, we will identify concepts of quantum mechanics that apply to QC. We present quantum computer state of the art and corresponding challenges. Fundamental and relevant QC concepts such as qubits, superposition, entanglement, and interference will be presented. Applications to cryptography and teleportation will show the relevance of today's QC. We will introduce the quantum Fourier transform and quantum optimization and explain why QC is believed to be the future of QML. We will also challenge some popular QC myths, particularly the claim QC will render the classical binary computer obsolete. This tutorial has three major sections:

(1) Single qubits, where the qubit is introduced, the concept of superposition is explained including graphical representations, and single-qubit operators (gates) are introduced; concluding with a quantum cryptography example which combines the concepts learned so far.
(2) Multiple qubits, where multi-qubit operators (gates) are introduced along with the concepts of entanglement and interference, concluding with a quantum teleportation example demonstrating newly learned concepts.
(3) An introduction to the quantum Fourier transform (QFT) and how Shor's algorithm breaks RSA encryption; and introduce quantum optimization with its implications for QML.

The tutorial finishes with where to find more information on various topics, a reference list, and time for questions and answers.

PRESENTER
Randal Allen, Ph.D., CMSP, Lone Star Analysis

TUT 10: AI & YOU
1030 – 1200 • 330GH

APPLIED GENERATIVE AI FOR 3D SIMULATION AND MODELING ASSETS

24T48

Simulation environments, virtual and otherwise, are often bottlenecked by laborious 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 system. However, the emerging field of generative AI allows one individual to direct a single secure computer to build libraries of relevant, usable materials through simple voice or text prompts. Once these processes have fully matured, the net increase in productivity will likely be measured in orders of magnitude.

This tutorial will review and critically analyze modern modeling and simulation production workflows against the next-generation approach of directed GenAI, exploring possible trajectories of highly disruptive new tech. 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 seconds or minutes. The audience will learn how to begin testing these new tools and be given recommendations on how to use them effectively and responsibly.

PRESENTERS
Jad Meouchy, BadVR
Suzanne Borders, BadVR

1245 – 1415

BEST TUTORIALS
1245 – 1415 • 330EF

UNLEASHING THE POTENTIAL: HARNESSING LARGE LANGUAGE MODELS AND GENERATIVE AI IN MILITARY AND INDUSTRY APPLICATIONS

24T26

This tutorial aims to explore the art and science behind utilizing Large Language Models (LLMs) and Generative AI in military and industry environments. From understanding the nuances of selecting the right LLM to crafting sophisticated prompts and overcoming implementation challenges, this tutorial provides participants with basic understanding of essential skills necessary for harnessing the power of LLMs effectively.

We will delve into LLM solutions, analyzing selection criteria and weighing various options' pros and cons. Understanding hardware and software requirements, including integrating LLM APIs, is crucial for seamless implementation. The tutorial progresses into product item creation, explaining steps to determine data requirements, define product items, and enrich prompts with relevant data. Participants will learn about writing effective prompts, from basic structures to advanced techniques like Chain-of-Thought (CoT) prompts and LLM-assisted prompt refinement. Supplementing prompts with external data sources

and understanding Retrieval-Augmented Generation (RAG) strategies are also covered in order to enrich participants' knowledge base. We will cover techniques for data generation, validation, and batch processing to ensure AI-generated content quality and efficiency. The tutorial emphasizes measuring effectiveness and utilizing real-world operational data to improve AI system quality and transparency.

We will cover advanced techniques like RAG and CoT prompting that significantly enhance generative AI capabilities in training development. RAG combines large language models with dynamic retrieval and incorporation of external information into responses, while CoT Prompting structures prompts to guide AI through logical reasoning steps, particularly effective in complex problem-solving scenarios.

Real-world use cases illustrate LLMs' practical applications in military and industry settings, addressing military training analysis and design challenges and enhancing proposal development processes. Through these use cases, participants will gain insights into diverse LLM/AI applications.

Finally, the tutorial addresses integrating generative AI into military training environments, acknowledging potential operational efficiency enhancements while confronting challenges such as classified environments, data security and organizational change management.

PRESENTERS
Ramona Shires, ND, Aptima, Inc.
Robert McCormack, Ph.D., Aptima, Inc.

TUT 1: M&S AND LVC BASICS
1245 – 1415 • 310AB

A PROCESS FOR DISTRIBUTED LVC INTEGRATION AND EXECUTION

24T17

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 Distributed Simulation Engineering and Execution Process (DSEEP) standard (IEEE Std 1730-2010) describes a process model for developing an event. DSEEP defines a set of seven steps divided into activities and 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.

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 DSEEP. One of these new steps adds tabletop wargaming to work through event 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 goal of a Process for Distributed LVC Integration and Execution is to produce a verified distributed LVC environment to conduct an event. While distributed LVC environments can be created without using a process, not using a process adds risks to execution and analysis. The first risk is that the integration fails, and it may be difficult to discover the reason. The second risk is that the unverified environment produces invalid results that might not be apparent until the results are used.

The tutorial will provide an overview of the complete process and describes selected steps 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
Tilghman Turner, ATEC Redstone Test Center
LTC John Furr, USA, U.S. Army Futures Command
Simon Goerger, Trideum Corporation
Ed Lerz, Huntington Ingalls Industries

TUT 2: ALL ABOUT THE BASE-ICS
1245 – 1415 • 310CD

TENA: THE TEST AND TRAINING ENABLING ARCHITECTURE

24T27

The Test and Training Enabling Architecture (TENA) provides an advanced set of interoperability software, interfaces, and connectivity for use in joint distributed testing and training. This tutorial will discuss how TENA works and why it is important to the test and training communities, with some comparison to other interoperability architectures. TENA provides testers and trainers software such as the TENA Middleware—a high-performance, real-time, low-latency communication infrastructure that is used by training range instrumentation software and tools during execution of a range training event. The standard TENA Object Models provide data definitions for common range entities and thus enables semantic interoperability among training range applications. The TENA tools, utilities, adapters, gateways, and data management capabilities assist in creating and managing an integration of range resources. This tutorial will describe the elements of TENA in general and then take a deeper dive into how to use TENA with specific emphasis on the new and improved standard object models designed to bridge the gap between live systems and virtual and constructive simulations.

PRESENTER
Edward Powell, Ph.D., Ed Powell Consulting

TUT 3: DIGITAL ENGINEERING, DIGITAL TWINS, AND THE RETURN ON INVESTMENT
1245 – 1415 • 320A

SIMULATED SYSTEMS – REAL RETURN ON INVESTMENT

24T51

When requirements increase faster than available resources, decisions on how to allocate the resources among various programs and projects are required. Project and program managers must show why their systems are worthy of continuing and how they are adding deterrance through integrated training and readiness. While many factors influence these important decisions, return on investment (ROI) should play a key role. ROI has been an essential factor for many years, however, lately we have seen many instances where the term is used incorrectly. For example, "The use of System X saved 23% of classroom hours," is not ROI. Furthermore, traditional ROI requires a return or revenue stream to calculate the benefit of the investment. However, in military applications there is most likely not a revenue stream. How does one then calculate the return?

This tutorial builds on a study performed for the Modeling and Simulation Coordination Office in 2009 and published in the Acquisition Review Journal in 2011. In the tutorial, attendees will be presented the definition of ROI, some examples of ROI and some examples of the incorrect use of ROI. Then some of the unique challenges to the DoD relative to the M&S environment will be presented with the proposed solutions from the study discussed. In that discussion, how to construct solid usable metrics for use in the ROI calculation for M&S will be presented with real-world examples given. Additionally, an examination of how ROI can differ depending upon your point of view (management, program, or system level) and what things are considered in the calculation. Finally, examples that put all the ideas together and show ROI in some different scenarios will be presented and discussed. The end-goal is that each attendee will come away with an understanding of how best effect ROI use as well as how it can be misapplied; how to calculate it and the unique challenges that arise when there is no revenue stream; how to overcome those challenges and develop measurable metrics for use in the ROI calculation; and finally, how all of the principles come together in detailed examples and how the appearance of ROI may differ depending upon your management level. Using these methods, attendees will walk away with being better able to defend their M&S programs and projects against the ever-present funding axe.

PRESENTERS

Tim Cooley, Ph.D., DynamX Consulting
Ivar Oswalt, Ph.D., CMSP, The MIL Corporation

TUT 4: IT STARTS WITH YOU (THE HUMAN)
1245 – 1415 • 320B

MITIGATION AND MANAGEMENT OF MINIMIZE CYBERSICKNESS IN THE DESIGN AND IMPLEMENTATION OF LEARNING SYSTEMS WITH VIRTUAL ENVIRONMENTS

24T36

Learning Outcomes: Attendees will come away with a knowledge of cybersickness (CyS), including causes and factors affecting CyS, as well as how to design virtual environments (VEs) and curricula to minimize CyS effects upon students and learner outcomes.

Purpose: This tutorial is designed to provide those involved in producing and implementing VEs for training with a basic knowledge of CyS. This is significant because CyS can reduce the training effectiveness of systems utilizing VEs and visual simulations, even to the point of making it unusable. Mitigating the effects of CyS begins in the design of the system, where minor decisions can result in substantial differences in the CyS effects of the final system. Likewise, curricula design can greatly impact the degree that CyS affects students.

Background: Militaries across the globe are planning on utilizing VEs to improve their training, whether they be traditional simulators using screens or the most up-to-date technology such as head mounted displays for virtual reality, augmented reality, mixed reality, or extended reality. There is a general belief among both the general public and the training community that the technological advancements in the latest generation of these devices have eliminated the effects of CyS. However, this is decidedly not true.

CyS is a phenomenon that occurs when individuals experience symptoms while using simulation technology, such as flight simulators or VEs. These symptoms include disorientation, dizziness nausea, headaches, eye strain, general discomfort, and fatigue as well as others. These affect a large percentage of the user population, with some experiencing minor effects easily ignored and others being unable to utilize the system at all.

Improvements in technology have reduced or eliminated some of the causes of CyS, but there are causes that are inherent in humans which technology is unlikely to eliminate. This means that everyone involved in the design, development, and implementation of training VEs must understand the causes of CyS, how to mitigate them, and how to create systems that reduce both the likelihood and severity of CyS symptoms. Otherwise, it will be impossible to properly utilize the incredible potential of these technologies.

Topics: This tutorial will provide attendees with a basic knowledge of the underlying causes of CyS, which factors aggravate or mitigate CyS, how CyS degrades learning, as well as how to design a VE system and create a curriculum to minimize CyS's effects.

PRESENTERS

Kay Stanney, Design Interactive, Inc.
Perry McDowell, The MOVES Institute, Naval Postgraduate School
LCDR Nicholas Adriaanse, USN, NSWCDD DNA

TUT 5: LIFECYCLE OF M&S CONFIDENCE — FROM ACORN TO TREE
1245 – 1415 • 320C

ACCREDITATION OF SIMULATION-BASED EXPERIMENTS: BEYOND THE M&S

24T12

The Department of the Army has no individual or organization that accredits a simulation-based experiment (SIMEXp). Army Regulations require that modeling and simulation (M&S) be accredited – but none of the other components required to execute a SIMEXp. Each of the Army's Centers of Excellence (maneuver, fires, air maneuver, maneuver support, sustainment and heath readiness) conduct multiple SIMEXp annually- the Maneuver Battle Lab alone averages eight to ten per year, but no outside agency or regulation accredits the events. The purpose of this tutorial is to present a framework for SIMEXp accreditation and enable attendees to understand all of the areas which must 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. After participating in the tutorial, attendees will be able to identify the components of tactical and operational scenarios which must be validated by current Warfighters – and 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.

The tutorial will address that the U.S. Army's regulatory accreditation of the M&S does not addresses the accreditation of the physical and computational environment on which the SIMEXp is conducted. Not only must the M&S be accredited, but also the hardware and network on which they are running to ensure processors are robust enough to execute as required, the network transmission speeds are sufficient, and no packets are lost during execution.

Finally, attendees will learn how to design and assess the analytical methods used during a SIMEXp to ensure accreditation of the analysis 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 intended for those interested in gaining a better understanding of proper SIMEXp design and why more than just the M&S must be accredited. Following previous presentations of this tutorial at I/ITSEC, the methodology has been recommended for inclusion in the pending update to the U.S. Army Pamphlet 5-11, Verification, Validation, and Accreditation of Army Models and Simulations, and presented as a block of instruction to the US Army Modeling and Simulation School Simulation Operations and VV&A Courses.

PRESENTERS
Thomas Yanoschik, CMSP, SAIC
Cynthia Dunn, CMSP, SAIC
Stephen Miller, SAIC
Jacob Kelly, CMSP, MCDID, MBL

TUT 6: ACCESSIBILITY AND THE HUMAN ELEMENTS OF TRAINING
1245 – 1415 • 320D

SPELL CASTING: CALLING THE POWER OF ACCESSIBLE DESIGN TO YOUR SERIOUS GAMES AND SIMULATIONS

24T60

Federal Procurement Regulations and the Americans with Disabilities Act apply to modeling and simulation (M&S) programs and serious games used in education, skill development, employee selection, credentialing, routine work, and promotion opportunities for defense communities as well the general public. These regulatioins require that individuals with disabilities have access to and comparable use of digital information and data compared with individuals without disabilities. Historically advanced simulations and serious games have provided basic in-product accommodations or provided alternative non-interactive content to support equal content access for all. These accomodations fall short of providing equivalent experiences, thus allowing non-disabled users preferential interaction with content known to result in more effective learning, performance, and skill demonstration. Ideally, applications should be usable by all, accommodating disabled users through support for the assistive technologies they utilize in their daily lives. While this sounds easily agreeable, in practice barriers to providing inclusive interactive experiences and gameplay are prevalent. Guidelines for accessibility aren't currently directed for simulation and game development technologies. The most used development engines render end products inaccessible to assistive technologies. Product budgets are often lower than developers request even without accounting for accessibility requirements. And the creation community lacks actionable accessible design guidance. To close this gap in accessible design guidance, we extend the standards used for other types of digital information. The widely recognized Web Content Accessibility Guidelines (WCAG), developed for traditional web content, can be adapted to address accessibility in interactive simulations and games. Extended to simulations and games, WCAG offers generalized accessibility themes to inform developers of complex, dynamic user experiences. By designing to WCAG principles, developers can ensure that their games and simulations will be accessible to a wide range of users. Referencing WCAG also provides a generally understood lexicon to communicate the accessibility approach and accessibility level of products. To aid customers in evaluating a product's accessibility in procurement, the delivery organization provides a completed Voluntary Product Accessibility Template (VPAT) that references the WCAG framework to specify how accessibility has been achieved. This tutorial offers the simulaiton and serious games creation and procurement communities a practical guide to accessibility. Topics include: an overview of regulations, requirements, and consumer accessibility expectations, WCAG introduction with concepts anchored by M&S relevant examples, an overview of the VPAT and process for its creation and use, discussion of accessible design considerations and development approaches to meet simulation and serious game accessibility goals, and design chal-

lenge highlights and process recommendations from efforts to provide engaging interactive experiences and gameplay for all.

PRESENTERS
Jennifer McNamara, Breakaway Games
Michael Brooks, The Pennsylvania State University World Campus

TUT 7: XR MR VR - GET REAL ^3
1245 – 1415 • 320E

MISSION XRPOSSIBLE: NAVIGATING NOVICE-TO-EXPERT ASSESSMENT DESIGN IN MEDICAL & MILITARY TRAINING

24T31

This 90-minute tutorial offers a comprehensive guide tailored for professionals seeking to adeptly design assessments within extended reality (XR) training simulations to bring the novice to an expert.

As XR technologies continue to revolutionize training methodologies, the ability to accurately measure and track novice learners' progression towards expert proficiency is paramount. This tutorial addresses this crucial need by providing attendees with practical strategies and insights to develop assessments that effectively capture evidence of skill acquisition and competence development in XR environments.

The tutorial will begin with the fundamental principles of assessment science and the practice of designing assessments within XR contexts. Participants will gain a deep understanding of the unique considerations inherent to XR simulations, including fidelity, authenticity, and adaptability. Leveraging a learning engineering approach to developing XR simulations, there will be an emphasis on the significance of aligning assessment strategies with specific learning objectives and competency requirements.

There will be a review of the importance of designing assessments for interaction data that can be used for data analyses, which in turn can provide nuanced insights into learners' knowledge, skill, and competency development trajectories. Emphasis will be placed on leveraging XR-specific features to gather rich, multi-dimensional data that accurately reflects learners' proficiency levels.

By the conclusion of this tutorial, attendees will be equipped with the requisite knowledge to design assessments that effectively measure novice-to-expert progression within XR training simulations. Participants will be empowered to optimize their training programs, enhance learning outcomes, and ultimately elevate performance standards in critical domains.

PRESENTERS
Jeanine DeFalco, Ph.D., University of New Haven
Madeleine Keehner, Ph.D., Brighter Research, LLC

TUT 8: NAVIGATING GLOBAL PARTNERSHIPS
1245 – 1415 • 320F

U.S. EXPORT CONTROLS, NATIONAL SECURITY, AND THE SIMULATION INDUSTRY IN 2024

24T54

The U.S. export control laws and regulations are playing an ever-increasing role in protecting U.S. national security. Companies in the modeling and simulation industry have a part to play in supporting our national security. This tutorial will provide an understanding of the Export Administration Regulations (EAR) and the International Traffic in Arms Regulations (ITAR) and their application to the modeling and simulation industry. 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. The tutorial will provide attendees with an update to the regulations resulting from recent changes and developments in U.S. policies towards Russia and China, as well as other countries. 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 9: LAGNIAPPE
1245 – 1415 • 320G

HOW THE BRAIN CREATES REALITY; ENHANCING THE REALITY EXPERIENCE WITH LARGE AREA HAPTIC FEEDBACK

24T61

To create simulations that completely reproduce reality, it is important to understand how the human brain processes the real world. Many people believe humans only have five or six physical senses. This traditional view results in limited attempts to give the brain the information it needs to believe a simulation experience is real. When system designers understand the multiple sensory channels within the human body, they can incorporate elements into their design to stimulate those channels, enhancing the believability of the training experience. Large Area Haptic Feedback will be used to demonstrate how to construct and inject reality information simultaneously into multiple sensory channels.

This tutorial will take a deep dive into how to recreate reality. First, we will examine how sensory receptors in the body gather environmental information. Second, we will examine how the brain processes that information to create an understanding of reality. Third, we will examine principles for constructing and injecting information into a person's body to enhance the sense of reality. Finally, we will use Large Area Haptic Feedback to demonstrate how to construct and inject reality information into a simulation experience.

PRESENTER
Bill Phillips, Clark Synthesis, Inc.

TUT 10: AI & YOU
1245 – 1415 • 330GH

MACHINE LEARNING: AN INTRODUCTION FOR HUMANS

24T20

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

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

ROOM	SESSION	1400	1430	1500
ROOM 320A	TR 1: Navigating Tech Hurdles in Military Training	24235 Understanding Trainee Cognitive Processes in ATC Training	24229 A Review on Education and Training Needs for Military Space Operations	24163 A Method to Assess Barriers to Implementing Training Technologies
ROOM 320B	SIM 1: The Future of Modeling Human Elements in Simulation	24432 COMBAT-711: A Tool for Integrating Human Factors into Wargames	24339 MetaPOL: A Digital Twin for Human Patterns of Life in Indoor Secure Facilities	24368 Behavior Envelopes for Defining Performance Metrics in Complex Scenarios
ROOM 320C	HPAE 1: Virtual Fusion: Real-World Applications of XR	24185 Utilizing Extended Reality Usability Heuristics to Drive Effective XR Training Applications	24161 Interaction Design for Binary Reverse Engineering in Virtual Reality	24187 Virtual Reality Cue Exposure Therapy System
ROOM 320D	SIM 2: Cyber & Security	24208 Fortifying the Virtual Battlefield: Integrating Cyber Effects Using Simulation	24269 Development of a Novel Architecture for Improving Cyber-Kinetic Training	24189 Zero Trust Security in Cloud-based Simulation
ROOM 330EF	Best Paper Nominee Session 1	24165 EDUCATION: Context-Sensitive Attribute and Competency Assessment	24267 PSMA: Are LLMs Too Smart for Their Own Good?	24136 ECIT: Converting 2D Images to Geospatial 3D Models Using Generative AI

ROOM	SESSION	1600	1630	1700
ROOM 320B	SIM 3: Building The Digital World – Part 2	24464 Open-Source MARL for Autonomous Agent Research: A New Godot-based Environment for BVR Air Combat Simulation	24460 Establishing Best Practices to Apply a Generic Point Cloud Model (GPM) Uncertainty to High Resolution Data	24328 Computer-Generated Forces Team Behavior within Air Combat Simulations: Concept and Agent Structure
ROOM 320C	HPAE 2: Cognitive Chaos and Skillful Swagger	24201 Assessing Cognitive Workload Prediction Models Using a Continuous Subjective Approach	24281 Enhancing a Piloting Task Simulator with Real-time Performance Feedback, Autopilot Disruption, Shock Punishment, and Adaptive Task Difficulty	24164 Systematic Approach to Upskilling Learning Professionals for the Development of Modernized Training
ROOM 320D	SIM 4: Multi-Domain Simulation	24139 Requirements for Simulation of the Future Operating Environment and Multi-Domain Operations	24158 Open-Vocabulary High-Resolution 3D (OVHR3D) Data Segmentation and Annotation Framework	24152 The Potential of LVC for Creating Air Power – Beyond Adversaries
ROOM 320E	ECIT 1: AI Unleashed: Mastering Clustering, Interfaces, and Autonomous Systems	24257 An Enhanced Approach to Dynamic Unsupervised Clustering	24313 Adaptive Interfaces for Better Decision Making	24346 Unsupervised Testing for Software Systems of Autonomous Vehicles
ROOM 320F	ECIT 2: Interpretable AI & Data Evaluation	24198 Interpretable Learning with Distance Aware Radial Basis Function Networks	24251 Dual-Stream Semantic Segmentation Architecture for Point Cloud Data Analysis	24277 Evaluation of Historical Journalism Data for Decision-Support System Gray-Zone Models
ROOM 330EF	Best Paper Nominee Session 2	24378 SIMULATION: Beyond Illusions: Navigating VR Fidelity in Undergraduate Pilot Training — A 3-Year Data Analysis	24322 TRAINING: Airway Skills Assessment with Spatio-Temporal Attention Mechanisms Using Human Gaze	24303 HPAE: Assessing Cognitive Workload in Mixed Reality Flight Simulators for Naval Aviation

ROOM	SESSION	0830	0900	0930
ROOM 320A	TR 2: Ensuring VR Training Effectiveness: Approaches and Examples	24188 VR Team Training for Military Special Forces	24369 A Novel Immersive Approach for Spatial Disorientation Training	24244 Virtual Reality Training for In-air Refueling
ROOM 320B	SIM 5: My 3D World	24326 Converting One World Terrain Geospatial Content to CDB	24440 Abstracting Geo-specific Terrains to Scale Up Reinforcement Learning	24243 Mesh-as-a-Service: Automated 3D Modeling Fast as L-AI-ghtning
ROOM 320C	HPAE 3: XR: It's Not Just About Flapping Your Arms	24240 B-52 Pilots in Focus: Human Factors in Virtual Reality Research	24265 Integrating Cognitive and Skills Training in a Simulated UAS (Unmanned Aerial Systems) Pilot Training Course	24437 Spatial Accuracy Requirements for Visual Search Cues in Simulated Sparse and Dense Scenes
ROOM 320D	ED 1: BYTE Size Learning: AI in ED	24203 Artificial Intelligence Techniques and Best Practices to Improve Motivation and Learning	24436 Optimizing Readiness Through AI-Driven Analytics for Automated Training Insights	24458 Automated Radio Operator Utterance Recognition for U.S. Navy Training
ROOM 320E	ECIT 3: Data Driven Training: Because Guesswork is So Last Century!	24111 Revolutionizing Simulation: Pioneering a Data-Centric Future in Defense Training Environments	24325 Lessons Learned Supplementing Instructor-Led Training with AI	24470 Automated Event-Based Competency Analysis: Detecting Evidence from Training Data
ROOM 320F	ECIT 4: LLM Production and Threat Models	24169 Bridging the Interoperability Gap Using Large Language Models and STITCHES	24224 Evaluating the Trustworthiness of Large Language Models for Code Generation	24329 Predictive Threat Models for Real-Time Decision Support
ROOM 320G	PSMA 1: Streamlining Digital Asset Management	24172 Comparison of Intermittent Demand Forecasting Methods in Predicting the Repair of Simulators Based Upon System State	24359 Improving Training and Education Supply Chains by Harnessing Data Pipeline Observers	24418 When to Embrace Redundancy: Practical Guidance for Managing Digital Assets

ROOM	SESSION	1030	1100	1130
ROOM 320A	TR 3: Improve Combat Readiness through Digitalization	24148 Integration of First Person View Drones in Simulation	24334 A Statistical Method for Non-Laser-Based Force-on-Force Training Systems	24323 Future Combat Training System – Improved Live Fire Training by Digitalization
ROOM 320B	SIM 6: VR Good	24455 Soldier Centric Design of Mixed Reality Reconfigurable Virtual Collective Trainers	24141 Advanced Navigation Team Shipboard Simulation	24348 Training through Simulation of Border Patrol Incidents
ROOM 320C	HPAE 4: Data-Driven Initiatives for Training and Team Dynamics	24146 Data Collection, Reduction and Analysis Initiative for Integrating U.S. Army Data Plan into Warfighter Qualifications	24242 Taking a Data-Informed Approach to Squad Training Evaluations	24305 Studying Team Effectiveness via Dialogue Analysis
ROOM 320D	ED 2: Learning Engineering-Applied	24296 Enhancing Medical Performance Assessment Using Competency Frameworks	24404 Applying Learning Engineering Process to Existing Military Training Programs: F-35 Demonstration	24405 The Future of Training and How to Reach It
ROOM 320E	ECIT 5: It's All About the Data	24215 Metalog Synthetic Data Generation for Healthcare	24246 Development and Evaluation of Biosensing Apparel for Monitoring Fighter Pilot Physiological Episodes	24258 A Biosensor Solution for Real-time and Prognostic Health Monitoring
ROOM 320F	ECIT 6: Generative AI & Geospatial Intelligence	24106 Geomancer: Enhancing Geospatial Intelligence with a Natural Language-Assisted Mapping Interface	24171 Model-Based Systems Engineering Approach to Model & Simulate Space Experiments Using Teamwork Cloud	24227 Understanding Complex 4D Sonar Operating Conditions Using Virtual Environments
ROOM 320G	PSMA 2: AI: Fact or Science Fiction?	24109 Wargaming: Toward the Development of a Generative AI for Weather Simulation	24114 The Boyd Loop Explanation of Artificial Intelligence for Policy Makers	24331 Leveraging Science Fiction Case Studies to Specify Immersive Training System Requirements

ROOM	SESSION	1330	1400	1430
ROOM 320A	TR 4: Tailored Training Solutions for High-Risk Professions, Insight from Firefighting, Aviation and Parachuting	24162 Simulation Training for High Stress Environments in the Fire Service	24179 Optimizing Simulation Fidelity for Cost-Effective Aviation Training	24212 Investigating Field of Regard Implications in Simulated Parachute Descent Training
ROOM 320B	SIM 7: Conversation Starters: Let's Talk About It	24465 Developing a Novel UAS Flight Planning and Reconstruction Software Package	24298 Digital Caricature: Stochastic M&S of Complex System of Systems	24439 Top 10 DIS V8 Improvements
ROOM 320C	HPAE 5: Is HAL Your Pal?	24428 Multimodal Machine Learning Framework for Soldier Fatigue Prediction	24443 Training Individual ML Classification Models of Warfighter State with fNIRS	24268 Towards a Real-Time Model of Trust in Human-Machine Team Paradigms
ROOM 320D	ED 3: Extending Realities in Education	24103 Implementation of Game-based M&S Tools to Enhance K9-12 STEM Learning Effectiveness	24132 Enhancing Military Planning Through Virtual Reality: A Study on Spatial Skills and Map Interpretation	24373 Towards a Cognitive Framework for Assessing Students and Adapting Interventions in Extended Reality (XR)
ROOM 320E	ECIT 7: AI Agents & Training	24319 Digitally Designed – Applying AI Agents to Digital Twin Development	24407 Mastering Digital Twins: Introducing ABoT for Cross-Disciplinary Simulation and Model-Based System Engineering	24490 Binary Source of Truth: Leveraging Digital Twins to Enable Agile Systems Engineering
ROOM 320F	ECIT 8: AI for Synthetic Environment Generation	24102 Electro-optical Image Synthesis from SAR Imagery Using Generative Adversarial Networks	24186 Generative AI-powered 3D-Content Creation for Military Training	24210 More Than a Kid's Toy: Using NeRF to Create 3D Models
ROOM 320G	PSMA 3: Medical Learning: Standards Required?	24112 Data Analytic Considerations for Audio, Video, and Simulation Trace Data: Enabling Decisional Advantage	24200 Medical Modularity and Interoperability: How Will We Get There?	

ROOM	SESSION	1530	1600	1630
ROOM 320A	TR 5: Bridging the Gap in Training through Technology	24121 Training Effectiveness of a VR HMD-based Simulator in Air Force Pilots	24236 The Digital Divide: Implications for Training and Education	24430 Technological Fluency: A First Step in Rethinking Army Training
ROOM 320B	SIM 8: Building The Digital World — Part 1	24295 Novel Techniques for Processing Building Exteriors Captured from Photogrammetry	24317 Whole Earth Fraternal Twin Content for Flight Simulation	24199 Simulating the Weaponization of Public Opinion in Multi-Domain Scenarios
ROOM 320C	TR 6: How AI is Training Us!	24374 LLM-Enabled Real Time Training Content Curation to Enhance Performance	24377 Separating Myth from Method: The AI Revolution in Military Training	24414 A Deeper Dive into Using Machine Learning for Discovering the Root Causes for Student Failures Using Experience API (xAPI)
ROOM 320D	ED 4: Learning Leaders — Leaders Learning	24175 Filling the Gaps in the Johari Window through Simulation-based Learning: Perception vs Reality for Incident Commanders	24220 Breaking Silos to Build the Next Generation of Navy Leaders	
ROOM 320E	ECIT 9: Foundation Models and Human-AI Interaction	24304 From Fascinations with Foundation Models to a Useful Conversational AI Application	24315 SAR-AR: Adapting Human Vision to Complex Sensing Technologies with Adaptive Synthetic Aperture Radar Image Recognition Training	24366 A Human Digital Twin Architecture for Knowledge-based Interactions and Context-Aware Conversations
ROOM 320F	Zombies & AI	24194 TRAINING: Expanding Access to Learning Decision-Making and Teamwork Skills Using Low Fidelity, Tabletop Games: A Measurement Approach	24135 ECIT: Human-AI Common Ground for Training and Operations	24232 SIMULATION: Social Simulator Madness: Simulating Social Behavior in Dynamic Environments
ROOM 320G	PSMA 4: Data Distinction in Our Digital World	24204 An Open Standards Data Model and Taxonomy to Enable Digital Twins for Defense	24333 Policies Motivating the Data Mesh	

ROOM	SESSION	0830	0900	0930
ROOM 320B	SIM 10: M&S in Wargaming	24343 M&S as a Service Composability Lessons from NATO	24433 Leveraging MSaaS Concepts to Enable Mission Environments: Lessons Learned	24307 Development of Closed-Loop Wargaming Simulation Software: Challenges, Best Practices, and Lessons Learned
ROOM 320C	SIM 11: Digital Twins	24133 PINNball Wizard: Conjuring Digital Twins with Physics-Informed Neural Networks	24143 Warfighter Digital Twins for Simulating Mission Performance	24276 Digital Twins for Modeling Replacement Time for CAD/PAD
ROOM 320E	ECIT 10: AI Trust and Optimization	24264 Mapping Trust in AI: Right Tool, Right Task	24335 Compound AI Ecosystem: Agents and Tools to Improve Training and Learning	24344 AI-driven COA Generation Using Neuro-symbolic Methods
ROOM 320F	ECIT 11: Synthetic Data & AI Frameworks	24206 Next-Generation Training with Advanced Visualization and Digital Twins	24217 A Machine-readable Narratological Approach to the Design of Human Performance Descriptions for Synthetic Training Environments	24301 Modular Analytics Framework for Rapid AI/ML Training and Deployment
ROOM 320G	PSMA 5: The Human Element: Training, Policy and Standards	24256 What is an M&S Expert? Clarifying Competency Expectations in the DAF's Modeling and Simulations Workforce: A Case Study	24154 Generalizable Learning Engineering Adoption Maturity Model	24181 Automated Human Performance Measurement: Standardizing Lifelong Learning Training Data

ROOM	SESSION	1030	1100	1130
ROOM 320A	TR 7: DARTs, STICKs, and Digital Dominance	24150 Operation: D.A.R.T (Designing Augmented Reality for Transfer) Improving Preparedness for Basic Combat Training Candidates	24157 Surpass the Adversary: Enhanced Mission Training through Digital Engineering	24320 How to Make Military Training STICK (Superior Task Implementation of Core Knowledge)
ROOM 320B	SIM 12: Soaring with Flight Simulators	24155 Leveraging Data Center Architectures for Full Flight Simulators	24380 Analyzing Visual Fidelity in Flight Simulation Software Using Game Engine with Feature Mapping	24218 Optical See-Through Mixed Reality as a Cybersickness Mitigation Strategy in Extended Reality Helicopter Flight Simulation
ROOM 320C	TR 8: Cognitive Collaborators, Tasks and Teamwork	24238 Development and Testing of Extended Reality Input Modalities for a Virtual Learning/Training Task	24283 Enabling Effective Training with Mission Partners Using Resilient Multilevel Architectures	24324 Development of Team Dynamic Measurement Framework Using Hybrid Cognitive Task Analysis
ROOM 320D	ED 5: Implementation of Competency Based Education	24120 Learning Engineering Competency-Based Experiential Learning within Military Institutional Training and Education	24416 From Lab to Battlefield: Exploring the Relationship Between Military and Basic Science Tasks for Measuring Competencies	24424 Learning to Learn II: Evaluation of Learning Systems for Supporting Competency Based Education
ROOM 320E	ECIT 12: Advanced AI Techniques for Risk Aware Flight Control & Combat Optimization	24219 Mastering Air Combat, Using Neural Fields for AI Introspection	24255 Uncertainty Aware Distributional Ensemble Reinforcement Learning for Flight Control	24273 Optimization to Minimize Risks Using Continuous Asymmetric Risk Analysis
ROOM 320G	PSMA 6: Digital Engineering: Embrace the Change	24274 Implementing MBSE Organizational Change at the USAF Simulators Division	24275 Digital Sustainment, A Strategy For Success	24457 DoD Instruction 5000.97 – Digital Engineering: Assessing the Impact on the Department's M&S Enterprise

ROOM	SESSION	1330	1400	1430
ROOM 320A	TR 9: Tech Done Right	24365 A Suite of Devices: Applying Immersive Learning Taxonomy and Flow Theory to Military Training Program Device Acquisitions	24361 Behavior-based Performance Optimization In Emerging Training Environments	24262 Enhancing Air Force Training: A Data Integration Framework
ROOM 320C	TR 10: Future Frontlines: Enhancing Military Training and Healthcare with Digital Innovation	24288 Training Effectiveness for Mobile Extended Reality: a Case Study Using Tactical Combat Casualty Care Training and Readiness	24494 Evaluation of a Novel Team-Based VR Curriculum for Advanced Resuscitative Care	
ROOM 320E	ECIT 13: Training and Performance Assessment	24250 Use of Large Language Models in Assessing Training Performance	24254 From Innovation to Integration: Data-Driven Evaluation of Modernized Training	24471 Preparing for LSCO: M&S Approaches to Rapidly Improve Medical Training
ROOM 320G	PSMA 7: Managerial Challenges: The Good, the Bad and the Ugly!	24151 Exploiting Experimentation: A Managerial Challenge	24294 Achieving Accreditation Utilizing Model Development Indices and Model Description Reports	24422 Preventing and Handling Offensive Behavior in Military Training

BEST PAPER NOMINEE

BP 1 TUESDAY, 3 DECEMBER • 1400 – 1530 • ROOM 330EF

BEST PAPER NOMINEE SESSION 1

Session Chair: Toni Hawkins-Scribner, Ph.D., Air University

Session Deputy: Greg Ouellette, NAWCTSD

24165 Education: Context-Sensitive Attribute and Competency Assessment
Jayne Allen, Ph.D., U.S. Army Research Institute for the Behavioral and Social Sciences; Randy Brou, Ph.D., Army Research Institute; Frederick Diedrich, Ph.D., Independent Consultant; Scott Flanagan, Sophia Solutions, LLC; Krista Ratwani, Ph.D., Tatiana Toumbeva, Ph.D., Aptima, Inc.

24267 PSMA: Are LLMs Too Smart for Their Own Good?
Kyle Russell, Connor Green, Eric Ahmadi, Jason Smith, Michael Yohe, CAPT Tim Hill, USN (Ret.), William Marx, Ph.D., Dustin Easterling, Chanler Cantor, Intuitive Research and Technology Corporation

24136 ECIT: Converting 2D Images to Geospatial 3D Models Using Generative AI
Tim Woodard, Brent Bartlett, Ph.D., Zoë LaLena, Everett Spackman, Chris Holland, NVIDIA

BP 2 TUESDAY, 3 DECEMBER • 1600 – 1730 • ROOM 330EF

BEST PAPER NOMINEE SESSION 2

Session Chair: Benjamin Bell, Ph.D., Eduworks Corporation

Session Deputy: William "Bill" Gerber, Ph.D., WJGerberConsulting

24378 Simulation: Beyond Illusions: Navigating VR Fidelity in Undergraduate Pilot Training — A 3-Year Data Analysis
David Urban, Vertex Solutions; Ryan Pritchard, U.S. Air Force

24322 Training: Airway Skills Assessment with Spatio-Temporal Attention Mechanisms Using Human Gaze
Jean-Paul Ainam, Ph.D., Rahul Rahul, Ph.D., Rensselaer Polytechnic Institute; Lora Cavuoto, University at Buffalo; Matthew Hackett, Ph.D., U.S. Army DEVCOM SC; Jack Norfleet, Ph.D., U.S. Army DEVCOM SC STTC; Suvranu De, Ph.D.

24303 HPAE: Assessing Cognitive Workload in Mixed Reality Flight Simulators for Naval Aviation
Thomas Cecil, Charles Rowan, Ph.D., Perry McDowell, Naval Postgraduate School; Jon Vogl, U.S. Army Aeromedical Research Laboratory

EDUCATION

ED 1 WEDNESDAY, 4 DECEMBER • 0830 – 1000 • ROOM 320D

ED 1: BYTE SIZE LEARNING: AI IN ED

Session Chair: Erin McCormick, AFRL

Session Deputy: Carter Hoffman, U.S. Space Force

24203 Artificial Intelligence Techniques and Best Practices to Improve Motivation and Learning
Maggie Mosher, Ph.D., Amber Rowland, Ph.D., Bruce Frey, Ph.D., Sean Smith, Ph.D., University of Kansas; Adam Carreon, Ph.D., Georgia Southern University; Tolulope Sulaimon, University of Central Florida

24436 Optimizing Readiness Through AI-Driven Analytics for Automated Training Insights
Svtilana Volkova, Ph.D., Summer Rebensky, Ph.D., Isabel Erickson, Louis Penafiel, Hsien-Te Kao, Aptima, Inc.

24458 Automated Radio Operator Utterance Recognition for U.S. Navy Training
Morgan Ulinski, Ph.D., Ethan Medjuck, Kellen Bixler, Soar Technology, LLC; Henry Phillips, IV, Advanced Distributed Learning (ADL) Initiative

ED 2 WEDNESDAY, 4 DECEMBER • 1030 – 1200 • ROOM 320D

ED 2: LEARNING ENGINEERING – APPLIED

Session Chair: Thea Albertson, Serco North America

Session Deputy: Aaron Presnall, Jefferson Institute

24296 Enhancing Medical Performance Assessment Using Competency Frameworks
Matthew Hackett, Ph.D., Combat Capabilities Development Command - Soldier Center; Tim Welch, Eduworks Corporation

24404 Applying Learning Engineering Process to Existing Military Training Programs: F-35 Demonstration
Jennifer "JJ" Walcutt, Ph.D., Patricia Bockelman, Ph.D., Jay Spohn, SAIC

24405 The Future of Training and How to Reach It
Caroline Shawl, DSTL; Daran Crush, QinetiQ

ED 3 WEDNESDAY, 4 DECEMBER • 1330 – 1500 • ROOM 320D

ED 3: EXTENDING REALITIES IN EDUCATION

Session Chair: Frank Karluk, CMSP, DLH Corporation

Session Deputy: Stacie Henn, Prince William County, VA

24103 Implementation of Game-based M&S Tools to Enhance K9-12 STEM Learning Effectiveness
Kevin Hulme, Ph.D., CMSP, The Stephen Still Institute for Sustainable Transportation and Logistics (SSISTL); Qian Wang, Ph.D., Gongda Yu, Aaron Estes, Ph.D., Irina Benedyk, Ph.D., Presentacion Rivera-Reyes, Ph.D., Vidhi Solanki, Emeric Humbert, University at Buffalo

24132 Enhancing Military Planning Through Virtual Reality: A Study on Spatial Skills and Map Interpretation
Jerson Neto, Brazilian Army; Luciana Nedel, UFRGS; Anderson Maciel, U Lisboa

24373 Towards a Cognitive Framework for Assessing Students and Adapting Interventions in Extended Reality (XR)
Gregory McGowin, University of Central Florida; Stephen Fiore; Georges Potworowski, Tarah Daly, Jennifer Phillips, Cognitive Performance Group; Jeremiah Folsom-Kovarik, Ph.D., Soar Technology, LLC; Henry Phillips, IV, Advanced Distributed Learning (ADL) Initiative; Joseph Cohn, Ph.D., Soar Technology, LLC

ED 4 WEDNESDAY, 4 DECEMBER • 1530 – 1630 • ROOM 320D

ED 4: LEARNING LEADERS – LEADERS LEARNING

Session Chair: Don Lail, U.S. Army DEVCOM Chemical Biological Center

Session Deputy: David Stargel, AFAMS

24175 Filling the Gaps in the Johari Window through Simulation-based Learning: Perception vs Reality for Incident Commanders
Amanda Davies, Ph.D., Charles Sturt University

24220 Breaking Silos to Build the Next Generation of Navy Leaders
Holly Baxter, Ph.D., John Spinda, Ph.D., Bradley Celestin, Ph.D., Cognitive Performance Group; LCDR Michael Natali, Ph.D., USN, ONR

ED 5 THURSDAY, 5 DECEMBER • 1030 – 1200 • ROOM 320D

ED 5: IMPLEMENTATION OF COMPETENCY BASED EDUCATION

Session Chair: Lisa Jean Bair, SAIC
Session Deputy: Linda Bernard, Ultisim

24120 Learning Engineering Competency-Based Experiential Learning within Military Institutional Training and Education
Kevin Owens, Applied Research Laboratories: The University of Texas at Austin; Lisa Townsend, Benjamin Goldberg, Ph.D., U.S. Army DEVCOM SC STTC; Gordon Cooke, U.S. Military Academy; Jared Abrams, Applied Research Laboratories: The University of Texas at Austin

24416 From Lab to Battlefield: Exploring the Relationship Between Military and Basic Science Tasks for Measuring Competencies
William Stalker, Summer Rebensky, Ph.D., Ramisha Knight, Aptima, Inc.; Samantha Perry; Shawn Turk, Aptima; Quintin Oliver, AFRL; Wink Bennett, Ph.D., Bennett Research Consulting, LLC

24424 Learning to Learn II: Evaluation of Learning Systems for Supporting Competency Based Education
Nathan Jones, Nate Ferrara, Spinnaker Institute, Inc.

EMERGING CONCEPTS & INNOVATIVE TECHNOLOGIES

ECIT 1 TUESDAY, 3 DECEMBER • 1600 – 1730 • ROOM 320E

ECIT 1: AI UNLEASHED: MASTERING CLUSTERING, INTERFACES, AND AUTONOMOUS SYSTEMS

Session Chair: Kea Matory, Purdue Applied Research Institute (PARI)
Session Deputy: Crystal Maraj, Ph.D., UCF/IST

24257 An Enhanced Approach to Dynamic Unsupervised Clustering
Christopher Heinlen, Randal Allen, Ph.D., CMSP, Mark Volpi, Lone Star Analysis

24313 Adaptive Interfaces for Better Decision Making
David Nelson, USC Institute for Creative Technologies; Russell Cohen Hoffing, Army Research Lab West; Steven Thurman, U.S. Army DEVCOM Army Research Lab; Rhys Yahata, David Cobbins, Mark Core, Deniz Marti, Anthony DeCapite, Allison Aptaker, USC Institute for Creative Technologies; Rylan Pozniak Daniels, University of Southern California

24346 Unsupervised Testing for Software Systems of Autonomous Vehicles
Sean Hickey, University of Michigan; Geng Zhang, Michigan Engineering Services; Jonathon Smereka, Ph.D., ; Nickolas Vlahopoulos, University of Michigan

ECIT 2 TUESDAY, 3 DECEMBER • 1600 – 1730 • ROOM 320F

ECIT 2: INTERPRETABLE AI & DATA EVALUATION

Session Chair: Javier Garza, Lockheed Martin Corporation
Session Deputy: Adam Kohl, Iowa State University

24198 Interpretable Learning with Distance Aware Radial Basis Function Networks
Ethan Cramer, Randal Allen, Ph.D., CMSP, Lone Star Analysis

24251 Dual-Stream Semantic Segmentation Architecture for Point Cloud Data Analysis
Brendon Hales, Philly Tang, Troy Crawford, Marjaneh Safaei, Ph.D., Dignitas Technologies

24277 Evaluation of Historical Journalism Data for Decision-Support System Gray-Zone Models
Joseph McAlexander, IV, Robert Ducharme, Ph.D., Jay Freeman, CAE USA

ECIT 3 WEDNESDAY, 4 DECEMBER • 0830 – 1000 • ROOM 320E

ECIT 3: DATA DRIVEN TRAINING: BECAUSE GUESSWORK IS SO LAST CENTURY!

Session Chair: Christina Bouwens, Booz Allen Hamilton
Session Deputy: Angela Alban, SIMETRI, Inc.

24111 Revolutionizing Simulation: Pioneering a Data-Centric Future in Defense Training Environments
Sonia von der Lippe, James Torgler, FuturaSage, LLC; John Hutt, AFAMS

24325 Lessons Learned Supplementing Instructor-Led Training with AI
John Thornton, Integration Innovation Incorporated (i3)

24470 Automated Event-Based Competency Analysis: Detecting Evidence from Training Data
Cristina Boyer, Tess Olson, Nolen Yehlik, Boeing

ECIT 4 WEDNESDAY, 4 DECEMBER • 0830 – 1000 • ROOM 320F

ECIT 4: LLM PRODUCTION AND THREAT MODELS

Session Chair: Wesley Fine, Bohemia Interactive Simulations
Session Deputy: Eugene Pursel, USSTRATCOM

24169 Bridging the Interoperability Gap Using Large Language Models and STITCHES
Javier Garza, Lockheed Martin Corporation; Sekinat Quadri

24224 Evaluating the Trustworthiness of Large Language Models for Code Generation
E. Michael Bearss, Ph.D., CMSP, Trideum Corporation

24329 Predictive Threat Models for Real-Time Decision Support
Dejan Neskovic, Alec Gray, Jr., Jerry Sheehan, Booz Allen Hamilton

ECIT 5 WEDNESDAY, 4 DECEMBER • 1030 – 1200 • ROOM 320E

ECIT 5: IT'S ALL ABOUT THE DATA

Session Chair: M. Beth Pettitt, Ph.D., U.S. Army DEVCOM SC STTC
Session Deputy: Lexie Inman, U.S. Space Force

24215 Metalog Synthetic Data Generation for Healthcare
Raul Rios, Lone Star Aerospace; Eric Haney, Ph.D., Randal Allen, Ph.D., CMSP, Lone Star Analysis

24246 Development and Evaluation of Biosensing Apparel for Monitoring Fighter Pilot Physiological Episodes
Nichola Lubold, Ph.D., Tor Finseth, Honeywell Aerospace Technologies; Rinkel Bridget, Raisa Marshall, NAWCAD

24258 A Biosensor Solution for Real-time and Prognostic Health Monitoring
Paulien Roos, Ph.D., Nathan Pickle, Ph.D., Joshua Hogue, CFD Research Corporation; JoEllen Sefton, Ph.D., Auburn University; Phillip Whitley, CFD Research Corporation

ECIT 6 WEDNESDAY, 4 DECEMBER • 1030 – 1200 • ROOM 320F

ECIT 6: GENERATIVE AI & GEOSPATIAL INTELLIGENCE

Session Chair: Tyson Kackley, MCSC/PM Wargaming Capability

Session Deputy: Karen Fray, AFRL

24106 Geomancer: Enhancing Geospatial Intelligence with a Natural Language-Assisted Mapping Interface
David Noever, Ph.D., Joseph Regian, Ph.D., PeopleTec, Inc.

24171 Model-Based Systems Engineering Approach to Model & Simulate Space Experiments Using Teamwork Cloud
Christopher Reed, U.S. Air Force

24227 Understanding Complex 4D Sonar Operating Conditions Using Virtual Environments
Ross Young, Jay Cooper, Systems Engineering and Assessment Ltd.

ECIT 7 WEDNESDAY, 4 DECEMBER • 1330 – 1500 • ROOM 320E

ECIT 7: AI AGENTS & TRAINING

Session Chair: Perry McDowell, MOVES Institute

Session Deputy: Karen Fray, AFRL

24319 Digitally Designed — Applying AI Agents to Digital Twin Development
Graham Long, Thales

24407 Mastering Digital Twins: Introducing ABoT for Cross-Disciplinary Simulation and Model-Based System Engineering
Patrick Meharg, Scott James, Andrew Dudash, Noblis, Inc.

24490 Binary Source of Truth: Leveraging Digital Twins to Enable Agile Systems Engineering
Kyle Simmons, Cavrnus

ECIT 8 WEDNESDAY, 4 DECEMBER • 1330 – 1500 • ROOM 320F

ECIT 8: AI FOR SYNTHETIC ENVIRONMENT GENERATION

Session Chair: Rishabh Kaushik, Collins Aerospace, Inc.

Session Deputy: Matt Canonico, NVIDIA

24102 Electrooptical Image Synthesis from SAR Imagery Using Generative Adversarial Networks
Grant Rosario, David Noever, Ph.D., PeopleTec

24186 Generative AI-powered 3D-Content Creation for Military Training
Eduardo Barrera, Charles River Analytics; Deepak Haste, Michael Renda, Sudipto Ghoshal, Ph.D., Qualtech Systems, Inc.; Jason Wong, Ph.D., Naval Information Warfare Center Pacific

24210 More Than a Kid's Toy: Using NeRF to Create 3D Models
Graham Webster, Hunter Stinson, Integration Innovation Inc.

ECIT 9 WEDNESDAY, 4 DECEMBER • 1530 – 1700 • ROOM 320E

ECIT 9: FOUNDATION MODELS AND HUMAN-AI INTERACTION

Session Chair: COL Paul Kwon, M.D., USA, U.S. Army PEO STRI

Session Deputy: Erica Dretzka, OSD Chief Digital and AI Office

24304 From Fascinations with Foundation Models to a Useful Conversational AI Application
Cheong Ang, IBM

24315 SAR-AR: Adapting Human Vision to Complex Sensing Technologies with Adaptive Synthetic Aperture Radar Image Recognition Training
David Nelson, USC Institute for Creative Technologies; Kimberly Pollard, Ben Files, Brent Lance, U.S. Army DEVCOM Army Research Lab; Benjamin Nye, Rhys Yahata, Mark Core, Spencer Lin, USC Institute for Creative Technologies

24366 A Human Digital Twin Architecture for Knowledge-based Interactions and Context-Aware Conversations
Carolina Cruz-Neira, Ph.D., Grace Bochenek, Ph.D., Jason Ortiz, Ph.D., Abdul Mannan Mohammed, Azhar Ali Mohammad, Carsten Neumann, Dirk Reiners, University of Central Florida

ECIT 10 THURSDAY, 5 DECEMBER • 0830 – 1000 • ROOM 320E

ECIT 10: AI TRUST AND OPTIMIZATION

Session Chair: Matt Canonico, NVIDIA

Session Deputy: Lloyd Kleinman, Surface Combat Systems Training Command

24264 Mapping Trust in AI: Right Tool, Right Task
Connor Baugh, Kyle Camlic, Charles Etheredge, William Marx, Ph.D., CAPT Tim Hill, USN (Ret.), Chanler Cantor, Intuitive Research and Technology Corporation

24335 Compound AI Ecosystem: Agents and Tools to Improve Training and Learning
Svtilana Volkova, Ph.D., Summer Rebensky, Ph.D., Laura Cassani, Robert McCormack, Ph.D., Adam Fouse, Ph.D., Sylvain Bruni, Gabe Gangberg, Kara Orvis, Ph.D., Aptima, Inc.

24344 AI-driven COA Generation Using Neuro-symbolic Methods
Rob Hyland, Michael Harradon, Charles River Analytics

ECIT 11 THURSDAY, 5 DECEMBER • 0830 – 1000 • ROOM 320F

ECIT 11: SYNTHETIC DATA & AI FRAMEWORKS

Session Chair: Mike Lokuta, CAE

Session Deputy: Erica Dretzka, OSD Chief Digital and AI Office

24206 Next-Generation Training with Advanced Visualization and Digital Twins
Ashley Stowe, Ph.D., Oak Ridge Enhanced Technology and Training Center; David Metcalf, Ph.D., UCF Institute for Simulation & Training; Michael Eakins, UCF Institute of Simulation and Modeling

24217 A Machine-readable Narratological Approach to the Design of Human Performance Descriptions for Synthetic Training Environments
Shelly Blake-Plock, Yet Analytics, Inc.; Andy Johnson, Advanced Distributed Learning (SETA Contractor); Cliff Casey, Yet Analytics

24301 Modular Analytics Framework for Rapid AI/ML Training and Deployment
Ronald Deiotte, Lauren Britton, ISSAC, LLC

ECIT 12 THURSDAY, 5 DECEMBER • 1030 – 1200 • ROOM 320E

ECIT 12: ADVANCED AI TECHNIQUES FOR RISK AWARE FLIGHT CONTROL & COMBAT OPTIMIZATION

Session Chair: Keith Holt, Lockheed Martin Corporation

Session Deputy: Crysta Maraj, Ph.D., UCF/IST

24219 Mastering Air Combat, Using Neural Fields for AI Introspection
George Hellstern, Rachael Shudde, Lockheed Martin Corporation; Joaquin León, German Barreto, Orlando Avila-García, Javier Rodríguez Vázquez, ARQUIMEA

24255 Uncertainty Aware Distributional Ensemble Reinforcement Learning for Flight Control
Joseph Gleason, Ph.D., Anastacia MacAllister, Ph.D., Micah Bryant, General Atomics Aeronautical

24273 Optimization to Minimize Risks Using Continuous Asymmetric Risk Analysis
Rob Harrill, Randal Allen, Ph.D., CMSP, Nicolas Velez Camacho, Jacob Ediger, Nickalus Harrill, Lone Star Analysis

ECIT 13 THURSDAY, 5 DECEMBER • 1330 – 1500 • ROOM 320E

ECIT 13: TRAINING AND PERFORMANCE ASSESSMENT

Session Chair: Christine Plutta, NSWC PCD/PM TRASYS
Session Deputy: Sean Guarino, Charles River Analytics

24250 Use of Large Language Models in Assessing Training Performance
Brian VanVoorst, Raytheon BBN; Matthew Hackett, Ph.D., U.S. Army DEVCOM SC STTC; Nicholas Walczak, Raytheon BBN Technologies; Jack Norfleet, Ph.D., U.S. Army DEVCOM SC STTC; Charles Meissner, RTX BBN Technologies

24254 From Innovation to Integration: Data-Driven Evaluation of Modernized Training
Alexxa Bessey, Ph.D., Summer Rebensky, Ph.D., Brian Schreiber, Mark Schroeder-Strong, Ph.D., Aptima, Inc.; Steven Macut, BGI, LLC; Wink Bennett, Ph.D., Bennett Research Consulting, LLC

24471 Preparing for LSCO: M&S Approaches to Rapidly Improve Medical Training
Mark Mazzeo; Matthew Hackett, Ph.D., Bill Pike, Ph.D., U.S. Army DEVCOM SC STTC; Angela Alban, Darin Hughes, Ph.D., SIMETRI, Inc.

HUMAN PERFORMANCE, ANALYSIS AND ENGINEERING

HPAE 1 TUESDAY, 3 DECEMBER • 1400 – 1530 • ROOM 320C

HPAE 1: VIRTUAL FUSION: REAL-WORLD APPLICATIONS OF XR

Session Chair: LCDR Michael Natali, Ph.D., USN, ONR
Session Deputy: Raquel Duran, U.S. Army PEO STRI

24185 Utilizing Extended Reality Usability Heuristics to Drive Effective XR Training Applications
Jessyca Derby, Claire Hughes, JoAnn Archer, Design Interactive, Inc.

24161 Interaction Design for Binary Reverse Engineering in Virtual Reality
Dennis Brown, Julian Bauer, Kevan Baker, Luke Wittbrodt, Samuel Mulder, Ph.D., Auburn University

24187 Virtual Reality Cue Exposure Therapy System
Derek Chong, Saravana Kumar, Ph.D., Terence Teng, Meng Fai Ying, Home Team Science and Technology Agency; Eng Hao Loh, Renee Li, Singapore Prison Service; Xiang Long Cheng, Ministry of Home Affairs

HPAE 2 TUESDAY, 3 DECEMBER • 1600 – 1730 • ROOM 320C

HPAE 2: COGNITIVE CHAOS AND SKILLFUL SWAGGER

Session Chair: Paul Andrzejewski, HigherEchelon, Inc.
Session Deputy: Claire Hughes, Design Interactive, Inc.

24201 Assessing Cognitive Workload Prediction Models Using a Continuous Subjective Approach
Charles Rowan, Ph.D., The MOVES Institute, Naval Postgraduate School

24281 Enhancing a Piloting Task Simulator with Real-time Performance Feedback, Autopilot Disruption, Shock Punishment, and Adaptive Task Difficulty
Aaron Novstrup, Stottler Henke Associates, Inc.; Monica Tynan, Jonathan Lin, J.D., James Heaton, Massachusetts General Hospital

24164 Systematic Approach to Upskilling Learning Professionals for the Development of Modernized Training
LCDR Christie Smith, U.S. Coast Guard; Courtney Zollicoffer, CG Force Readiness Command, Training Division

HPAE 3 WEDNESDAY, 4 DECEMBER • 0830 – 1000 • ROOM 320C

HPAE 3: XR: IT'S NOT JUST ABOUT FLAPPING YOUR ARMS

Session Chair: Matthew Stone, NAWCAD
Session Deputy: Susan Harkrider, C5ISR RTI

24240 B-52 Pilots in Focus: Human Factors in Virtual Reality Research
Lindsay Gouedy, Mary Fendley, Ph.D., Louisiana Tech University; Lt Col Brandon Wolf, USAF, 93rd Bomb Squadron

24265 Integrating Cognitive and Skills Training in a Simulated UAS (Unmanned Aerial Systems) Pilot Training Course
Madison Clausen, Bailey Miller, Eric Bird, Tye Payne, Lone Star UAS Center of Excellence and Innovation

24437 Spatial Accuracy Requirements for Visual Search Cues in Simulated Sparse and Dense Scenes
John Graybeal, Ph.D., U.S. Army C5ISR Center; Colleen Gerrity, MAG Aerospace; William Sharp, Planned Systems International; Emily Lasko, Ph.D., CACI International, Inc.; Todd Du Bosq, Ph.D., U.S. Army C5ISR Center

HPAE 4 WEDNESDAY, 4 DECEMBER • 1030 – 1200 • ROOM 320C

HPAE 4: DATA-DRIVEN INITIATIVES FOR TRAINING AND TEAM DYNAMICS

Session Chair: Annie Robinson, Overmatch, Inc.
Session Deputy: Elizabeth Tygart, PM TRASYS

24146 Data Collection, Reduction and Analysis Initiative for Integrating U.S. Army Data Plan into Warfighter Qualifications
Kevin Owens, Kevin Gupton, Applied Research Laboratories: The University of Texas at Austin; Randall Spain, Ph.D., Benjamin Goldberg, Ph.D., U.S. Army DEVCOM SC STTC; Ross Brown, Applied Research Laboratories: The University of Texas at Austin

24242 Taking a Data-Informed Approach to Squad Training Evaluations
Michael King, Ph.D., Julian Abich, IV, Ph.D., Quantum Improvements Consulting; Clifford Hancock, Meghan O'Donovan, U.S. Army DEVCOM SC STTC; Gregory Goodwin, Ph.D., CCDC-SC

24305 Studying Team Effectiveness via Dialogue Analysis
Kallirroi Georgila, Ph.D., Carla Gordon, Anton Leuski, Ph.D., Ron Artstein, Ph.D., David Traum, Ph.D., USC Institute for Creative Technologies

HPAE 5 WEDNESDAY, 4 DECEMBER • 1330 – 1500 • ROOM 320C

HPAE 5: IS HAL YOUR PAL?

Session Chair: Sean Carey, USAF/AMC/A3TD

Session Deputy: Bethany Brant, USAF DoD, AFLCMC/WNSE

24428 Multimodal Machine Learning Framework for Soldier Fatigue Prediction
Louis Kim, Ryan Dougherty, Connor Diehl, Kelly Hale, Ph.D., Andrea Webb, Ph.D., Draper; Hope Mango, The Johns Hopkins University Applied Physics Laboratory; Victoria Bode, Seth Elkin-Frankston, Ph.D., U.S. Army DEVCOM SC STTC

24443 Training Individual ML Classification Models of Warfighter State with fNIRS
Olivia Fox Cotton, Justin Morgan, Lisa Lucia, Ph.D., William Dupree, Ph.D., Jordan Coker, Matthew Ewer Aptima, Inc.; LCDR Joseph Geeseman, Ph.D., USN, NAWCAD

24268 Towards a Real-Time Model of Trust in Human-Machine Team Paradigms
Sydney Gibbs, Veronica Tanner, Eric Larson, Ph.D., Southern Methodist University; Sandro Scielzo, Ph.D., Alvin Abraham, CAE USA

POLICY, STANDARDS, MANAGEMENT AND ACQUISITION

PSMA 1 WEDNESDAY, 4 DECEMBER • 0830 – 1000 • ROOM 320G

PSMA 1: STREAMLINING DIGITAL ASSET MANAGEMENT

Session Chair: Jeff Frost, EWA / S3 LLC

Session Deputy: Jong Lee, Yulista Tactical Services, LLC

24172 Comparison of Intermittent Demand Forecasting Methods in Predicting the Repair of Simulators Based Upon System State
Corey Hendricks, D.Eng., Leidos

24359 Improving Training and Education Supply Chains by Harnessing Data Pipeline Observers
Erica Dretzka, OSD Chief Digital and AI Office; Brent Smith, Advanced Distributed Learning Initiative; Jason Weiss, TestifySec, Inc.

24418 When to Embrace Redundancy: Practical Guidance for Managing Digital Assets
Rowland Darbin, Mike Tyler, Steve Harvey, General Dynamics Mission Systems; Marwane Bahbaz, U.S. Army PEO STRI

PSMA 2 WEDNESDAY, 4 DECEMBER • 1030 – 1200 • ROOM 320G

PSMA 2: AI: FACT OR SCIENCE FICTION?

Session Chair: Paul Butler, The MITRE Corporation

Session Deputy: Michael Aldinger, HII / LVC Solutions Group

24109 Wargaming: Toward the Development of a Generative AI for Weather Simulation
Hung Tran, Michael Tillett, Howard Cheung, CAE USA

24114 The Boyd Loop Explanation of Artificial Intelligence for Policy Makers
Thomas Yanoschik, CMSP, Peter Jones, SAIC

24331 Leveraging Science Fiction Case Studies to Specify Immersive Training System Requirements
Lee Lacy, Ph.D., CMSP, Soar Technology, LLC; Ron Sparks, Avanade

PSMA 3 WEDNESDAY, 4 DECEMBER • 1330 – 1500 • ROOM 320G

PSMA 3: MEDICAL LEARNING: STANDARDS REQUIRED?

Session Chair: Tim Cooley, Dynamx Consulting

Session Deputy: Rick Goree, Akima, LLC

24112 Data Analytic Considerations for Audio, Video, and Simulation Trace Data: Enabling Decisional Advantage
Jennifer Winner, 711th Human Performance Wing; Cameron Roudebush, Aptima, Inc.; Randall Spain, Ph.D., U.S. Army DEVCOM SC STTC; Ian Davis, BAE Systems; Katelyn Kay, Kent Etherton, Ph.D., 711th Human Performance Wing; Erin Baker, NAWCTSD; F. Erick Robinson, Ph.D., Naval Medical Research Unit – Dayton; Benjamin Goldberg, Ph.D. U.S. Army DEVCOM SC STTC

24200 Medical Modularity and Interoperability: How Will We Get There?
M. Beth Pettitt, Ph.D., Jack Norfleet, Ph.D., U.S. Army DEVCOM SC STTC

PSMA 4 WEDNESDAY, 4 DECEMBER • 1530 – 1630 • ROOM 320G

PSMA 4: DATA DISTINCTION IN OUR DIGITAL WORLD

Session Chair: Scott Schutzmeister, Institute for Defense Analyses

Session Deputy: Patrick Hart, U.S. Army DEVCOM SC STTC

24204 An Open Standards Data Model and Taxonomy to Enable Digital Twins for Defense
Patrick Buckley, Ph.D., Integration Innovation, Inc. (i3); Robert Proctor, Jr., Real-Time Innovations

24333 Policies Motivating the Data Mesh
Erica Dretzka, OSD Chief Digital and AI Office

PSMA 5 THURSDAY, 5 DECEMBER • 0830 – 1000 • ROOM 320G

PSMA 5: THE HUMAN ELEMENT: TRAINING, POLICY AND STANDARDS

Session Chair: Sean Osmond, CMSP, Soar Technology, LLC

Session Deputy: Jennifer "JJ" Walcutt, Ph.D., SAIC

24256 What is an M&S Expert? Clarifying Competency Expectations in the DAF's Modeling and Simulations Workforce: A Case Study
Patricia Bockelman, Ph.D., Anne Little, Ph.D., Lara Bove, SAIC

24154 Generalizable Learning Engineering Adoption Maturity Model
Jim Goodell, QIP; Shelly Blake-Plock, Yet Analytics, Inc.; Scotty Craig, Ph.D, Arizona State University; Erin Czerwinski, Carnegie Mellon University/Open Learning Initiative; Jodi Lis, Arizona State University/ Learning Engineering Institute; Katherine McEldoon, Ph.D., Federation of American Scientists; Kevin Owens, Applied Research Laboratories: The University of Texas at Austin; Julian Stodd, Sea Salt Learning Ltd.; Sae Schatz, Ph.D., Partnership for Peace Consortium; Wendy Walsh, Ed.D., USAF AETC

24181 Automated Human Performance Measurement: Standardizing Lifelong Learning Training Data
Mitchell Tindall, Ph.D., Beth Atkinson, NAWCTSD; Sarah Beadle, Ph.D., NAWCAD

PSMA 6 THURSDAY, 5 DECEMBER • 1030 – 1200 • ROOM 320G

PSMA 6: DIGITAL ENGINEERING: EMBRACE THE CHANGE

Session Chair: Jeremy Gneiting, U.S. Army DEVCOM-AvMC
Session Deputy: Brian Adkins, U.S. Army DEVCOM-AvMC

24274 Implementing MBSE Organizational Change at the USAF Simulators Division
Joseph Doak, Tangram Flex; Mohammed Khattab, SAIC; Andrew Frost, Tangram Flex; Sameep Singh, Plexsys; George Ayers, Jr., U.S. Air Force

24275 Digital Sustainment, A Strategy For Success
George Ayers, Jr., U.S. Air Force; Joseph Doak, Timothy Smith, Alexander Staton, Tangram Flex; Mohammed Khattab, SAIC

24457 DoD Instruction 5000.97 – Digital Engineering: Assessing the Impact on the Department's M&S Enterprise
Daniel Hettema, Jeff Nartatez, Keith Henry, OUSD R&E Digital Engineering Modeling & Simulation

PSMA 7 THURSDAY, 5 DECEMBER • 1330 – 1500 • ROOM 320G

PSMA 7: MANAGERIAL CHALLENGES: THE GOOD, THE BAD AND THE UGLY!

Session Chair: E. Michael Bearss, Ph.D., CMSP, Trideum Corporation
Session Deputy: Steven Godby, AFLCMC/WNS

24151 Exploiting Experimentation: A Managerial Challenge
S.K. "Sue" Numrich, Ph.D., CMSP, IDA

24294 Achieving Accreditation Utilizing Model Development Indices and Model Description Reports
Glenn Peterson, Ph.D., Branford McAllister, U.S. Air Force; Steve Butler, Kerry Neace, Applied Physics Lab; Jack Borah, Borah Enterprises, LLC

24422 Preventing and Handling Offensive Behavior in Military Training
Peter Sjoestedt, Ninette Fridahl, Danish Ministry of Defence, Acquisition and Logistics Organization (DALO)

SIMULATION

SIM 1 TUESDAY, 3 DECEMBER • 1400 – 1530 • ROOM 320B

SIM 1: THE FUTURE OF MODELING HUMAN ELEMENTS IN SIMULATION

Session Chair: Nathan Jones, Spinnaker Institute, Inc.
Session Deputy: Einav Kiperman, Self-Employed

24432 COMBAT-711: A Tool for Integrating Human Factors into Wargames
Megan Morris, Ph.D., Christopher Stevens, AFRL; Bella Veksler, Tier1 Performance Solutions; Emma Robin, Kevin Contreras, Booz Allen Hamilton

24339 MetaPOL: A Digital Twin for Human Patterns of Life in Indoor Secure Facilities
Chathika Gunaratne, Mason Stott, Debraj De, Ph.D., Gautam Thakur, Chris Young, Oak Ridge National Laboratory

24368 Behavior Envelopes for Defining Performance Metrics in Complex Scenarios
Henry Phillips, IV, Ph.D., Advanced Distributed Learning (ADL) Initiative; Randolph Jones, Ph.D., CMSP, Jeffrey Craighead, Ph.D., SoarTechnology, LLC; Michael Charlton, 2Circle Consulting; Joseph Geeseman, NAWCAD; Joseph Cohn, Ph.D., Soar Technology, LLC; Lorraine Borghetti, AFRL

SIM 2 TUESDAY, 3 DECEMBER • 1400 – 1530 • ROOM 320D

SIM 2: CYBER & SECURITY

Session Chair: Jonathan Rowe, North Carolina State University
Session Deputy: Thomas Kehr, Ph.D., Cole Engineering Services, Inc.

24208 Fortifying the Virtual Battlefield: Integrating Cyber Effects Using Simulation
Matthew Smith, DSTL

24269 Development of a Novel Architecture for Improving Cyber-Kinetic Training
Omar Hasan, Derek Crane, Jeffrey Welch, Dignitas Technologies; Jeff Truong, Mark Evans, The MITRE Corporation; James Geddes, Jason Strauss, U.S. Army DEVCOM SC STTC; William Bogler, Cyber Resiliency & Training (PdM CRT)

24189 Zero Trust Security in Cloud-based Simulation
Tom van den Berg, Patric Stout, Luca Morgese, TNO

SIM 3 TUESDAY, 3 DECEMBER • 1600 – 1730 • ROOM 320B

SIM 3: BUILDING THE DIGITAL WORLD – PART 2

Session Chair: Craig Unrath, CMSP, Trideum Corporation
Session Deputy: Tiffany Parrish, NAWCTSD

24464 Open-Source MARL for Autonomous Agent Research: A New Godot-based Environment for BVR Air Combat Simulation
Andre Kuroswiski, Brazilian Air Force; Annie Wu, Ph.D., University of Central Florida; Angelo Passaro, Instituto de Estudos Avançados

24460 Establishing Best Practices to Apply a Generic Point Cloud Model (GPM) Uncertainty to High Resolution Data
Amy Neuenschwander, Ph.D., Center for Space Research; Lori Magruder, Dept. of Aerospace Engineering; Donald Maze-England, Eric Guenther, Center for Space Research; Thomas Bakewell, University of Texas at Austin

24328 Computer-Generated Forces Team Behavior within Air Combat Simulations: Concept and Agent Structure
Fabian Reinisch, Philippe Ruther, Luca Winkler, Michael Strohal, Peter Stütz, University of the Bundeswehr Munich

SIM 4 TUESDAY, 3 DECEMBER • 1600 – 1730 • ROOM 320D

SIM 4: MULTI-DOMAIN SIMULATION

Session Chair: LtCol Matthew Morse, USMC, TECOM
Session Deputy: Kanit Dararutana, U.S. Army DEVCOM-AvMC

24139 Requirements for Simulation of the Future Operating Environment and Multi-Domain Operations
Per-Idar Evensen, Even Hvinden, Ph.D., Helene Holhjem, Daniel Tveit, Karolina Eikås, Norwegian Defence Research Establishment (FFI)

24158 Open-Vocabulary High-Resolution 3D (OVHR3D) Data Segmentation and Annotation Framework
Jiuyi Xu, Meida Chen, Andrew Feng, Ph.D., USC Institute for Creative Technologies; Yangming Shi, Colorado School of Mines; Zifan Yu, Arizona State University

24152 The Potential of LVC for Creating Air Power – Beyond Adversaries
Arjan Lemmers, Bastiaan Petermeijer, Zeeger Lubsen, Jelke van der Pal, Royal Netherlands Aerospace Centre

SIM 5 WEDNESDAY, 4 DECEMBER • 0830 – 1000 • ROOM 320B

SIM 5: MY 3D WORLD

Session Chair: Thomas Kehr, Ph.D., Cole Engineering Services, Inc.

Session Deputy: Miranda Bouldin, LogiCore Corporation

24326 Converting One World Terrain Geospatial Content to CDB
Jordan Dauble, SimBlocks.io; Thomas Kozma, Maxar; William Aycock, Joint Staff

24440 Abstracting Geo-specific Terrains to Scale Up Reinforcement Learning
Volkan Ustun, Soham Hans, Rajay Kumar, USC Institute for Creative Technologies; Yunzhe Wang, University of Southern California Department of Computer Science

24243 Mesh-as-a-Service: Automated 3D Modeling Fast as L-AI-ghtning
Mathijs Henquet, Thomas Bellucci, Chihab Amghane, Jasper Steringa, Lodewijck Foorthuis, Royal Netherlands Aerospace Centre

SIM 6 WEDNESDAY, 4 DECEMBER • 1030 – 1200 • ROOM 320B

SIM 6: VR GOOD

Session Chair: Colleen Matthews, U.S. Army PEO STRI

Session Deputy: Connie Perry, U.S. Army PEO STRI

24455 Soldier Centric Design of Mixed Reality Reconfigurable Virtual Collective Trainers
Dennis Joseph, Cole Engineering Services, Inc.

24141 Advanced Navigation Team Shipboard Simulation
Matthew Legg, Corey Guilbault, NSWC Dahlgren Dam Neck Activity

24348 Training through Simulation of Border Patrol Incidents
Geng Zhang, Michigan Engineering Services; Nathan Murray, Robert Montemayor, Booz Allen Hamilton; Syed Mohammad, DHS Science and Technology Directorate; Nickolas Vlahopoulos, University of Michigan

SIM 7 WEDNESDAY, 4 DECEMBER • 1330 – 1500 • ROOM 320B

SIM 7: CONVERSATION STARTERS: LET'S TALK ABOUT IT

Session Chair: Tammie Smiley, CMSP, Trideum Corporation/AMSO

Session Deputy: Margaret Nolan, NAWCTSD

24465 Developing a Novel UAS Flight Planning and Reconstruction Software Package
Mike Alonzo, Christine Simurda, Ph.D., Benjamin Helgeson, John Lesicko, Karl Muller, Alex De Sabatino, The Applied Research Laboratories at The University of Texas at Austin

24298 Digital Caricature: Stochastic M&S of Complex System of Systems
Ronald Deiotte, Jarrid Carroll-Frey, ISSAC LLC

24439 Top 10 DIS V8 Improvements
Lance Call, AFRL/CAE USA; Robert Murray, SimPhonics, Inc.

SIM 8 WEDNESDAY, 4 DECEMBER • 1530 – 1700 • ROOM 320B

SIM 8: BUILDING THE DIGITAL WORLD – PART 1

Session Chair: Nick Giannias, CAE

Session Deputy: Paul Bogard, AFLCMC, Simulators Division

24295 Novel Techniques for Processing Building Exteriors Captured from Photogrammetry
Scott Johnson, Scot Shiflett, Leidos; Clayton Burford, U.S. Army DEVCOM SC STTC

24317 Whole Earth Fraternal Twin Content for Flight Simulation
Daniel Lowe, Collins Aerospace

24199 Simulating the Weaponization of Public Opinion in Multi-Domain Scenarios
Jan Jaap Knobbout, Lodewijck Foorthuis, Royal Netherlands Aerospace Centre

WEDNESDAY, 4 DECEMBER • 1530 – 1700 • ROOM 320F

ZOMBIES & AI

Session Chair: Tammie Smiley, CMSP, Trideum Corporation/AMSO (Simulation)

Session Deputy: Duke Tucker, Akima, LLC (Training)

24194 TRAINING: **Expanding Access to Learning Decision-Making and Teamwork Skills Using Low Fidelity, Tabletop Games: A Measurement Approach**
Lisa Townsend, Tamara Griffith, Ph.D., Jerry Mize, U.S. Army DEVCOM SC STTC; Joan Johnston, Ph.D., Retired; Grant Johnston, Student; Jake Engel, Student

24135 ECIT: **Human-AI Common Ground for Training and Operations**
Spencer Lynn, Ph.D., Susan Latiff, Ph.D., William Norsworthy, Jr., Peter Weyhrauch, Ph.D., Charles River Analytics; Mark Turner, Ph.D., Case Western Reserve University

24232 SIMULATION: **Social Simulator Madness: Simulating Social Behavior in Dynamic Environments**
Pieter de Marez Oyens, Chihab Amghane, Royal Netherlands Aerospace Centre

SIM 10 THURSDAY, 5 DECEMBER • 0830 – 1000 • ROOM 320B

SIM 10: M&S IN WARGAMING

Session Chair: Thomas Kehr, Ph.D., Cole Engineering Services, Inc.

Session Deputy: Miranda Bouldin, LogiCore Corporation

24343 M&S as a Service Composability Lessons from NATO
Scott Gallant, Effective Applications; Robert Kewley, simlytics.cloud LLC; Tom van den Berg, TNO; Chris McGroarty, Jeremiah Long, Christopher Metevier, U.S. Army DEVCOM SC STTC

24433 Leveraging MSaaS Concepts to Enable Mission Environments: Lessons Learned
Jay Freeman, CAE USA; Mate Koch, Andreas Krupp, CAE GmbH; Sheldon Lettsome, Erik Bernheim, CAE USA

24307 Development of Closed-loop Wargaming Simulation Software: Challenges, Best Practices, and Lessons Learned
Erkin Çilden , Ismail Çetintaş, Denizcan Demirok, Büşra Toraman, Levent Şenyürek, Fatih Narman, Merve Erdemir, Ahmet Sezer, STM Defense Technologies Engineering and Trade Inc.; Halit Oguztuzun, Middle East Technical University, Department of Computer Engineering

SIM 11 THURSDAY, 5 DECEMBER • 0830 – 1000 • ROOM 320C

SIM 11: DIGITAL TWINS

Session Chair: Maj Michael Ashmore, USMC, PM TRASYS

Session Deputy: Michelle DiFalco, Tangram Flex

24133 PINNball Wizard: Conjuring Digital Twins with Physics-Informed Neural Networks
Thomas McRobie, Thales Training & Simulation

24143 Warfighter Digital Twins for Simulating Mission Performance
Paulien Roos, Ph.D., Nathan Pickle, Garrett Tuer, Ryan Middle, CFD Research Corporation; James Yang, Texas Tech University; Gary Zientara, USARIEM

24276 Digital Twins for Modeling Replacement Time for CAD/PAD
Kyle Probst, David Padula, Zachry Engel, Ph.D., Randal Allen, Ph.D., CMSP, Lone Star Analysis

SIM 12 THURSDAY, 5 DECEMBER • 1030 – 1200 • ROOM 320B

SIM 12: SOARING WITH FLIGHT SIMULATORS

Session Chair: Samuel Halverson, L3Harris Technologies

Session Deputy: Bruce Haycock, Ph.D., University Health Network – KITE

24155 Leveraging Data Center Architectures for Full Flight Simulators
Jean-Philippe Arbic, Ghislain Boivin, Nick Giannias, CAE

24380 Analyzing Visual Fidelity in Flight Simulation Software Using Game Engine with Feature Mapping
Rishabh Kaushik, Ankur Rathore, Collins Aerospace

24218 Optical See-Through Mixed Reality as a Cybersickness Mitigation Strategy in Extended Reality Helicopter Flight Simulation
Boris Englebert, Tobias Tanis, Roemer Bakker, Tanja Bos, Royal Netherlands Aerospace Centre

TRAINING

TR 1 TUESDAY, 3 DECEMBER • 1400 – 1530 • ROOM 320A

TR 1: NAVIGATING TECH HURDLES IN MILITARY TRAINING

Session Chair: Jennifer Serra, Collins Aerospace

Session Deputy: Chris Del Vecchio, U.S. Air Force

24235 Understanding Trainee Cognitive Processes in ATC Training
Thomas Bellucci, Petra Ten Hove, Maykel van Miltenburg, Emmy Gabriel, Steven Niedenzu, Thimo Willems, Ir., Daniela Pistone, Royal Netherlands Aerospace Centre

24229 A Review on Education and Training Needs for Military Space Operations
Simone Caso, Tobias Tanis, Arnaud van Kleef, Royal Netherlands Aerospace Centre

24163 A Method to Assess Barriers to Implementing Training Technologies
Blake Martin, Jerzy Jarmasz, Defence Research and Development Canada

TR 2 WEDNESDAY, 4 DECEMBER • 0830 – 1000 • ROOM 320A

TR 2: ENSURING VR TRAINING EFFECTIVENESS: APPROACHES AND EXAMPLES

Session Chair: Brett Ulander, Psy.D., Bluedrop USA, Inc.

Session Deputy: Ginger Watson, Ph.D., Old Dominion University

24188 VR Team Training for Military Special Forces
Frank Jaspers, Technical Test Center

24369 A Novel Immersive Approach for Spatial Disorientation Training
Maria Chaparro Osman, Ph.D., Aptima, Inc.; Cherrise Ficke, Florida Institute of Technology; Joseph Cohn, Ph.D., Lauren Glenister, Soar Technology, LLC; Shawn Weil, Ph.D., Aptima, Inc.; Beth Atkinson, NAWCTSD

24244 Virtual Reality Training for In-air Refueling
Lindsay Gouedy, Mary Fendley, Louisiana Tech University; Brandon Wolf, USAF/93rd Bomb Squadron

TR 3 WEDNESDAY, 4 DECEMBER • 1030 – 1200 • ROOM 320A

TR 3: IMPROVE COMBAT READINESS THROUGH DIGITALIZATION

Session Chair: Marwane Bahbaz, U.S. Army PEO STRI

Session Deputy: Eric Carrasco, PM TRASYS

24148 Integration of First Person View Drones in Simulation
Peter Hafeneder, Thales

24334 A Statistical Method for Non-Laser-Based Force-on-Force Training Systems
Travis Hillyer, U.S. Army DEVCOM SC STTC

24323 Future Combat Training System – Improved Live Fire Training by Digitalization
Sebastian Hess, Fraunhofer EMI; Frank Jaspers, Technical Test Center; Thierry Fredrich, Fraunhofer EMI

TR 4 WEDNESDAY, 4 DECEMBER • 1330 – 1500 • ROOM 320A

TR 4: TAILORED TRAINING SOLUTIONS FOR HIGH-RISK PROFESSIONS, INSIGHT FROM FIREFIGHTING, AVIATION AND PARACHUTING

Session Chair: James Pharmer, Ph.D., NAWCTSD

Session Deputy: Luis Velazquez, Marine Corps Systems Command

24162 Simulation Training for High Stress Environments in the Fire Service
Jonathan Boyd, Allen Fire Department

24179 Optimizing Simulation Fidelity for Cost-Effective Aviation Training
Mark Zais, Patricia Sowles, James Zepp, Frank Turinsky, Integration Innovation, Inc. (i3)

24212 Investigating Field of Regard Implications in Simulated Parachute Descent Training
Jenna Korentsides, Embry-Riddle Aeronautical University; Victoria Trabysh, AETC; Emily Rickel, Ph.D., Matthew Pierce, NAWCTSD; Barbara Chaparro, Ph.D., Joseph Keebler, Ph.D., Embry-Riddle Aeronatical University; Beth Atkinson, NAWCTSD

TR 5 WEDNESDAY, 4 DECEMBER • 1530 – 1700 • ROOM 320A

TR 5: BRIDGING THE GAP IN TRAINING THROUGH TECHNOLOGY

Session Chair: Julie Suereth, PM TRASYS

Session Deputy: Paul Horning, USSOCOM Directorate of Operations; Joint Training and Exercise Division (J37)

24121 Training Effectiveness of a VR HMD-based Simulator in Air Force Pilots
Ramy Kirollos, Wasim Merchant, DRDC Toronto

24236 The Digital Divide: Implications for Training and Education
Maureen Namukasa, Alita Regi, Weronika Dymanus, Isabella DeLoach, TJ OConnor, Meredith Carroll, Florida Institute of Technology

24430 Technological Fluency: A First Step in Rethinking Army Training
Julia Brown, Werner Born, Ph.D., Krista Ratwani, Aptima, Inc.; Michael Mackay, Nikki Stoneley, Evan Good, HumRRO; Andrew Naber, Margaret Toich, Kyle Benbow, Army Research Institute

TR 6 WEDNESDAY, 4 DECEMBER • 1530 – 1700 • ROOM 320C

TR 6: HOW AI IS TRAINING US!

Session Chair: Philippe Perey, CAE

Session Deputy: Tim Woodard, NVIDIA

24374 LLM-Enabled Real Time Training Content Curation to Enhance Performance
James King, John Carney, MARi, LLC; John Stamper, Christine Kwon, Carnegie Mellon University; Nancy Belmont, MARi, LLC

24377 Separating Myth from Method: The AI Revolution in Military Training
Jenna Tuck, Bohemia Interactive Simulations

24414 A Deeper Dive into Using Machine Learning for Discovering the Root Causes for Student Failures Using Experience API (xAPI)
Paul Jesukiewicz, PowerTrain; Jim Bilitski, Ph.D., University of PIttsburgh at Johnstown; Jonathan Poltrack, Veracity

TR 7 THURSDAY, 5 DECEMBER • 1030 – 1200 • ROOM 320A

TR 7: DARTS, STICKS, AND DIGITAL DOMINANCE

Session Chair: Hunter Stinson, Integration Innovation Inc.

Session Deputy: Mike Merritt, NAWCTSD

24150 Operation: D.A.R.T (Designing Augmented Reality for Transfer) Improving Preparedness for Basic Combat Training Candidates
Christopher Webb, U.S. Army; Maria Harrington, University of Central Florida

24157 Surpass the Adversary: Enhanced Mission Training through Digital Engineering
Viruben Watson, Thales

24320 How to Make Military Training STICK (Superior Task Implementation of Core Knowledge)
Richard Arnold, Arnold Performance Training Group, LLC

TR 8 THURSDAY, 5 DECEMBER • 1030 – 1200 • ROOM 320C

TR 8: COGNITIVE COLLABORATORS, TASKS AND TEAMWORK

Session Chair: Jonathan Schlueter, Prisms of Reality

Session Deputy: Alex Gray, NAWCAD

24238 Development and Testing of Extended Reality Input Modalities for a Virtual Learning/Training Task
Stephanie Fussell, Ph.D., Kent State University; Quintin Oliver, AFRL; Benjamin Kwasa, Kent State University

24283 Enabling Effective Training with Mission Partners Using Resilient Multilevel Architectures
Jennifer Lewis, CMSP, Diana Pineda, CMSP, Iain Ferguson, SAIC

24324 Development of Team Dynamic Measurement Framework Using Hybrid Cognitive Task Analysis
Kamala Avancha, Parkhi Malhotra, Jamie Gorman, Vipin Verma, Arizona State University; Randall Spain, Ph.D., Benjamin Goldberg, Ph.D., U.S. Army DEVCOM SC STTC; Scotty Craig, Arizona State University

TR 9 THURSDAY, 5 DECEMBER • 1330 – 1500 • ROOM 320A

TR 9: TECH DONE RIGHT

Session Chair: Wendy Johnson, U.S. Air Force

Session Deputy: Jason Echols, Lockheed Martin Corporation

24365 A Suite of Devices: Applying Immersive Learning Taxonomy and Flow Theory to Military Training Program Device Acquisitions
Victoria Snow, U.S. Air Force; Andrew Clayton, USAF Air University

24361 Behavior-based Performance Optimization in Emerging Training Environment
Peyton Bailey, Audrey Zlatkin, Ph.D., Costas Koufogazos, Gwen Campbell, William Rivera, Design Interactive. Inc.

24262 Enhancing Air Force Training: A Data Integration Framework
Eric Haney, Ph.D., Lone Star Analysis; Mark Schroeder-Strong, Ph.D., Samantha Emerson, Ph.D., Aptima, Inc.

TR 10 THURSDAY, 5 DECEMBER • 1330 – 1430 • ROOM 320C

TR 10: FUTURE FRONTLINES: ENHANCING MILITARY TRAINING AND HEALTHCARE WITH DIGITAL INNOVATION

Session Chair: Benjamin Goldberg, Ph.D., U.S. Army DEVCOM SC STTC

Session Deputy: Hung Tran, CAE USA

24288 Training Effectiveness for Mobile Extended Reality: A Case Study Using Tactical Combat Casualty Care Training and Readiness
Betsy Laxton, JoAnn Archer, Design Interactive, Inc.

24494 Evaluation of a Novel Team-Based VR Curriculum for Advanced Resuscitative Care
Jennifer Polson, Michael Barrie, M.D., Michael Poppe, John Dorsch, D.O., Karthik Sarma, M.D., Ph.D., SimX, Inc.

HAVE QUESTIONS? ASK BLU!
TEXT "HI" TO 866.653.1575
OR
SCAN THE QR CODE! →

PROFESSIONAL DEVELOPMENT WORKSHOPS

FRIDAY, 6 DECEMBER 2024 — PROFESSIONAL DEVELOPMENT WORKSHOPS

LOCATION: Orange County Convention Center, South Concourse, note room assignments below.

DATE: Friday, 6 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

- Beyond the Basics – An Interactive "Deep Dive" into Vehicle Modeling & Simulation (M&S) Fundamentals
- Year 2 – From the Last of Us to the First of Us: Rebuilding after a Zombie Crisis
- Fundamentals of Artificial Intelligence in Simulation-based Training
- Navigating the Evolving Landscape of Distributed Simulation: Strategies for Success Using DDS
- From Zero to Hero: VR Design and Assessment for Novice-to-Expert Progression
- Serious Game Design Workshop
- Human Centered Design for Learning-Performance Integration
- Certified Modeling and Simulation Professional 3.0 (CMSP)
- Starship Bridge Simulations as a Serious Game for Team Development

PDW 2 • ROOM 331D

BEYOND THE BASICS – AN INTERACTIVE "DEEP DIVE" INTO VEHICLE MODELING & SIMULATION (M&S) FUNDAMENTALS

24W2

Presenter: Kevin Hulme, Ph.D., CMSP, The Stephen Still Institute for Sustainable Transportation and Logistics (SSISTL)

A Model is a product (physical or digital) that represents a system of interest, often for decision-making, while Simulation is the application of the model to analyze the performance of that system over time and space. This "beyond the basics" Professional Development Workshop (PDW) offers a detailed, engaging, and hands-on overview of core Modeling & Simulation (M&S) methodologies and solution approaches. The presentation serves as a "deep dive" into common mathematical formulations and solution techniques intended for the broad I/ITSEC community. For context, the PDW will begin by expanding upon fundamental M&S technologies, terms, and historical concepts. A majority of the PDW will be consumed discussing contemporary M&S through hands-on, worked examples which will be verbalized and problem-formulated, with solution strategies demonstrated using diverse mathematical approaches. MS Powerpoint and MS Excel will be utilized interchangeably throughout the presentation. In this PDW, emphasis will be placed on applications related to vehicle (ground/flight/maritime) training applications, which have served as the cornerstone of I/ITSEC since its inception. As such, Physics-based modeling will be featured as the foundational M&S solution approach. The PDW will systematically present an overview of the primary developmental subcomponents of a vehicle simulator, including: haptics/inputs/controls, vehicle dynamics basics, essentials of motion simulation, virtual environments, image generation, sound simulation, and others. The PDW will also include related introductory discussion of more recent "emerging" I/ITSEC priority concepts in M&S, including AI, machine learning, game engines, immersive displays, and extended (e.g., virtual/augmented/mixed reality techniques). Interactive content – please bring a laptop to better participate.

PDW 3 • ROOM 330GH

YEAR 2 – FROM THE LAST OF US TO THE FIRST OF US: REBUILDING AFTER A ZOMBIE CRISIS

24W3

Presenters: Tamara Griffith, Ph.D., Lisa Townsend, U.S. Army DEVCOM SC STTC; Joan Johnston, Ph.D., Retired; Grant Johnston, Student; Jerry Mize, U.S. Army DEVCOM SC STTC; Jake Engel, Student; Joseph Nolan, Magic Leap, Inc.; Richard Campanale; Chuck Wainman, SAIC

Come for the fun, stay for the insights! While I/ITSEC is well known for showcasing technical advancement that immerse individuals into simulated spaces, this workshop demonstrates that high-cost, high-fidelity simulations are not necessary to engage participants, provide teachable moments or collect insightful data. This workshop makes use of aspects of fantasy tabletop role-playing games (RPG), escape rooms,

and the zombie horror genre to build a participatory story. The story plays out to provide insights into team dynamics, leadership, trust, decision making, and strategy.

Last year's workshop was fun, well-received, and insightful. The results are provided in multiple I/ITSEC papers that summarize the data collected and describe the process of creating such an event. The format continues this year, building on the decisions participants made last year as they dealt with events in the first month following the collapse. Anyone can participate! Participants will continue to fight for their survival while considering efforts to move toward a more civilized society and their choices will continue to influence the following year's workshop as the world tries to regain normalcy after the fall. The workshop itself functions as a research study that explores data collection strategies to provide feedback on team performance, leadership strategies and the results of training interventions. As such, video cameras will be used to collect interactional data, such as who spoke to whom, what was said and how was it said.

PDW 4 • ROOM 330EF

FUNDAMENTALS OF ARTIFICIAL INTELLIGENCE IN SIMULATION-BASED TRAINING

24W4

Presenters: Brice Colby, Ph.D., Randolph Jones, Ph.D., CMSP, Morgan Ulinski, Ph.D., Soar Technology, LLC; Elaine Choy, Embry-Riddle Aeronautical University; Robert Sottilare, Ph.D., Soar Technology, LLC

This workshop provides participant experiences to help novices understand and use of various types of AI methods, design training systems with integrated AI capabilities, and evaluate demonstrations of sample AI implementations in training solutions. The authors provide hands-on opportunities for participants to use AI tools (e.g., ChatGPT, TensorFlow, WEKA & MOA) and understand the mechanisms (e.g., transformers) that make AI-based tools and models work. Significant time is also spent discussing data science as an integral practice in developing AI-based models to classify trainee behaviors, predict future simulation states, and recognize/explain the cause of events. Data science in central to human understanding of AI methods, avoiding bias in assessments, and building trust in AI methods. Interactive content – please bring a laptop to better participate. Our workshop agenda follows:

0800-0820 Artificial Intelligence Overview – Dr. Jones
0820-0840 Modeling Tr(AI)ning – Dr. Colby
0840-0925 Practical Applications of AI and Examples – Ms. Choy, Dr. Colby, Dr. Ulinski
0925-1005 Applying AI Workshop – Team
1005-1035 30 min Break
1035-1105 Workshop Discussion and Debrief – Dr. Jones
1105-1120 Ethics in AI – Ms. Choy
1120-1135 Future Directions and Challenges of AI – Dr. Jones
1135-1150 Key Takeaways and Conclusions – Dr. Ulinski

PDW 5 • ROOM 320E

NAVIGATING THE EVOLVING LANDSCAPE OF DISTRIBUTED SIMULATION: STRATEGIES FOR SUCCESS USING DDS

24W5

Presenters: Robert Proctor, Jr., David Whitten, Akkshaj Singh, Real-Time Innovations (RTI)

In this PDW, participants will embark on a comprehensive journey into the development of distributed simulators using the Object Management Group's Data Distribution Service (OMG-DDS). As the premier middleware solution for data distribution, OMG-DDS plays a pivotal role in enabling seamless communication and collaboration across distributed simulation environments. This workshop offers a unique opportunity for attendees to gain hands-on experience and practical insights into leveraging OMG-DDS to develop robust and scalable distributed simulators.

Throughout the workshop, participants will be guided through a series of interactive sessions, presentations, and hands-on exercises designed to provide a deep understanding of OMG-DDS and its application in distributed simulation. Starting with an overview of OMG-DDS fundamentals, attendees will learn how to configure OMG-DDS for distributed simulation, design OMG-DDS entities and data models, and integrate OMG-DDS with existing simulation architectures and technlogies such as game engines.

A key focus of the workshop will be on teaching participants how to harness the security and interoperability features of OMG-DDS to develop secure and reliable distributed simulators. Through real-world examples and case studies, attendees will explore best practices for implementing authentication, access control, data encryption, and integrity verification in distributed simulation environments.

Moreover, participants will gain insights into optimizing performance and scalability in distributed simulators, leveraging OMG-DDS's advanced quality-of-service parameters and real-time WAN transport capabilities to overcome the challenges of diverse network conditions.

By the end of the workshop, attendees will have acquired the knowledge and skills needed to design, develop, and deploy distributed simulators using OMG-DDS, positioning them as leaders in the field of distributed simulation. Whether you're a novice seeking to expand your expertise or an experienced practitioner looking to stay ahead of emerging trends, this workshop promises to equip you with the tools and techniques needed to succeed in the dynamic world of distributed simulation. Interactive content – please bring a laptop to better participate.

PROFESSIONAL DEVELOPMENT WORKSHOPS

PDW 6 • ROOM 331C

FROM ZERO TO HERO: VR DESIGN AND ASSESSMENT FOR NOVICE-TO-EXPERT PROGRESSION

24W6

Presenters: Jeanine DeFalco, University of New Haven; Madeleine Keehner, Brighter Research, LLC; Kristin Torrence, IEEE ICICLE

While the ability to design an effective training simulation is still a challenging task, determining whether or not the simulation is effective from a learning perspective is arguably more difficult to both design for and ascertain. The majority of training simulations today appear to address the assessment and learning validity issue by designing simulations for the novice—arguably the easiest way to address the assessment issue of training. Meaning, if someone knows nothing about a task or process, then you can infer learning took place by merely introducing a novice to a simulation with basic information. However, deploying novices into complex or chaotic work environments and missions is not the end state we should be aiming for. Rather, training simulations should be designed to support knowledge and skill development that moves a trainee from a novice to a journeyman or expert status. Determining the proficiency of a trainee beyond a novice state requires benchmarks and assessments that can provide evidence of a range of competency levels, including mastery. In this workshop, we will facilitate a hands-on-design learning experience to have participants storyboard an initial training simulation incorporating an assessment design, using a learning engineering design approach.

PDW 7 • ROOM 331A

SERIOUS GAME DESIGN WORKSHOP

24W7

Presenters: Radhakishan Shetty, JANUS Research Group; Vance Souders, Plas.md; Seth Crofton, Pocketpinata Games/Moonrock

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 narrative, 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 9 • ROOM 331B

HUMAN CENTERED DESIGN FOR LEARNING-PERFORMANCE INTEGRATION

24W9

Presenters: Sydney Heimbrock, Ryan Twedell, Cydney Miller, Qualtrics

Technology offers new opportunities to fully integrate training and readiness to assure deterrence. This is why the discipline of Learning Engineering has emerged as mission critical for enabling evidence-based designs to improve 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 – which attracted standing room only attendance and was highly rated at I/ITSEC 2023 – 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
- Prototype, Test, Iterate
- 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.

PDW 11 • ROOM 320F

CERTIFIED MODELING AND SIMULATION PROFESSIONAL 3.0 (CMSP)

24W11

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 updated application and examination processes including education, work experience, and reference requirements for the Intern, 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 an overview of the fundamental M&S topics covered in the exams and include several relevant simulation videos.

Engaging Activities: This year's CMSP PDW will now include four game-show style exercises. The first, The Type is Right, modeled after CBS's

The Price is Right, displays to the audience a quick look at the picture of a type of M&S system, that needs to be identified, an answer is provided – and then the answer is discussed. The second is a Jeopardy style game, with categories and answers/questions on salient topics, and chocolate coin prizes. Third and finally, new in 2024, is an anagram acronym crossword puzzle, where a partially completed crossword puzzle of acronyms is displayed, and attendees work to fill in the blanks, with the prize of an M&S Monograph going to the most successful contestant.

Provided by: The PDW will be led by Ivar Oswalt – a Senior M&S Expert who is CMSP Certified and has been an integral part of its reinvention, and that has provided previous CMSP PDWs.

PDW 15 • ROOM 330ABCD

STARSHIP BRIDGE SIMULATIONS AS A SERIOUS GAME FOR TEAM DEVELOPMENT

24W15

Presenters: James Benslay, Jr., The MITRE Corporation; David Hernly, Mythric Studios

It is nearly an axiom that people learn best and retain lessons better when they are fully engaged in the learning environment. We believe that a Starship Bridge Simulation (SBS) is an excellent tool to use as a serious game in a creative, fun, and engaging leadership laboratory environment to encourage leadership and resilient team development.

This SBS workshop is explicitly designed as a follow-on to the Monday tutorial of the same title, "Starship Bridge Simulations as a Serious Game for Team Development." Whereas the tutorial provided the conceptual underpinnings of an SBS and taught the basic simulation and console mechanics, this workshop will conduct an actual multi-ship, multi-crew starship simulation scenario with a structured, facilitated, After-Action Review (AAR) of the participant's performance. The workshop presenters will provide an engaging environment with computer consoles, lights, sound effects, and other appropriate elements. The presenters will likely conduct at least two separate simulations: one as a practice/introductory scenario, and a second as a more challenging scenario. A third scenario will be prepared in the event there is time. Constructive dialog and examination of scenario execution will be encouraged from all participants during the AAR.

It is not necessary to have taken the associated Monday tutorial, but it will be very beneficial to providing participants the needed introduction to consoles and mechanics. Not all attendees to the workshop need to participate as a bridge crew member. Some attendees will be needed to serve as adjunct observer/evaluators and help with the AARs. Attendees could also choose to simply observe the event.

ANNUAL I/ITSEC 5K RUN/WALK/ROLL

WEDNESDAY, 4 DECEMBER 2024

OCCC, South Concourse

0530 Packet Pickup

0645 Start Time

http://www.iitsec.org/attendees/planningyourstay • 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 post-race refreshments. Tax-deductible registration.

REGISTER BY 1 OCTOBER TO GET A SHIRT

END OF AUGUST – 1 OCTOBER (Register by 1 October to secure your shirt & medal)	$50
2 OCTOBER – 22 NOVEMBER (Shirts & medals are not available)	$50
23 NOVEMBER – 4 DECEMBER (Shirts & medals are not available)	$65

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:

1. **TRADITIONAL 5K PARTICIPATION –** Get out there, watch the sun rise, and put some pavement miles under your feet.
2. **SNOOZE BUTTON –** Don't do mornings (or running)? We have you covered with this option.
3. **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.
4. **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.

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.

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

EcosySTEM OF LEARNING BOOTHS 2285 – 2594

STEM PAVILION SPONSORS
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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.

EcosySTEM OF LEARNING SCHEDULE

MONDAY, 2 DECEMBER

ROOM 331D
0800 – 1700 K-12 Teacher Training

TUESDAY, 3 DECEMBER

ROOM 331C
0800 – 1700 STARBASE Teacher Training

ROOM 331D
0800 – 1700 K-12 Teacher Training

WEDNESDAY, 4 DECEMBER

ROOM 331C
0800 – 1700 STARBASE Teacher Training

ROOM 331D
0800 – 1700 Problem Challenge

BOOTH 2395
1400 – 1530 Value Proposition of STEM in Acquisition Talent Management

BOOTH 2395
1600 – 1700 Problem Challenge Awards

THURSDAY, 5 DECEMBER

ROOM 331C
0900 – 1000 Career Panel

BOOTH 2909
1300 Serious Games Showcase & Challenge Awards Ceremony

THROUGHOUT THE CONFERENCE

BOOTH 2285 Serious Games Showcase & Challenge

VISIT THE INFO DESK IN BOOTH 2484 FOR THE LATEST EOL LINEUP.

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.

I/ITSEC ECOSYSTEM OF LEARNING PAVILION 2024 • CENTRAL FLORIDA STEM EDUCATION COUNCIL & I/ITSEC STEM COMMITTEE

Exhibiting STEM Organizations
Returning this year to the STEM exhibit area are the following organizations:
- Team Orlando STEM represented by
- NAWCTSD STEM
- AFRL GRILL (Gaming Research Integration for Learning Lab)
- DoD STARBASE
- FIRST Robotics
- University of Central Florida STEM Aviation Showcase
- Astronaut Scholarship Foundation
- Larson Motorsports

Discovery Den Presentations
The stage area of the Discovery Den will offer a full schedule of presentations showcasing various aspects of the STEM pipeline.
- Presentations by each exhibiting STEM organization in collaboration with one of their industry partners showcasing the value to industry of being involved with STEM education organizations
- Presentations by NTSA university members spotlighting their areas of research and academic programs relevant to MS&T
- A Special Event organized by USMC PM TRASYS on the "Value Proposition of STEM in Acquisition Talent Management" and featuring speakers from the Army, Navy, Air Force, and Marine Corps
- Presentations by student teams participating in the Problem Solving Workshop

Student Poster Session
This year, we are partnering with Shenandoah University Center for Immersive Learning to host a group of students in the AR/VR degree program. The students will present their program and host either a poster session or demonstrations of their immersive reality projects. Based on the response and feedback to this pilot effort, other universities will be invited to participate in the coming years.

EcosySTEM of Learning Information Desk
Front and center in the Discovery Den will be the Information Desk again this year providing the following:
- Assistance connecting visitors to the exhibiting STEM organizations
- Information about the Career Fair and CMSP program
- Promotion of the presentations
- Reminders to attendees to cast their Serious Games vote

Sponsorships
In addition to the funding provided annually by the Central Florida STEM Education Council to pay for power to the STEM organization booths in the Pavilion, part of a donation UCF by KBR is targeted to be used to cover STEM Pavilion costs as well (audio equipment, power, etc.).

WEDNESDAY, 4 DECEMBER • 1300 – 1700 • ROOM 210A

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 at the NTSA Career Fair at I/ITSEC.

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

See the Career Fair website at IITSEC.org/CareerFair for registration information. 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, 4 December in Room 210A.

PARTICIPATING ORGANIZATIONS ARE LISTED ONLINE AT
IITSEC.org/CareerFair and onsite at the Discovery Den Info Desk in Booth 2484.

FINALIST GAMES
BOOTH 2285

SERIOUS GAMES
SHOWCASE & CHALLENGE

Since 2006, the Serious Games Showcase and Challenge (SGS&C) has been bringing awareness of the impact that games have on personnel development. SGS&C provides annual best-in-class exemplars in a showcase of learning games submitted by businesses, students, and government organizations competing for prestigious awards.

The SGS&C invites you to Booth 2285 to play this year's finalist games, immerse yourself in exciting learning experiences, meet the developers, and cast your People's Choice Award vote.

Visit the SGS&C at Booth 2285

Learn how games could play in your learning solutions! Join the SGS&C finalists and organizing team in our casual and interactive setting to discuss and experience serious games first hand.

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 play the games and vote by 1800 on Wednesday, December 4th!

Hear the SGS&C awards announced live

Join us *Thursday, December 5th at 1300* in the Innovation Showcase (Booth 2909) for the Awards Ceremony announcing:

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

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For more information: sgschallenge@gmail.com or **Jenn McNamara:** jmcnamara@breakawaygames.com

34th ANNUAL RADM FRED LEWIS POSTGRADUATE SCHOLARSHIP RECIPIENTS

The Annual **RADM Fred Lewis I/ITSEC Postgraduate Scholarships** are offered to stimulate student interest and university participation in preparing individuals for leadership in the Modeling & Simulation, Training, and Education communities. RADM Fred Lewis served as the NTSA President from 1995 – 2012 and initiated important core programs to identify and credential a professional workforce and established educational programs to stimulate interest in M&S careers at all grade levels. RADM Lewis knew by investing in our future workforce, these scholarships will encourage expansion of the I/ITSEC community and promote innovation through direct investment in our community's future leaders.

Paul Brown
Western Governors University
Computer Science and/or Information Sciences

Sara Florkey
Florida Southern College
I/O Psychology

Javier Garza
The George Washington University
Engineering

Christine Kwon
Carnegie Mellon University
Computer Science and/or Information Sciences

Logan Lane
Virginia Tech
Computer Science and/or Information Sciences

Sabina Patel
Embry-Riddle Aeronautical University
Human Factors

William (Liam) Stalker
Wright State University
Human Factors

Genna Telschow
University of Central Florida
Human Factors

8th 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.

Michelle Aros
Embry-Riddle Aeronautical University
Human Factors

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Prescott College
Instructional Design and Training Methodology

SCHOLARSHIPS

BARBARA McDANIEL UNDERGRADUATE SCHOLARSHIP

NTSA manages the **Annual Barbara McDaniel Undergraduate Scholarship** program, implemented in 2019. The scholarship does not follow the postgraduate scholarship submission process. The NTSA scholarship committee pre-selects three academic institutions and those three institutions select up to two students for a combined award of $10,000. Barbara began her career as an educator prior to joining NTSA in 1993, as such these awards 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 scholarship awards will keep the MS&T workforce pipeline filled, starting at the Undergraduate level.

In its fifth year, NTSA awarded $10,000 to each of three universities:

- **Kent State University**, Kent, OH
- **North Carolina Agricultural and Technical State University**, Greensboro, NC
- **University at Buffalo**, Buffalo, NY

NTSA CMSP SCHOLARSHIP AT I/ITSEC

Rodney (Adam) Wade
Auburn University
Engineering

NTSA manages the **Annual Certified Modeling and Simulation Professional (CMSP) Postgraduate Scholarship**, implemented in 2022, at the Masters level in the amount of $5,000. 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.

For more information about the CMSP program, visit **www.NTSA.org/CMSP**.

IMPORTANT DATES FOR 2025

DON'T DELAY!

When to Apply Applications must be submitted by 21 June 2025.

How to Apply
See **https://www.iitsec.org/education/career-investment/scholarships** for complete application details.

Award Announcement 2 August 2025

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 2026.)
See Study Disciplines at **https://www.iitsec.org/education/career-investment/scholarships**

Award Amounts Available for Fall 2025
$10,000 (Doctoral Candidates)
$5,000 (Masters Candidates)
Be our guest at I/ITSEC
1 – 5 December 2025

Direct Further Inquiries To

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Reneé Despot, Director, NTSA Meetings & Operations
(703) 247-9490 or **rdespot@NTSA.org**

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Tom Kehr, Ph.D, Cole Engineering Services, Inc.
Jack Miller, Ph.D., Mayo Clinic
Christine Plutta, NSWC PCD/PM TRASYS
Alex Steiner, Ellumen, Inc.
Julie Suereth, NSWC PCD/PM TRASYS
Brian Vogt, CMSP, Applied Training Solutions, LLC
Paul Waugh, Dayton Aerospace, Inc.
Michael York, Microsoft

STEM COMMITTEE

Director Linda Brent, Ed.D., CMSP, The ASTA Group, LLC; NTSA, Strategic Planning

Transition Lead Debbie Berry, CMSP, Lockheed Martin Corporation

Members

OUTREACH

Lead: Bill "Roto" Reuter, R-Squared Solutions
Renita Ketchen, Technology Associations & Products, LLC
Emily Sherkow, NAWCTSD

DISCOVERY DEN

Lead: CarolAnn Dykes Logue, University of Central Florida
Kristi Evans, Lockheed Martin Corporation

FOCUSED WORKSHOPS

Lead: Amy Akins, Hope Through Education, The ASTA Group, LLC
Linda Bernard, Ultisim, Inc.
Andrew Koch, Ph.D., NAWCAD
Cassie Muffley, National Security Innovation Network (NSIN)
Emily Sherkow, NAWCTSD
Lindsey Spalding, National Center for Simulation
Ginger Watson, Ph.D., ODU, Virginia Modeling Analysis & Simulation Center (VMASC)

CAREER INVESTMENT

Lead: Linda Brent, Ed.D., CMSP, The ASTA Group, LLC; NTSA, Strategic Planning

CAREER FAIR

Teresa Speck, ZYGOS Consulting

CMSP

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

CEUs

Jana Breburdova, University of Central Florida

SCHOLARSHIPS

Chair Janet Spruill, Aptima, Inc.
Deputy Eliot Winer, Ph.D., Iowa State University
Debbie Berry, CMSP, Lockheed Martin Corporation
Elizabeth Biddle, Ph.D., The Boeing Company
Kelly Hale, Ph.D., Draper
Anne Little, Ph.D., SAIC
S.K. "Sue" Numrich, Ph.D., CMSP, IDA
Matt Spruill, Trideum Corporation

NTSA

WWW.NTSA.ORG

VADM SEAN S. BUCK, USN (RET.)
PRESIDENT, NTSA
Strategic leadership.

DEBBIE LANGELIER, CEM
SENIOR VICE PRESIDENT, NTSA
Oversite of NTSA staff, events, and operations. Overall I/ITSEC coordination.

SHANNON BURCH, CEM
SENIOR DIRECTOR, EXHIBITS & SPONSORSHIPS
Exhibit & sponsorships sales, logistics, and operations.

RENEÉ DESPOT
DIRECTOR, MEETINGS & OPERATIONS
NTSA meetings, vendor/committee coordination, scholarship management, and ICWs.

HOLLY GALLIER
COORDINATOR, OPERATIONS
Operations, exhibits, and marketing support.

CAITLYN LANGELIER
ASSOCIATE DIRECTOR, MEETINGS & OPERATIONS
Registration, webinars, and meetings.

CORI BEST
SENIOR MEMBERSHIP MANAGER, MEMBER SERVICES
Membership, CMSP, and meeting coordination.

LINDA BRENT, ED.D., CMSP
Director, Strategic Planning, STEM, Congressional Liaison

DEBBIE BERRY, CMSP
Historian

STEVE DETRO
Chair, Protocol

CAROL DWYER, CMP
Special Initiatives Coordinator

ANNIE PATENAUDE
Director, Operations

DINO PIGNOTTI
Editor, Show Daily, Video Crews

VISIT NTSA IN SHOW MANAGEMENT OFFICE, SOUTH CONCOURSE ROOM 220AB OR EXHIBIT HALL BOOTH 2181

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SPONSORING ASSOCIATION

NATIONAL TRAINING AND SIMULATION ASSOCIATION

NTSA

The NTSA, an affiliate of NDIA, represents and promotes the business interests of companies in the modeling, simulation, training, mission planning/rehearsal, and support service industries. NTSA's corporate members enjoy reduced fees on all NTSA events as well as a subscription to the NTSA monthly e-newsletter and NDIA's National Defense magazine. Sustaining and Regular corporate members receive early space selection and discounts on exhibit space at I/ITSEC. Individual memberships are also available. **Visit us in Booth 2181.**

For NTSA membership information visit **www.NTSA.org/Membership**
or contact Cori Best at **cbest@NTSA.org**.

NATIONAL DEFENSE INDUSTRIAL ASSOCIATION

NDIA

Based in Arlington, Virginia, the National Defense Industrial Association (NDIA) is a non-profit, educational association representing industry, government, and academia. Close to 1,800 corporate and 66,000 individual members rely on NDIA for networking, knowledge, and business development opportunities. As the nation's leading defense industry association, NDIA promotes collaboration to deliver cutting-edge technology, weapons, equipment, training and support to Warfighters and first responders. Through events, divisions, regional chapters and three affiliate organizations, NDIA convenes ethical forums connecting experts from government, academia and the defense industry to define threats and design solutions to ensure U.S. and partner national security. **Visit us in Booth 2181.**

For NDIA membership information visit **www.NDIA.org**
or contact the NDIA Membership Team at **membership@NDIA.org**.

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 2181.**

www.womenindefense.net

CMSP

CERTIFIED MODELING & SIMULATION PROFESSIONAL (CMSP) PROGRAM AT I/ITSEC

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.

For more information or to apply, visit **NTSA.org/CMSP.**

Focus Event: The Latest in CMSP Development and Distinction

MONDAY, 2 DECEMBER • 1430 – 1600 • ROOM 310AB

This moderated panel session focuses on International CMSP awardees and their stories of achievement. These CMSPs will provide a summary of their experience and answer questions from the audience. In addition, this event will discuss CMSP as the only encompassing M&S professional certification. All M&S practitioners seeking to enhance their credentials and to add a level of distinction to their qualifications - from Apprentice, Practitioner, and Master Levels - will find this Focus Event informative and valuable.

Professional Development Workshop

FRIDAY, 6 DECEMBER • 0800 – 1200 • ROOM 320F

The Certified Modeling and Simulation Profession (CMSP) certification program has been reinvented and reintroduced to the M&S community as CMSP 3.0. This workshop provides insights into CMSP certification levels (Apprentice, Practitioner, Master), application process, exam preparation, key topics, and incorporates three game-show style exercises: with associated prizes!

Exhibit Booth 2181

EXHIBIT HALL SOUTH CONCOURSE

Visit NTSA Booth 2181 for CMSP information and materials. Learn more about becoming a CMSP, what's new, and how you can apply. CMSP members 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!

Earle L. Denton Memorial
GOLF TOURNAMENT

Organized by Central Florida Chapter NDIA
Sunday, 1 December **OR** Monday, 2 December 2024

Shingle Creek GOLF CLUB

9939 Universal Blvd, Orlando, FL 32819
407-996-9933 • www.shinglecreekgolf.com

DEADLINES

Golf On-Line Registration	24 November
Sponsorship	24 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 8 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 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 24 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.*

DOWNLOAD MOBILE APP

CONFERENCE LOGISTICS

ATTENDEE LUNCHEON

Lunch will be served Tuesday, 3 December – Thursday, 5 December 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, South Exhibit Hall A.

SHOW MANAGEMENT OFFICE

220AB • 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 2024

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 South Lobby/220DEF of the South 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 South 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. If the South parking lot is full, overflow parking will be available adjacent to the Hilton hotel. Shuttles will run from the lot to all OCCC Concourses. 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 reentry privileges each day. Exhibitor must show badge and receipt for repeat entries. Plus tax

$40 per Day – For oversized vehicles with re-entry privileges each day. Exhibitor must show badge and receipt for repeat entries. Plus tax

ATTENDEE PARKING

$20 per Entry – For regular vehicles per entry. Plus tax

$30 per Entry – For oversized vehicles per entry. Plus tax

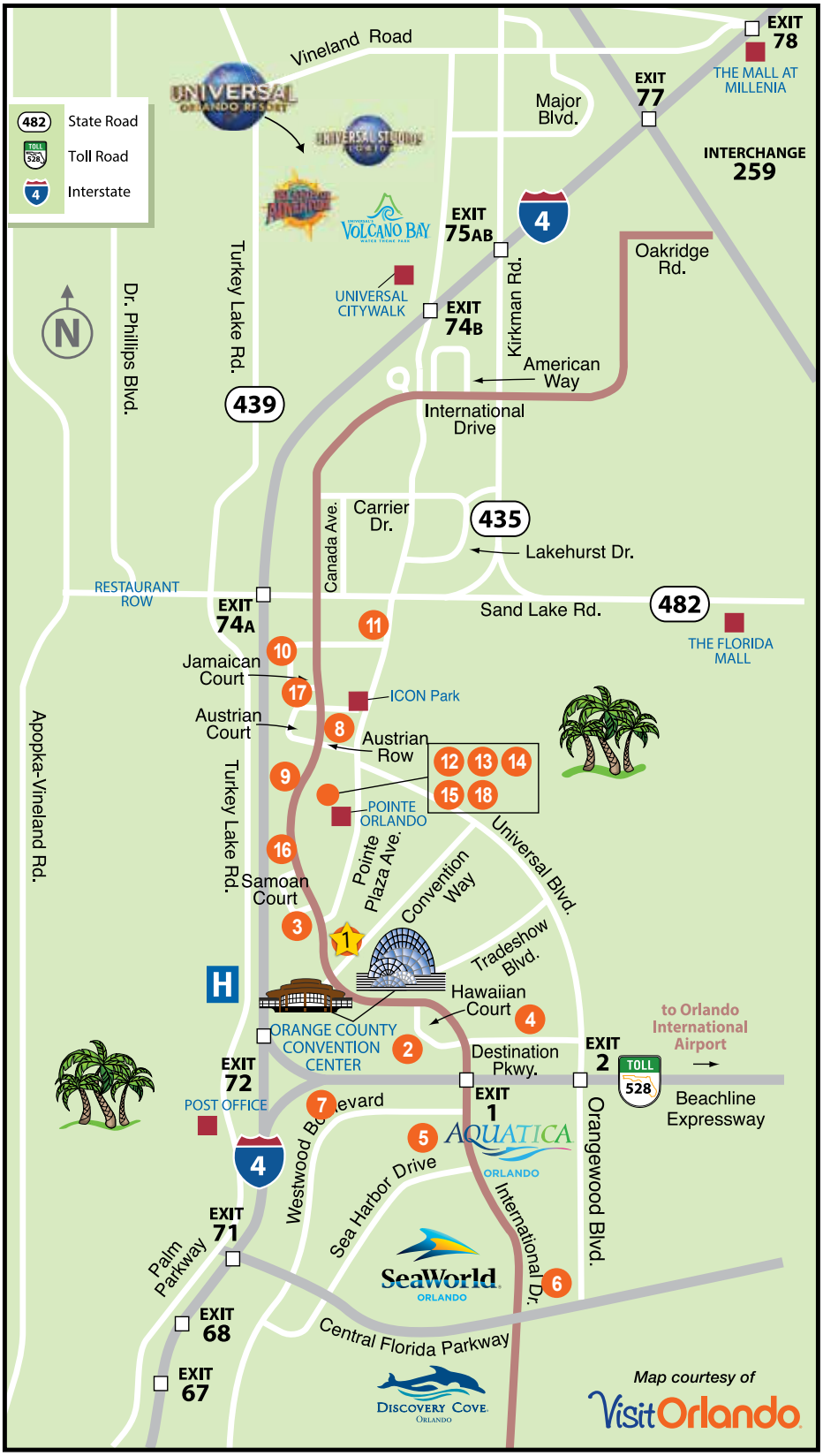
ACCEPTED PAYMENT METHODS

Cash, Traveler's Checks, American Express, MasterCard & Visa

ATTENDANCE WAIVER – Participation at I/ITSEC 2024 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**

LODGING



CONNECTED TO CONVENTION CENTER – NORTH/SOUTH CONCOURSE		
①	Hyatt Regency Orlando* (HQ)	$299
INTERNATIONAL DR – WALK TO OCCC SOUTH CONCOURSE		
②	Rosen Centre Hotel	$245
③	Rosen Plaza Hotel	$232
CONNECTED TO CONVENTION CENTER – NORTH/SOUTH CONCOURSE		
④	Hilton Orlando	$281
SEAWORLD/INTERNATIONAL DRIVE SOUTH AREA		
⑤	DoubleTree by Hilton Orlando at SeaWorld	$145
⑥	Fairfield Inn & Suites Orlando at SeaWorld	$140 Government Per Diem Only
⑦	Tru by Hilton Orlando Convention Center	$164
INTERNATIONAL DRIVE & CONVENTION CENTER AREA		
⑧	Castle Hotel, Autograph Collection	$176
⑨	Embassy Suites by Hilton Orlando – International Drive Convention Center	$180
⑩	Embassy Suites by Hilton Orlando – International Drive/ ICON Park	$180
⑪	Fairfield Inn & Suites Orlando International Drive/Convention Center	$140 Government Per Diem Only
⑫	Hampton Inn Orlando – International Drive/Convention Center	$167
⑬	Homewood Suites by Hilton Orlando – International Drive/ Convention Center	$172
⑭	Hyatt Place Orlando I-Drive/ Convention Center	$159
⑮	Residence Inn by Marriott Orlando Convention Center/ International Drive Area	$172
⑯	Rosen Inn at Pointe Orlando	$92
⑰	Sonesta ES Suites Orlando – International Drive	$154
⑱	SpringHill Suites by Marriott Orlando Convention Center/ International Drive Area	$168

Visit the OnPeak housing desk inside the NTSA Show Office (S220AB) for assistance onsite at I/ITSEC.
You may also call our central agents Monday – Friday at **855-992-3353**.

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 by the Media Room, 210E, 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

Complimentary WiFi at OCCC

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.

- Visit Show Daily staff onsite in room 210E.
- 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 210E, phone **(407) 685-4013**.

SAFETY & SECURITY

FOR LIFE-THREATENING EMERGENCIES: DIAL 911
SECURITY HOTLINE DURING I/ITSEC: (407) 685-6111
ONSITE SECURITY OFFICE: 220G

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 2024, they will be located opposite the Destination Lounge, near the escalators in Med Room 4. Dial 911 for life threatening emergencies. For non-emergencies within the center, dial 5-9809 or on your cell dial (407) 685-7041, 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.