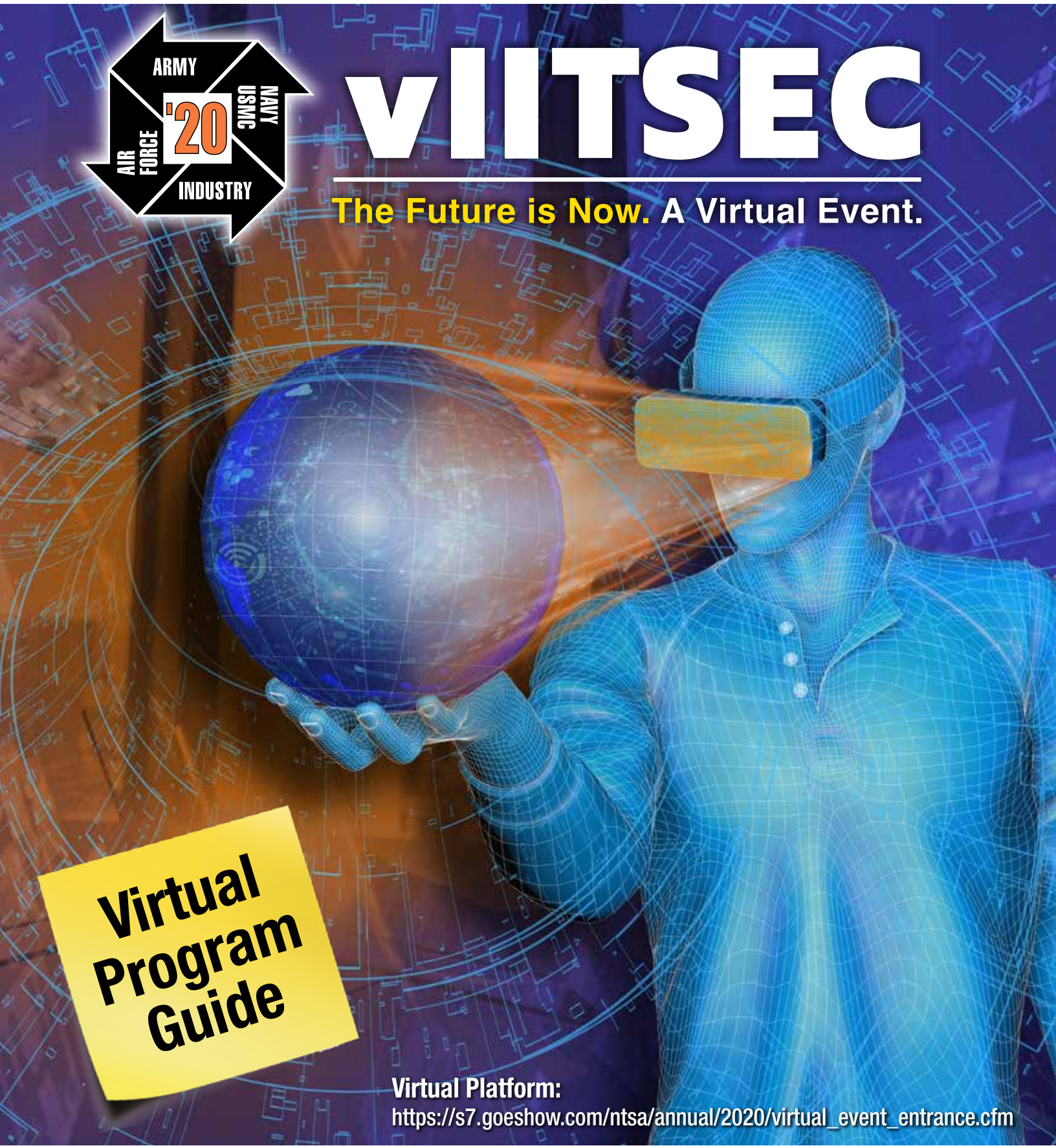
NTSA NATIONAL TRAINING AND SIMULATION ASSOCIATION
THE VOICE OF THE TRAINING & SIMULATION COMMUNITY



vIITSEC

The Future is Now. A Virtual Event.

Virtual Program Guide

Virtual Platform:
https://s7.goeshow.com/ntsa/annual/2020/virtual_event_entrance.cfm

NOVEMBER 30 – DECEMBER 4, 2020 ▶ WWW.VIITSEC.ORG

NDIA

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WELCOME ATTENDEES OF vIITSEC 2020

On behalf of the United States Army, this year's Lead Service; our sponsoring organization, the National Training and Simulation Association; the Service Executives and their Principals; and the 200-plus volunteers from the military, government, industry, and academia, it is my distinct honor and great pleasure to welcome you to the 2020 Virtual Interservice, Industry, Training, Simulation, and Education Conference (vIITSEC)!

The theme selected for this year's conference, "The Future is Now" calls on the training, simulation and education community of practice to address the future in an urgent accelerated fashion. Total awareness of the "now," creates the future. Our innovations today realize and harness the power of technological advancements and human understanding leading towards creation of advantageous positons with our competitors, and achieving big audacious goals such as a mission to Mars. Those among us who innovate with digital technologies are well positioned to respond and perform in a COVID operating environment because of the ability to train at the point of need. This conference, with our program and virtual exhibits, provides many venues for attendees to explore, discuss, and witness these technological advancements in our industry.

vIITSEC 2020 features content-rich special events, paper presentations, tutorials and virtual exhibits to inform and guide the latest learning and simulation trends, practices, and technologies. This 2020 virtual platform enables increased attendance and a robust program with minimized schedule conflicts.

If networking, conducting market research and/or demonstrating your innovations is your desire, you will be satisfied with this new platform. Be sure to take every advantage of the increased content opportunity. The virtual platform provides the world's largest display of training system capabilities as vIITSEC has over 200 exhibitors presenting leading-edge technology and innovative concepts. We realize the power of face to face personal engagements and the enhanced elements of virtual presence created this year will make our future live events even more fulfilling.

Many professionals, volunteers and sponsors made this conference a reality. My sincere thanks and appreciation cannot be overstated as their commitment and support ensures I/ITSEC remains the world's premier professional development event for the training, simulation, and education professional.

Create your future, now. Ready your program, your capabilities, and yourself. Whether you are an engineer, educator, trainer, system developer, or business developer, vIITSEC will fulfill your professional needs as "The Future is Now!"

Sincerely,

Bob Kleinhample

Bob Kleinhample
vIITSEC 2020 Conference Chair

WELCOME from the PROGRAM CHAIR

WELCOME ATTENDEES OF vIITSEC 2020

On behalf of this year's lead Service, the United States Army, the National Training and Simulation Association, the Service Executives and Principals, and the combined total of 277 volunteers from industry, government, and academia, it is my pleasure and honor to welcome you to the virtual version of the 2020 Interservice, Industry, Training, Simulation, and Education Conference that we call vIITSEC! Our theme this year is, "The Future is Now, a Virtual Event" and never has that been more true than in 2020.

This program guide represents a very rich and synchronized collection of opening and closing ceremonies, special events, papers, tutorials, STEM events, and collaboration / network opportunities. This professional education event is your opportunity to gain insights into the latest science, technology, and best practices; see new innovations; and collaborate with your peers across our domain to add to our industry's body of knowledge. The professional development that vIITSEC offers is incomparable. You will gain access to new information and tools that you will be able to put into practice immediately.

I encourage you to plan to participate in both the Opening and Closing Ceremonies. During the Opening Ceremony, we will hear from both a government and an industry keynote speaker. These speeches are always informative and inspiring. At the Closing Ceremony, we will award the coveted vIITSEC Best Paper and Best Tutorial awards. These awardees have been selected in a highly competitive process from the field of Subcommittee Best Papers and nominated Best Tutorials. You won't want to miss seeing who among your peers has achieved this distinction. I highly encourage you to view each of the subcommittee Best Paper presentations and Best Tutorial candidate presentations. Congratulations to each of our Subcommittee Best Papers this year.

vIITSEC is offering 17 content-rich tutorials this year, ranging from medical simulation to export controls. While the tutorials are organized by track to assist you in your selection, all tutorials will be available on demand 24 hours per day. Feel free to view these tutorials whenever you want. Participants will able to send direct comments to the tutorial presenters asynchronously or participate in the "Meet the Author" sessions. Be sure to check the schedule for times when you can interact and ask questions of each tutorial presenter.

Paper presentations have always provided the main opportunity for professional development at I/ITSEC, and this year is no exception. We have 112 well-written papers to be presented. Remember when you had to choose between paper sessions to attend, because five or six were presented at the same time at I/ITSEC? Not this year! Like the tutorials, the paper presentations are pre-recorded and will be available on-demand throughout the conference and beyond. Paper presentations will be available until 1 March 2021, so you will have the opportunity to view them according to your own schedule. Please take advantage of the scheduled "Meet the Author" sessions on Tuesday through Thursday to interact directly with authors and get your questions answered. Also, this year we continue to offer Continuing Education Units (CEUs) through the University of Central Florida. I highly encourage you all to take advantage of this service. To sign up for CEUs, see the CEU page in this program guide.

Special Events continue to be an important part of the conference. Are you interested in hearing from Service headquarter-level Acquisition officials discussing rapid development and innovation? Or learning the latest from the U.S. Army's Synthetic Training Environment (STE) Cross-Functional Team discussing the Technical Integration Facility? Launch of the Technology Grove? Or a very timely and relevant vIITSEC Black Swan event addressing how AI can help tackle the COVID-19 virus. We have those events, and more. With 25 special events over the five days of vIITSEC, there is something for everyone, and there are never more than two events scheduled at any one time – a first in many years! There will also be many opportunities for networking throughout the week. I hope you'll take advantage of those to forge new partnerships and gain new ideas you can take back to make a difference in your own organization.

This program guide also acknowledges the many, many volunteers who have given their time tirelessly to bring to you this rich 2020 program. As you virtually "run into" these people during vIITSEC or afterward, please help me to thank them for the hard work they have done in this particularly challenging year. Whether they are on a paper subcommittee, the Tutorials Board, Special Events, International Committee, STEM, Knowledge Management, Operations, Conference Committee, or are a member of the Council of Chairs, each and every one of our volunteers make up the heartbeat of vIITSEC. I hope each of you will accept my sincere gratitude and admiration for all you do to makes I/ITSEC what it is every year.

Thank you for attending vIITSEC. I have no doubt that you will end your vIITSEC week inspired!

Sincerely,

Matt Spruill
vIITSEC 2020 Program Chair

KEYNOTE SPEAKERS

Honorable Alan R. Shaffer
Deputy Under Secretary of Defense for Acquisition and Sustainment

Service Keynote

THE HONORABLE ALAN R. SHAFFER currently serves as the Deputy Under Secretary of Defense for Acquisition and Sustainment (A&S). Senate confirmed in January 2019, he is responsible to the Under Secretary of Defense for all matters pertaining to acquisition; contract administration; logistics and material readiness; installations and environment; operational energy; chemical, biological, and nuclear weapons; the acquisition workforce; and the defense industrial base.

From 2015 to 2018, Mr. Shaffer served as the Director, NATO Collaboration Support Office in Neuilly-sur-Seine, France. In this role, he was responsible for coordinating and synchronizing the Science and Technology (S&T) collaboration between NATO member and partner Nations, comprising a network of about 5,000 scientists. Previous to his role at NATO, Mr. Shaffer served as the Principal Deputy Assistant Secretary of Defense for Research and Engineering (ASD(R&E)) from 2007-2015. In this position, Mr. Shaffer was responsible for formulating, planning and reviewing the DoD Research, Development, Test, and Evaluation (RDT&E) programs, plans, strategy, priorities, and execution of the DoD RDT&E budget that totals roughly $25 billion per year. He has also served twice as the Acting Assistant Secretary of Defense for Research and Engineering from 2007-2009 and 2012-2015.

Before entering the federal government, Mr. Shaffer served a 24-year United States Air Force career in command, weather, intelligence and acquisition oversight with assignments in Utah, California, Ohio, Honduras, Germany, Virginia and Nebraska. Mr. Shaffer earned a Bachelor of Science in Mathematics from the University of Vermont, a Bachelor of Science in Meteorology from the University of Utah, a Master of Science in Meteorology from the Naval Postgraduate School, and a Master of Science in National Resource Strategy from the Industrial College of the Armed Forces. He was awarded the Meritorious Executive Presidential Rank Award in 2004, the Department of Defense Distinguished Civilian Service Award, and the Distinguished Executive Presidential Rank Award in 2007 and 2015.

Nazzic S. Keene
Chief Executive Officer
SAIC

Industry Keynote

NAZZIC S. KEENE is chief executive officer of SAIC (NYSE: SAIC), headquartered in Reston, Virginia. With annual pro forma revenues of $7.1 billion and 25,500 employees, SAIC provides system integration, engineering, and IT solutions to defense, intelligence, and civilian agencies. Keene became CEO and was elected to SAIC's Board of Directors in August 2019. She joined SAIC in 2012 and has previously held several increasingly responsible executive positions with the company, including chief operating officer, president of the company's Global Markets & Missions sector, and senior vice president for Corporate Strategy.

As COO, a position she held starting in 2017, Keene was responsible for overseeing daily operations of the corporation, including its long-term strategy for sustained profitable growth. Keene has three decades of experience in the information systems and technology services industries, with more than 20 years in executive management. Prior to joining SAIC, Keene was the senior vice president and general manager for U.S. Enterprise Markets at CGI and led the company's U.S. expansion. This included all aspects, from strategy development and execution to operational excellence and leadership development. Keene began her career in the communications and IT industry after completing her bachelor's degree at the University of Arizona.

She is the recipient of the Washington Business Journal's 2018 COO of the Year Award, as well as the Washington Business Journal's Women Who Mean Business Award. Keene is currently a member of ADP's board of directors and the Inova Health System Board of Trustees. She has previously served on the boards of Wolf Trap, Capital Partners for Education, Year-Up National Capital Region, and the Tragedy Assistance Program for Survivors (TAPS). She was also an executive committee member of the Leukemia and Lymphoma Society.

Opening Ceremonies Monday • 1130-1300

Call to Order
Presentation of Colors
National Anthem
Invocation
Opening Remarks: *Bob Kleinhample, 2020 Conference Chair*
Service Keynote: *Honorable Alan R. Shaffer*
Industry Keynote: *Nazzic S. Keene*
Guest Speaker: *Greg Gadson*

Senior Leader Panel Monday • 1330-1500

Moderator: Rear Admiral James A. Robb, USN (Ret.)
Lieutenant General Thomas J. Sharpy, USAF
Lieutenant General Lewis A. Craparotta, USMC
Vice Admiral Mike Moran, USN
Major General Maria R. Gervais, USA
Brigadier General George M. Reynolds, USAF
Brigadier General Traci L. Kuecker-Murphy, USAF

MONDAY, 30 NOVEMBER 2020 • 1300-1330

A Special Event with General Murray

General John M. Murray
Commanding General, Army Futures Command

GENERAL MURRAY was commissioned as an Infantry officer in the U.S. Army upon graduation from the Ohio State University in 1982. Throughout his career, General Murray has served in leadership positions and commanded from Company through Division, with various staff assignments at the highest levels of the Army.

General Murray has held numerous command positions. His command assignments include: Commanding General Joint Task Force-3; Deputy Commanding General – Support for U.S. Forces Afghanistan; Commander Bagram Airfield; Commanding General 3rd Infantry Division at Fort Stewart, Georgia; Commander, 3rd Brigade, 1st Cavalry Division, at Fort Hood, Texas while serving in Operation IRAQI FREEDOM; Commander, 1st Battalion, 18th Infantry, 1st Infantry Division, United States Army Europe and Seventh Army, Germany; Commander, C Company, 1-12th Infantry Battalion, 4th Infantry Division (Mechanized), Fort Carson, Colorado.

Previously, he was the Deputy Chief of Staff, G-8, in the Pentagon; Director, Force Management, the Pentagon; Assistant Deputy Director for Joint Training, J-7, Joint Staff, Suffolk, Virginia; Director, Joint Center for Operational Analysis, United States Joint Forces Command, Suffolk, Virginia; Deputy Commanding General (Maneuver), 1st Cavalry Division, Fort Hood, Texas; Deputy Commanding General (Maneuver), Multi-National Division-Baghdad OPERATION IRAQI FREEDOM, Iraq; G-3 (Operations), III Corps, Fort Hood, Texas; Chief of Staff, III Corps and Fort Hood, Fort Hood, Texas; C-3, Multi-National Corps-Iraq, OPERATION IRAQI FREEDOM, Iraq; G-3 (Operations), 1st Infantry Division, United States Army Europe and Seventh Army, Germany; Chief, Space Control Protection Section, J-33, United States Space Command, Peterson Air Force Base, Colorado; S-3(Operations), later Executive Officer, 1st Battalion, 5th Cavalry, 1st Cavalry Division, Fort Hood, Texas; Chief, Plans, G-1, III Corps and Fort Hood, Fort Hood, Texas.

General Murray's awards and decorations include: the Distinguished Service Medal w/ Oak Leaf Cluster, the Defense Superior Service Medal with Oak Leaf Cluster, the Legion of Merit with two Oak Leaf Clusters, the Bronze Star Medal with three Oak Leaf Clusters, the Defense Meritorious Service Medal, the Meritorious Service Medal with two Oak Leaf Clusters, the Army Commendation Medal with Oak Leaf Cluster, the Joint Service Achievement Medal, the Army Achievement Medal with Oak Leaf Cluster, the Ranger Tab, the Combat Infantryman Badge, the Expert Infantryman Badge, the Parachutist Badge, the Air Assault Badge, the Joint Chiefs of Staff Identification Badge and the Army Staff Identification Badge.

General Murray hails from Kenton, Ohio. He and his wife, Jane, have three lovely daughters and seven grandchildren.

CONFERENCE LEADERSHIP

Conference Chairs

Robert Kleinhample
vIITSEC 2020
Conference Chair

ROBERT "BOB" KLEINHAMPLE is Vice President and Interim Training and Mission Solutions Practice Area Lead for Science Application International Corporation (SAIC), leading the vision, strategy, solutions and knowledge sharing of transformative solutions across the enterprise in the training and mission solutions market. With a focus on fostering an agile culture of innovation through research, product development, technical excellence, Bob Kleinhample positions SAIC as a leader in the training and mission solutions market and an influential technology integrator serving the U.S. government and other customers. In this role, Bob manages and mentors a team of over 4000 models and simulation engineers, game developers, instructors, training analysts, instructional systems designers, program managers, and communications specialists who create, deliver, and manage training worldwide for every branch of the military, and numerous federal and state agencies. Bob has more than 30 years of experience in the design, development, and delivery of innovative and immersive training solutions for complex problems, including the application of technology and data analytics to increase training efficiency and effectiveness. Prior to joining SAIC, Bob served in the United States Army in the Field Artillery and retired in 2006 at the rank of Lieutenant Colonel. His functional assignments were in Operations Research and Simulation Operations. Bob earned his Bachelors of Science degree in Engineering Management from the United States Military Academy and his Masters of Engineering in Operations Research from the Old Dominion University. Bob has served an active member in the I/ITSEC committees and subcommittees for 12 years.

Matt Spruill
vIITSEC 2020
Program Chair

MATT SPRUILL is Trideum Corporation's Director of Information Technology and Orlando Operations. In this role, he is responsible for leading solution delivery and developing Trideum's strategic vision for all training, simulation, and education growth across the Department of Defense. Matt has worked in the training and simulation industry for 30 years in both military and industry positions, and is constantly exploring new methods, techniques, and technologies to advance the state of the art in training and education for not only today's, but for the next generation, workforce. Matt's 20-year military career as a U.S. Army Armor Officer culminated in leading development and operationalization of the Joint Live Virtual Constructive Federation (JLVC), DoD's first all-service entity-based federation that is still used to train combatant commands, joint task forces, and service organizations. In his current role at Trideum, Matt also serves as a strategic advisor to the Joint Staff J7's Joint Knowledge Online (JKO) leadership. Additionally, Matt has been a tireless advocate and an active leader in the broader training and simulation community activities, including formally serving as Chairman of the Board of the Virginia Modeling and Simulation Partnership, Conference Chair for MODSIM 2009, and Vice President of Operations for the Association of the United States Army (AUSA) Sunshine Chapter. For 14 years, he has held progressive I/ITSEC leadership positions including twice as a Subcommittee Chair and three times as Special Events Chair. Matt holds a Master of Science degree in Computer Information Systems from Colorado State University and a Bachelor's degree in Management Information Systems from the University of Kentucky. He is the co-author of three books: "Echoes of Thunder — A Guide to the Seven Days Battles;" "Summer Lightning — A Guide to the Second Battle of Manassas;" and "Decisions at Second Manassas — The Fourteen Critical Decisions That Defined the Battle."

Conference Sponsor

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

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

Gen Herbert J. Carlisle, USAF (Ret.)
President and Chief Executive Officer,
National Defense Industrial Association

Herbert J. "Hawk" Carlisle became president and chief executive officer of the National Defense Industrial Association (NDIA) June 15, 2017. Gen. Carlisle came to NDIA after a 39-year career in the Air Force, from which he retired as a four-star General in March 2017. His last assignment was as Commander, Air Combat Command at Langley Air Force Base in Virginia. Before that, Gen. Carlisle was the commander of Pacific Air Forces; the air component commander for U.S. Pacific Command; and executive director of Pacific Air Combat Operations staff, Joint Base Pearl Harbor in Hawaii. Gen. Carlisle has served in various operational and staff assignments throughout the Air Force and commanded a fighter squadron, an operations group, two wings and a Numbered Air Force. He was a joint service officer and served as Chief of Air Operations, U.S. Central Command Forward in Riyadh, Saudi Arabia. During that time, he participated in Operation Restore Hope in Somalia.

INTERSERVICE EXECUTIVES

Army Service Executive (Lead Service)

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

Navy Service Executive

CAPT TIMOTHY M. HILL, USN, is the Commanding Officer, Naval Air Warfare Center Training Systems Division (NAWCTSD) and Naval Support Activity (NSA), Orlando. NAWCTSD is the Navy's principal center for modeling, simulation and training systems technologies. The command provides training solutions and research for a wide spectrum of military programs, including aviation, surface and undersea warfare and other specialized requirements. Captain Hill leads a workforce of 1,200 scientists, evaluators, engineers, technicians, logisticians, contracting specialists and support personnel. Captain Hill was commissioned with the U.S. Naval Academy Class of 1992 after earning a Bachelor of Science degree in Systems Engineering. As a Naval Flight Officer, Captain Hill has logged over 3,200 flight hours and 750 carrier arrested landings in 32 different aircraft models, with operational flying tours in the S-3B Viking and the F/A-18F Super Hornet. He also served various staff and acquisition program management roles. Captain Hill served as the Executive Officer for NAWCTSD for two and a half years prior to assuming command in November 2018. His awards include the Legion of Merit, Bronze Star Medal, 2 Defense Meritorious Service Medals, Meritorious Service Medal, 2 Strike Flight Air Medals, along with other personal awards and numerous campaign medals and unit citations.

Marine Corps Service Executive

COL LUIS "LOU" LARA is the Marine Corps Systems Command Program Manager, Training Systems (PM TRASYS). He is responsible for managing a workforce of over 150 personnel in the acquisition and sustainment of training systems used throughout the Marine Corps. Col Lara graduated from Embry Riddle Aeronautical University in 1993 with a B.S. in Aviation Maintenance Management. He also holds M.S. Degrees in Acquisition and Contract Management from the Naval Post-Graduate School and Military Studies from the Marine Corps University. He earned a commission in 1995 and subsequently became a Logistics Officer and a Contracting Officer. In 1999, he deployed on a Western Pacific deployment as a member of the 11th Marine Expeditionary Unit. Additionally, in support of the Global War on Terror, he deployed three times to Kuwait/Iraq, twice as a Contingency Contracting Officer and once as the Regimental Combat Team – 5 Logistics Officer in support of combat operations in Fallujah. Prior to his selection as Program Manager Training Systems, Col Lara served as the Deputy Program Manager for Training Systems, and completed a fellowship as a Secretary of Defense Executive Fellow at Georgia Power Company. Other key Acquisition Officer assignments include, Acquisition Command as Product Manager for Anti-Armor Systems, Deputy Director for the Amphibious Combat Vehicle (ACV), Assistant-Program Manager Logistics for the Expeditionary Fighting Vehicle (EFV), Team Leader for the Body Armor and Load Bearing team and Director of Contracts at Marine Corps Support Facility, Blount Island Command. His personal decorations include the Bronze Star, the Meritorious Service Medal with three gold stars in lieu of fourth award, the Navy and Marine Corps Commendation Medal and the Navy and Marine Corps Achievement Medal. Additionally, he is a recipient of the Combat Action Ribbon.

Air Force Service Executive

COL JOHN KURIAN, USAF, is the Senior Materiel Leader, Simulators Division. In this role, he leads a 500+ member team, executes a $5.8B portfolio, and is responsible for developing and maintaining 60+ simulator and training systems for ACC, AMC, AETC, AFSOC, AFGSC, and multiple FMS partner nations. Col Kurian received his commission from the Illinois Institute of Technology in 1998. He's had program office tours at the National Reconnaissance Office, E-8C Modernization, JSTARS Recap and B-21; served in staff positions at Air Force Personnel Center and Air Force Materiel Command; supported the National Security Agency mission; deployed for Operation Inherent Resolve.

Senior Advisor for Readiness and Training

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.

PRINCIPALS & ADVISOR

Service Principals

Jesse Campos
Army (Lead Service)
PM Cyber, Test, and Training, Chief Engineer
U.S. Army Program Executive Office, Simulation, Training and Instrumentation
(PEO STRI)

Diana Teel
Navy
Outreach Director / Chief Evangelist
Naval Air Warfare Center Training Systems Division (NAWCTSD)

Tracy Titcombe
Air Force
Visual System Tech Expert
Simulators Division,
Air Force Materiel Command (AFMC)

Koren L. Odermann
Marine Corps
Team Lead for Collective Training, Marine Corps Systems Command (MARCORSYSCOM) Program Manager, Training Systems (PM TRASYS)

OSD Principal

Walter (Shep) Barge, Ph.D.
OSD(P&R)/Director JIOT

Education and Training Advisor

VADM Al Harms, USN (Ret.)
President
Lake Highland Preparatory School

AGENDA

MONDAY • 30 NOVEMBER 2020		
0800 - 1700	**Help Desk/Registration**	OPEN DAILY
ON DEMAND	**TUTORIALS**	DETAILS BEGIN ON PAGE 36
ON DEMAND	**PAPERS**	DETAILS BEGIN ON PAGE 50
STEM Platform	**VIEW STEM ACTIVITIES**	DETAILS ON PAGE 58
0800 - 1000	**DEDICATED EXHIBIT NETWORKING**	
1130 - 1300	**vIITSEC 2020 OPENING CEREMONIES**	RECORDED, NO Q&A
1300 - 1330	**NETWORKING BREAK**	(FEEL FREE TO ENGAGE ANYTIME DURING vIITSEC)
1300 - 1330	**MEET THE PROGRAM CHAIRS FOR 2020 & 2021**	DISCUSSION GROUP
1300 - 1330	**A SPECIAL EVENT WITH GENERAL JOHN M. MURRAY**	LIVE
1330 - 1500	**SIGNATURE EVENT:** Senior Leader Panel	LIVE WITH LIVE Q&A
1515 - 1630	**SIGNATURE EVENT:** Congressional M&S Event	LIVE WITH LIVE Q&A
1630 - 1800	**DEDICATED EXHIBIT NETWORKING**	

TUESDAY • 1 DECEMBER 2020		
0800 - 1700	**Help Desk/Registration**	OPEN DAILY
ON DEMAND	**TUTORIALS**	DETAILS BEGIN ON PAGE 36
ON DEMAND	**PAPERS**	DETAILS BEGIN ON PAGE 50
STEM Platform	**VIEW STEM ACTIVITIES**	DETAILS ON PAGE 58
0800 - 1000	**DEDICATED EXHIBIT NETWORKING**	
1000 - 1130	**SIGNATURE EVENT:** M&S in DoD	LIVE WITH LIVE Q&A
1130 - 1300	**SIGNATURE EVENT:** Synthetic Training Environment Cross-Functional Team (STE CFT)	LIVE WITH LIVE Q&A
1130 - 1300	**COMMUNITY OF INTEREST:** Winning the War for Talent: Growing, Acquiring and Retaining a Thriving Training and Simulation Workforce	PRE-RECORDED WITH LIVE Q&A
1300 - 1330	**NETWORKING BREAK**	(FEEL FREE TO ENGAGE ANYTIME DURING vIITSEC)
1300 - 1330	**MEET THE PROGRAM CHAIRS FOR 2020 & 2021**	DISCUSSION GROUP
1330 - 1500	**FOCUS EVENT:** Opportunities Abound: The Application of Simulation in Healthcare	PRE-RECORDED WITH LIVE Q&A
1330 - 1600	**FOCUS EVENT:** Army XTechBOLT	LIVE WITH LIVE Q&A
1500 - 1630	**FOCUS EVENT:** Black Swan - Outsmarting the Virus	LIVE WITH LIVE Q&A
1500 - 1630	**PROGRAM BRIEF 1:** USAF Acquisition Update	PRE-RECORDED WITH LIVE Q&A
1630 - 1800	**DEDICATED EXHIBIT NETWORKING**	
1630 - 1800	**MEET THE AUTHORS**	LIVE

WEDNESDAY • 2 DECEMBER 2020		
0800 - 1700	**Help Desk/Registration**	OPEN DAILY
ON DEMAND	**TUTORIALS**	DETAILS BEGIN ON PAGE 36
ON DEMAND	**PAPERS**	DETAILS BEGIN ON PAGE 50
STEM Platform	**VIEW STEM ACTIVITIES**	DETAILS ON PAGE 58
0800 - 1000	**DEDICATED EXHIBIT NETWORKING**	
1000 - 1130	**SIGNATURE EVENT:** Navy Flag Officer Panel	LIVE WITH LIVE Q&A
1000 - 1130	**COMMUNITY OF INTEREST:** The European Perspective on Immersive Technologies for Training Applications	PRE-RECORDED WITH LIVE Q&A
1130 - 1300	**SIGNATURE EVENT:** USAF M&S Innovation Senior Leadership Panel	LIVE WITH LIVE Q&A

AGENDA

WEDNESDAY *(cont.)*		
1130 - 1300	**COMMUNITY OF INTEREST:** IEEE Standard for an Augmented Reality Learning Experience Model (ARLEM)	PRE-RECORDED WITH LIVE Q&A
1300 - 1330	**NETWORKING BREAK** (FEEL FREE TO ENGAGE ANYTIME DURING vIITSEC)	
1300 - 1330	**MEET THE PROGRAM CHAIRS FOR 2020 & 2021**	DISCUSSION GROUP
1300 - 1700	NTSA Career Fair at vIITSEC	LIVE ON CAREER FAIR PLUS APP
1330 - 1600	**FOCUS EVENT:** Army XTechBOLT	LIVE WITH LIVE Q&A
1330 - 1500	**SIGNATURE EVENT:** Readiness Digitalization	LIVE WITH LIVE Q&A
1500 - 1630	**FOCUS EVENT:** USAF & USSF O-6 Panel	LIVE WITH LIVE Q&A
1630 - 1800	**DEDICATED EXHIBIT NETWORKING**	
1630 - 1800	**MEET THE AUTHORS**	LIVE

THURSDAY • 3 DECEMBER 2020		
0800 - 1700	**Help Desk/Registration**	OPEN DAILY
ON DEMAND	**TUTORIALS**	DETAILS BEGIN ON PAGE 36
ON DEMAND	**PAPERS**	DETAILS BEGIN ON PAGE 50
STEM Platform	**VIEW STEM ACTIVITIES**	DETAILS ON PAGE 58
0800 - 1000	**DEDICATED EXHIBIT NETWORKING**	
1000 - 1130	**FOCUS EVENT:** A View From the Top: Disruptive Technologies That Will Transform Training	LIVE WITH LIVE Q&A
1130 - 1300	**SIGNATURE EVENT:** Modernization & Acquisition	LIVE WITH LIVE Q&A
1130 - 1300	**COMMUNITY OF INTEREST:** NMSG and SISO Simulation Standards Development	PRE-RECORDED WITH LIVE Q&A
1300 - 1330	**NETWORKING BREAK** (FEEL FREE TO ENGAGE ANYTIME DURING vIITSEC)	
1300 - 1330	**MEET THE PROGRAM CHAIRS FOR 2020 & 2021**	DISCUSSION GROUP
1330 - 1400	**FOCUS EVENT:** Army XTechBOLT	LIVE WITH LIVE Q&A
1330 - 1500	**FOCUS EVENT:** Iron Dev	LIVE WITH LIVE Q&A
1330 - 1430	**PROGRAM BRIEF 2:** U.S. Marine Corps Program Manager Training Systems	PRE-RECORDED WITH LIVE Q&A
1500 - 1630	**PROGRAM BRIEF 3:** U.S. Navy Training Systems Leaders Update	PRE-RECORDED WITH LIVE Q&A
1500 -1630	**FOCUS EVENT:** Air Force Simulators Pitch Day	LIVE WITH LIVE Q&A
1630 - 1800	**DEDICATED EXHIBIT NETWORKING**	
1630 - 1800	**MEET THE AUTHORS**	LIVE

FRIDAY • 4 DECEMBER 2020		
0800 - 1700	**Help Desk/Registration**	OPEN DAILY
ON DEMAND	**TUTORIALS**	DETAILS BEGIN ON PAGE 36
ON DEMAND	**PAPERS**	DETAILS BEGIN ON PAGE 50
STEM Platform	**VIEW STEM ACTIVITIES**	DETAILS ON PAGE 58
0800 - 1000	**DEDICATED EXHIBIT NETWORKING**	
1000 - 1300	**PROGRAM BRIEF 4:** U.S. Army PEO STRI TSIS Update	PRE-RECORDED WITH LIVE Q&A
1000 - 1130	**FOCUS EVENT:** Multinational Perspectives on Augmented and Virtual Reality Impacts and Potentials	LIVE WITH LIVE Q&A
1330 - 1500	**vIITSEC CLOSING CEREMONIES**	RECORDED, NO Q&A
PRESENTER DRESS CODE	**ARMY** ACUs or Duty Uniform • **MARINE CORPS** Service "C" • **NAVY** Service Khaki, Navy Service Uniform **AIR FORCE** Blues (Short or Long Sleeve) • **COAST GUARD** Tropical Blue Long • **CIVILIAN** Business Attire	

MONDAY, 30 NOVEMBER 2020 • 1330–1500

Senior Leader Panel

Moderator

Rear Admiral James A. Robb, USN (Ret.)
President, National Training and Simulation Association

Panelists

Lieutenant General Thomas J. Sharpy, USAF
Deputy Chief of Staff for Capability Development, Headquarters Allied Command Transformation, NATO

Lieutenant General Lewis A. Craparotta, USMC
Commanding General, Training and Education Command

Vice Admiral Mike Moran, USN
Principal Military Deputy Assistant Secretary of the Navy for Research, Development and Acquisition

Major General Maria R. Gervais, USA
Director, Synthetic Training Environment Cross-Functional Team (STE CFT)

Brigadier General George M. Reynolds, USAF
Vice Commander, U.S. Air Force Warfare Center

Brigadier General Traci Kueker-Murphy, USSF
Mobilization Assistant to the Director of Integrated Air, Space, Cyberspace and Intelligence, Surveillance & Reconnaissance Operations


RADM Robb, USN (Ret.)


Lt Gen Sharpy, USAF


LtGen Craparotta, USMC


VADM Moran, USN


MG Gervais, USA


Brig Gen Reynolds, USAF


Brig Gen Kueker-Murphy, USSF

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 Officer panel will address current and future environments within the context of this year's conference theme, *"The Future is Now."* This year's panel will include senior representatives from all U.S. Military Services and NATO. Following opening remarks, the audience will interact with the panel through an on-line chat Q&A feature. All attendees will also have the chance to submit questions in advance. Don't miss the opportunity to hear from national leaders on the way ahead.

Session Chair:
Mike Truelove

MONDAY, 30 NOVEMBER 2020 • 1515–1630

Congressional Modeling and Simulation Event

SELECT MEMBERS OF CONGRESS WILL PARTICIPATE IN THIS vIITSEC EVENT

This special event invites everyone attending the conference or exposition to hear from the training and simulation leaders in Congress. It is also a great opportunity for you to interact with Congressional Members on issues of importance to you or your company and to impress upon them your priorities. With defense budgets constantly in flux, this forum provides you an opportunity to advocate for the value of training and simulation in support of national security. Attendees will hear from the leadership of the Modeling and Simulation Congressional Caucus on their perspective of the situation in Washington and have the opportunity to make their case for timely investments in modeling and simulation. With every budget dollar being scrutinized, strong advocacy for training and readiness has never been more important.

Session Chair:
Stacy MacAllister, Lockheed Martin - Skunk Works

Congressional Modeling and Simulation Caucus Members

Bobby Scott
Caucus Co-Chair
Virginia 3rd District

John Rutherford
Caucus Co-Chair
Florida 4th District

Stephanie Murphy
Caucus Co-Chair
Florida 7th District

Jack Bergman
Caucus Co-Chair
Michigan 1st District

Robert Aderholt
Alabama 4th District

Gus Bilirakis
Florida 12th District

Mo Brooks
Alabama 5th District

Vern Buchanan
Florida 16th District

Ken Calvert
California 42nd District

John Carter
Texas 31st District

Steve Cohen
Tennessee 9th District

Mike Conaway
Texas 11th District

Susan Davis
California 53rd District

Virginia Foxx
North Carolina 5th District

Duncan Hunter
California 50th District

Doug Lamborn
Colorado 5th District

Elaine Luria
Virginia 2nd District

Scott Peters
California 52nd District

Bill Posey
Florida 8th District

Martha Roby
Alabama 2nd District

C.A. Dutch Ruppersberger
Maryland 2nd District

Joe Wilson
South Carolina 2nd District

Robert Wittman
Virginia 1st District

TUESDAY, 1 DECEMBER 2020 • 1000-1130

Modeling and Simulation in DoD

Moderator

Lieutenant Colonel Robert L. Kammerzell, USA
FA 57 (Simulation Operations)
PEO STRI G 3/5/7
Simulation to Mission Command Interoperability (SIMCI) / AMSO LNO

Panelists

Colonel Scott Gilman, USA
Deputy Director, Army Modeling and Simulation Office (AMSO)

Alethea Duhon, Ph.D.
Chief Technology Officer, Department of the Air Force Chief Modeling & Simulation Office, Technical Director, Air Force Agency for Modeling & Simulation (AFAMS)

Brian Miller
Associate Director, Modeling and Simulation Enterprise Office of the Under Secretary of Defense (Research and Engineering)

Colonel Robert Epstein, USAF
Commander, Air Force Agency for Modeling & Simulation (AFAMS)

Brett Telford
Director, Marine Corps Modeling & Simulation Office (MCMSO)

Marie Bussiere
Navy Modeling and Simulation Officer, Head - USW Combat Systems Department, Naval Undersea Warfare Center Division Newport


LTC Kammerzell, USA


Col Gilman, USA


Dr. Duhon


Mr. Miller


Col Epstein, USAF


Mr. Telford


Ms. Bussiere

This special event brings together the Modeling and Simulation offices of each service to discuss future trends and challenges in the Modeling and Simulation domain.

Session Chair:
Tara Kilcullen, Training and Readiness Accelerator, NSTXL

TUESDAY, 1 DECEMBER 2020 • 1130-1300

Synthetic Training Environment Cross-Functional Team (STE CFT)

FORGING THE FUTURE TRAINING ENVIRONMENT

Moderator

Joe B. Parson, Jr., HQE
Synthetic Training Environment Cross-Functional Team (STE CFT)

Panelists

Major General Maria R. Gervais, USA
Director, Synthetic Training Environment Cross-Functional Team (STE CFT)

Karen D.H. Saunders, SES
Program Executive Officer, U.S. Army PEO Simulation Training and Instrumentation (PEO STRI)

Captain Tim Hill, USN
Commanding Officer, Naval Air Warfare Center Training Systems Division (NAWCTSD)

Matt Clarke
Associate Director, Soldier Effectiveness Directorate, U.S. Army Combat Capabilities Development Center (CCDC)

Colonel Dylan Morelle, USA
Director, Synthetic Training Environment, Technology Integration Facility


Mr. Parson, Jr., HQE


MG Gervais, USA


Ms. Saunders, SES


CAPT Hill, USN


Mr. Clarke

The Army's Synthetic Training Environment Cross-Functional Team (STE CFT) is establishing a new common synthetic environment, where live, virtual and constructive training can be converged. The Army currently does this at 12 permanent sites, but they are mainly for the active-duty component and require long planning timelines and lots of resources such as contractors to operate the event.

The STE approach uses common standards, common data, common terrain and an open architecture to enable rapid integration of future plug-and-play trainers. The STE will have 1) a training simulation software to drive simulations; 2) training management tools to plan, execute and assess training; and 3) One World Terrain that will be 3-D and readily accessible either on hand or pulled from a commercial asset into simulators in less than 72 hours.

In order to meet the mission, the Technology Integration Facility creates a secured setting, where vendors with promising technology can run on a military test network. The "Technology Grove" serves as an incubator lab where vendors, particularly small businesses, can demonstrate their technology. This panel brings in the principals of the STE partnership to discuss the way forward in making STE a reality now.

Session Chair:
Craig Langhauser, Collins Aerospace

WEDNESDAY, 2 DECEMBER 2020 • 1000–1130

Navy Flag Officer Panel

NOT JUST "GO FASTER" BUT HOW TO WIDEN THE APERTURE OF WHAT'S POSSIBLE WHILE MEETING THE MISSION TODAY

Moderator

Captain Tim Hill, USN
Commanding Officer, Naval Air Warfare Center Training Systems Division (NAWCTSD)

Panelists

Honorable James F. Geurts
Assistant Secretary of the Navy (Research, Development and Acquisition) *(Invited)*

Rear Admiral Eric Ver Hage, USN
Commander, Navy Regional Maintenance Center

Rear Admiral Robert D. Westendorff, USN
Chief of Naval Air Training

Rear Admiral Greg Harris, USN
Director, Air Warfare, Office of the Chief of Naval Operations (OPNAV N98)

Vice Admiral Ann Rondeau, USN (Ret.)
President, Naval Postgraduate School


CAPT Hill, USN


Mr. James F. Geurts


RDML Ver Hage, USN


RDML Westendorff, USN


RADM Harris, USN


VADM Rondeau, USN (Ret)

The Navy Flag Officer panel will address the current global environments warfighters are training to confront under the 2020 vIITSEC theme of *"The Future is Now."* The panel will be live, virtual moderated discussion with curated questions from the audience. The 2020 Navy Flag Officer Panel focus is on innovative programs, tools, and the "how-to" so the training community can widen the aperture of what's possible while meeting the mission today.

Session Chair:
Ray Compton, LMI

WEDNESDAY, 2 DECEMBER 2020 • 1130-1300

Department of the Air Force M&S Innovation Senior Leadership Panel

ENABLING M&S ACCESSIBILITY, COMMONALITY, AND REUSABILITY

Moderator

Colonel Robert Epstein, USAF
Commander, Air Force Agency for Modeling & Simulation

Panelists

Rich Tempalski, SES
Chief M&S Officer, Department of the Air Force

Eileen Vidrine, SES
Chief Data Officer, Department of Air Force

Major General Kim Crider, USSF
Acting Chief Technology & Innovation Officer, United States Space Force

Preston Dunlap, SES
Chief Architect, Department of the Air Force

Nicolas Chaillan, SES
Chief Software Officer, Department of the Air Force


Col Epstein, USAF


Mr. Tempalski, SES


Ms. Vidrine, SES


Maj Gen Crider, USSF


Mr. Dunlap, SES


Mr. Chaillan, SES

Participants in this panel represent a variety of DAF Chief technology offices from across the Air and Space Force enterprise. vIITSEC participants will be afforded the opportunity to engage AF leaders involved with shaping the discovery, coordination and implementation of technology across functional areas of the Air and Space Force enterprise to maintain our technical advantage and widen the technology gap against our adversaries. This panel discussion will enable the speakers to share their perspectives on the conference theme of *"The Future is Now"* while addressing a variety of problem sets and provide a viewpoint to discuss where the Air and Space Force of the future is headed from the viewpoints of their respective positions.

Session Chair:
Deri Draper, Virginia Modeling and Simulation Center (VMASC)-Old Dominion University

WEDNESDAY, 2 DECEMBER 2020 • 1330-1500

Readiness Digitalization

CREATING A DOD MODERNIZED DIGITAL LEARNING ECOSYSTEM TO REDUCE COSTS AND OPTIMIZE TRAINING

Moderator

Sae Schatz, Ph.D.
Director, Advanced Distributed Learning (ADL) Initiative

Panelists

Lora Muchmore, SES
Director, Defense Business Systems Directorate, Department of Defense

Jim Seacord, SES
Acting Director, Human Capital Management Office, Department of Defense (Intel and Security)

Paul Jesukiewicz
Director, Office of Personnel Management (OPM) USALEARNING Knowledge Portal

Amy Rogers
Chief Learning Officer for the Civilian Workforce, Defense Civilian Personnel Advisory Service, Department of Defense


Dr. Schatz


Ms. Muchmore, SES


Mr. Seacord, SES


Mr. Jesukiewicz


Ms. Rogers

In 2018, the DoD initiated an agency-wide Enterprise Digital Learning Modernization (EDLM) reform, led by the Office of the Chief Management Officer (CMO). EDLM is aimed at improving DoD readiness through three lines of effort focused on education and training. These include: 1) using assisted acquisition and shared services via USALearning to more efficiently buy and maintain digital learning products and services; 2) development of an Enterprise Course Catalog to federate DoD course listings into a common portal; and 3) development of an Enterprise Learner Record Repository for the collection and sharing of learner data across DoD. These projects promise a wide range of tangible benefits to the DoD education and training enterprise that will result in agency-wide cost savings and more efficient personnel readiness.

This vIITSEC Special Event panel session on "Readiness Digitalization" will feature representatives from the Office of the Chief Management Officer (Lora Muchmore), the Office of the Under Secretary of Defense for Intelligence (Jim Seacord), the Office of Personnel Management (Paul Jesukiewicz), and The Office of the Under Secretary of Defense for Personnel and Readiness (Amy Rogers).

The panelists will share the status of the reform initiative, including the ultimate vision and policy guidance needed to build toward an interoperable DoD-wide digital learning services ecosystem.

Session Chair:
Annie Robinson, Overmatch, Inc.

THURSDAY, 3 DECEMBER 2020 • 1130–1300

Modernization & Acquisition

STREAMLINING ACQUISITION

Moderator

Honorable Ellen M. Lord
Under Secretary of Defense for Acquisition and Sustainment (A&S)

Panelists

Stacy A. Cummings, SES
Principal Deputy Assistant Secretary of Defense for Acquisition

Joan Johnson, SES
Deputy Assistant Secretary of the Navy for Research, Development, Test and Evaluation

Lieutenant General Duke Richardson, USAF
Military Deputy, Office of the Assistant Secretary of the Air Force for Acquisition, Technology, and Logistics

Lieutenant General Robert L. Marion, USA
Principal Military Deputy to the Assistant Secretary of the Army (Acquisition, Logistics and Technology) and Director, Army Acquisition Corps


Ms. Ellen M. Lord


Ms. Cummings, SES


Ms. Johnson, SES


Lt Gen Richardson, USAF


LTG Marion, USA

The Department of Defense (DoD) continues to develop a culture of rapid and meaningful innovation, streamlined requirements and acquisition processes, and promote responsible risk-taking and personal initiative. Besides existing Section 804 Middle Tier Acquisition and Other Transaction Authorities (OTAs), the DoD is implementing the Adaptive Acquisition Framework (AAF) to enable acquisition at the Speed of Relevance.

The AAF embraces the delegation of decision making, tailoring of program oversight to minimize unnecessary bureaucratic processes, and actively managing risk based on the unique characteristics of the capability being acquired. The AAF shifts acquisition policy from the traditional 'one size fits all' architecture, to an adaptive, flexible system that holds Program Managers (PMs) accountable for critical thinking, tailored strategies, and risk management. The AAF does this by streamlining a 170-page document to better enable the DoD to field effective and affordable acquisition outcomes, while simultaneously emphasizing transparency, speed of delivery, continuous adaptation, and frequent modular upgrades.

This panel will convene the DoD Acquisition Executives to discuss future trends and challenges in the streamlining acquisition to enable Modernization at the Speed of Relevance.

Session Chair:
Mark Parsons, SAIC

TUESDAY, 1 DECEMBER 2020 • 1330–1500

Opportunities Abound: The Application of Simulation in Healthcare

M&S OPPORTUNITIES ABOUND IN HEALTHCARE SIMULATION, ANALYSIS, DISEASE MODELS, AND PHYSIOME MODELS

Moderator

Bob Armstrong
President, Society for Simulation in Healthcare
Executive Director, Sentara Center for Simulation and Immersive Learning, Eastern Virginia Medical School

Panelists

Paul Phrampus, M.D., FACEP
Associate Professor
Director, Peter M. Winter Institute for Simulation, Education, and Research (WISER), University of Pittsburgh

KT Waxman, DNP, MBA, RN, CNL, CENP, CHSE, FSSH, FAONL, FAAN
Immediate Past-president, Society for Simulation in Healthcare 2020; Director, California Simulation Alliance; Editor in Chief, Nursing Administration Quarterly
Associate Professor; Director, Executive Leadership Doctor of Nursing Practice Program, University of San Francisco, School of Nursing & Health Professions

Mark Scerbo, Ph.D.
Editor in Chief, Simulation in Healthcare; Professor, Department of Psychology, Old Dominion University

Lynn Welch
Vice President, Business Development & Marketing, Education Management Solutions, LLC


Mr. Armstrong


Dr. Phrampus, M.D.


Ms. Waxman, RN


Dr. Scerbo


Ms. Welch

This panel of healthcare simulation experts will discuss various ways that models and simulations can be harnessed to great effect within the comprehensive healthcare setting. Healthcare simulation has found strong footing in the training and education realm; however, the data-rich healthcare environment, coupled with the increased need to find more efficient, effective, and rapid ways to intervene in public/global health, point to the need to develop analytical and predictive models that will help improve operations, hasten drug and vaccine development, and better inform caregivers on new approaches and treatments resulting in not only improved patient outcomes, but saved lives.

Session Chair:
Toni H. Scriber, Air University

TUESDAY, 1 DECEMBER 2020 • 1330-1600
WEDNESDAY, 2 DECEMBER 2020 • 1330-1600
THURSDAY, 3 DECEMBER 2020 • 1330 – 1400

Army XTechBOLT

TACKLING THE ARMY'S MOST CRITICAL MODERNIZATION CHALLENGES

Moderator
Ramin A. Khalili
Writer, USAMRDC Public Affairs Office

The U.S. Army Medical Research and Development Command (USAMRDC) launched the xTech Brain Operant Learning Technology (xTechBOLT) prize competition offering $1 Million in prizes. xTechBOLT aims to understand the effects of emotion and empathy on learning and memory and the functional roles played by various brain regions and their mutual interactions in relation to emotional and empathetic processing and effect on both implicit and explicit learning outlining the use of one or more tools to locate, track, and trace four types of learning traits.

The xTechBOLT competition has three (3) phases which include:

1. **Concept White Paper –** Participants submit a short concept white paper and accompanying video up to 3-minutes. Awards up to ten (10) winners with a $10,000 prize. Submissions closed on October 16, 2020.
2. **Semifinals: Technology Pitches –** Participants conduct a live public presentation at the virtual Interservice/Industry Training, Simulation and Education Conference (I/ITSEC) on their technology concept and team ability. Awards up to five (5) winners with a $25,000 prize.
3. **Finals: Proof-of-Concept Demonstrations –** Participants will conduct an in-person proof-of-concept demonstration to a panel of SME's and the public at the 2021 I/ITSEC Conference in Orlando, FL. Awards up to five (5) winners; 1st Place: $500,000; 2nd Place: $125,000; 3rd Place: $75,000; 4th Place: $50,000; 5th Place: $25,000.

These events will present the Semifinals: Technology Pitches with five pitches per session.

TUESDAY, 1 DECEMBER 2020 • 1500-1630

Black Swan - Outsmarting the Virus

HOW AI HAS ACCELERATED THE DEVELOPMENT OF COVID-19 TESTING AND VACCINES

Moderator

Grace Peng, Ph.D.
Chair, Interagency Modeling and Analysis Group (IMAG), Director of Mathematical Modeling, Simulation & Analysis, Bethesda, MD

Panelists

Nicholas G. Reich, Ph.D.
Associate Professor of Biostatistics, University of Massachusetts

Jerry Myers, Ph.D.
Project Scientist / Biomedical Research Engineer, HRP Cross-Cutting Computational Modeling Project, NASA Glenn Research Center

Andrew Weitz, Ph.D.
Program Director NIH/NIBIB, Division of Health Informatics Technologies (DHIT)

Praduman Jain
Chief Executive Officer, Vibrent Health

Luca Foschini, Ph.D.
Co-Founder and Chief Data Scientist, Evidation Health, Inc.


Dr. Peng

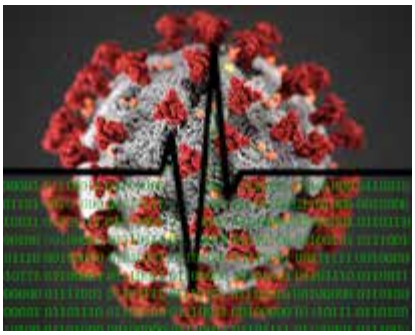

Dr. Reich


Dr. Myers


Dr. Weitz


Mr. Jain


Dr. Foschini



Entering the sixth year in this special event series we are faced with a true Black Swan event. As deadly and life changing as the COVID-19 pandemic has been, it has also given us the opportunity to investigate and take advantage of new technologies to beat this virus. This year we have decided to focus on how new emerging computing technologies and scientific modeling can be used to accelerate the development of testing, therapeutics, and ultimately a vaccine to cure us of this scourge. Artificial Intelligence is being used by health care and pharmaceutical organizations to quickly eliminate false paths and reinforce beneficial approaches to these developments. To best inform you, we have assembled speakers from academia, NIH and industry to present current and emerging modeling techniques that will help finally outsmart this virus. Please join us for this engaging session!

The term Black Swan is used to describe a low probability/high impact event which could profoundly affect our future. The term comes from the 2007 book, *The Black Swan: The Impact of the Highly Improbable* by Nassim Nicholas Taleb, where he presents various world changing events and advocates anti-fragility to not only survive but thrive during crises. We believe modeling and simulation can play a major part in exploring these events to find cures and better prepare us for similar crises in the future.

Session Chair:
James Frey, JANUS

WEDNESDAY, 2 DECEMBER 2020 • 1500-1630

USAF & USSF O-6 Panel

ACCELERATE CHANGE NOW

Moderator

Colonel John Kurian, USAF
Senior Materiel Leader
Simulators Division, Air Force Life Cycle Management Center

Panelists

Colonel Scott Brewer, USAF
Chief, Strategy and Requirements Division, Headquarters Air Education and Training Command

Colonel Jason Kirby, USAF
Chief, Operations Training Division, Headquarters Air Force Special Operations Command

Colonel Scott Koeckritz, USAF
Chief, Test & Training Division, Headquarters Air Combat Command

Colonel Pete Flores, USSF
Commander, STAR Delta Headquarters United States Space Force

Colonel (S) Nick Yates, USAF
Chief, Operational Training Infrastructure Division Headquarters Air Force

Colonel Ryan Aerni, USAF
Chief, Test & Training Division, Headquarters Air Mobility Command

Colonel Kieran Denehan, USAF
Headquarters, Global Strike Command


Col Kurian, USAF


Col Brewer, USAF


Col Kirby, USAF


Col Koeckritz, USAF


Col Flores, USSF


Col (S) Yates, USAF


Col Aerni, USAF


Col Denehan, USAF

This event will provide an opportunity for vIITSEC participants to hear from Air and Space Force leaders regarding current and future activities related to the Air Force Chief of Staff, Gen Brown's, message, "Accelerate Change, or Lose." Participants in this panel will be senior leaders representing the Headquarters Air Force, Space Force STAR Delta Provisional, Air National Guard and several Air Force Major Commands (MAJCOMs). The panel discussion will enable the speakers to share their perspectives on the conference theme of *"The Future is Now"* and the opportunities and challenges to accelerate change to remain the most dominate and respected Air and Space Force of the world now and into the future from their respective commands. Following the remarks, the audience will interact with the panel through chat room questions.

Session Chair:
Maureen Holbert, Booz Allen Hamilton

THURSDAY, 3 DECEMBER 2020 • 1000-1130

A View from the Top: Disruptive Technologies That Will Transform Training

SENIOR EXECUTIVES FROM THE TRAINING AND SIMULATION INDUSTRY SHARE THEIR THOUGHTS AND INSIGHTS ON THE MOST PROMISING TECHNOLOGIES AIMED AT OPTIMIZING WARFIGHTER PERFORMANCE

Moderator

Daniel Serfaty
Chief Executive Officer and Founder, Aptima, Inc.

Panelists

Mike Knowles
President, Cubic Mission and Performance Solutions
Senior Vice President, Cubic Corporation

Don Ariel
Chairman and Chief Executive Officer, Raydon Corporation

Marlo Brooke
Chief Executive Officer and Founder, AVATAR Partners

Ulrik Juul Christensen, M.D.
Chief Executive Officer, Area9 Group

A View From The Top
Disruptive Technologies that will Transform Training


Mr. Serfaty


Mr. Knowles


Mr. Ariel


Ms. Brooke


Dr. Christensen

The Future is Now: Disruptive technologies—artificial intelligence, virtual/augmented/mixed reality, machine learning, big data analytics, and Lifelong Learning technologies — are transforming the way we work and learn.

For Warfighting, how are small, medium, and large companies across the training industry and adjacent markets thinking about innovating for the Warfighter?

Senior executives from the training and simulation industry share their thoughts and insights on the most promising technologies aimed at optimizing Warfighter performance.

This eclectic executive panel will share experiences taken from defense and adjacent markets, such as critical healthcare, law enforcement, and aviation. They will bring forth the point of view from the "C suite" on innovation that works and has a definite impact on mission effectiveness for the Warfighter.

Why This Special Event? As a community, vIITSEC is looking to expand its presence across industry, across different size companies, and internationally. Rarely do we have the opportunity to have multiple executives share their visions and strategies with the audience.

Session Chair:
Scott Johnston, Booz Allen Hamilton

THURSDAY, 3 DECEMBER 2020 • 1330–1500

Iron Dev

M&S AR/VR DEVELOPER COMPETITION

Moderator
Brian Vogt
Solutions Architect, Training and Mission Solutions, SAIC

Judges
Major General Maria R. Gervais, USA
Director, Synthetic Training Environment Cross-Functional Team (STE CFT)

John Meyers, SES
Executive Director, Naval Air Warfare Center Training Systems Division

Colonel Robert Epstein, USAF
Commander, Air Force Agency for Modeling & Simulation, AFAMS

Paul Thurkettle
Education & Training Technologies Manager, Allied Command Transformation, North Atlantic Treaty Organization

Amy Peck
Chief Executive Officer
EndeavorVR

Co-Hosts
Bob Kleinhample
Vice President, Training Solutions SAIC

Alethea Duhon, Ph.D.
Chief Technology Officer, Department of the Air Force Chief Modeling & Simulation Office, Technical Director, Air Force Agency for Modeling & Simulation (AFAMS)

Session Chair:
Monique Brisson, U.S. Air Force Life Cycle Management Center

Iron Dev is a team competition similar to competitive cooking shows, where teams will be given a challenge and "secret ingredient" to develop a distributed AR/VR training, education, or operational solution to improve warfighter readiness. Teams will consist of diverse members with skills in AR/VR development, simulation networking/distribution, graphic design, simulation development, and training development. Teams will have 60+ days to develop their solution and then demonstrate them on the final day of vIITSEC in front of a fun and engaging panel of judges. Awards will be given to the best overall training solution and to the boldest solution.

THURSDAY, 3 DECEMBER 2020 • 1500-1630

Air Force Simulators Pitch Day

RED CARPET REVIEW OF INNOVATION AT THE SPEED OF RELEVANCE!

Co-Hosts

Jaclyn Beach
Simulators Innovation
Simulators Division,
Air Force Life Cycle
Management Center

Reyanna Sheets
Simulators Innovation
Simulators Division,
Air Force Life Cycle
Management Center

Panelists

Lieutenant Colonel Ross UHLER, USAF
Chief, Distributed Training Systems
Simulators Division,
Air Force Life Cycle
Management Center

2nd Lieutenant Christian Hedengren, USAF
Executive Officer
Simulators Division,
Air Force Life Cycle
Management Center

Please join us on the Red Carpet for a preview of the 2020 Simulators Virtual Pitch Day entries! We will be showing "Pitch Reels" for each project and discussing how these can fit into the future of Air Force training and simulation. We will be broadcasting live from the Simulators 'Flight Deck' at Wright Patterson AFB, Ohio. We can't guarantee tuxes and tiaras but will have a fantastic show!

Viewers are able to watch the Pitch Day project previews first! The Simulators Pitch Day Showcase event precedes the final virtual Pitch Panel sessions, scheduled for 7-10 December 2020. Attendees will have an opportunity to engage with all of our pitching vendors in the chat Q&A during the Showcase.

The technologies targeted for Simulators Pitch Day 2020 are:

1. Virtual reality, augmented reality, mixed reality, extended reality gaming tools applied to air-crew simulation and training
2. Gaming technologies and gamification concepts applied to simulation and training
3. Artificial intelligence, machine learning, and data analytics applied to simulation training
4. High-fidelity, visual, and physics-based effects within the training simulator
5. Cloud computing applied to the development, deployment, and operation of simulation training
6. Secure remote training and instruction
7. Multi-player, multi-aircraft, multi-role networked training simulation environment
8. Advanced computer generated entities within training simulation and synthetic environments
9. Securing commodity hardware and software for military training needs
10. Data analytics applied to the collection and synthesis of design criteria data for simulator development and concurrency modifications

Come and see the latest in Training and Simulator innovations from our small business partners as they get ready to for their final pitch for up to a $1 Million project contract!

Session Chair:
Leslie Dubow, VHA EES

FRIDAY, 4 DECEMBER 2020 • 1000–1130

Multinational Perspectives on Augmented and Virtual Reality Impacts and Potentials

AR/VR IMPACTS AND POTENTIALS FROM THE WILD SIDE!

Moderator

Wink Bennett, Ph.D.
Warfighter Interactions and Readiness Research
Airman Systems Directorate

Panelists

Roy Arents, M.Sc.
Senior R&D Engineer, Royal Netherlands Aerospace Centre NLR

Major Meghan "Slacq" Booze, USAF
4th TS ADO of Innovation (USAF), Seymour Johnson AFB, NC

Major Matthew "Rail" Ross, USAF
4th Training Squadron/Formal Training Unit, Seymour Johnson AFB, NC

Mayowa Olonilua
Bsc (Hons) Msc Rsci, Senior Scientist (Training and Simulation), Training and Transformative Technologies Team, Dstl Portsdown West

Jerzy Jarmasz, Ph.D.
Defense Scientist, Defence Research and Development Canada (DRDC-RDDC) Toronto

Ramy Kirollos, Ph.D.
Defense Scientist, Defence Research and Development Canada (DRDC-RDDC) Toronto

The U.S. and our Multinational partners are investing in Augmented and Virtual Reality (AR/VR) technology and applications in their mission areas. In many cases, they are achieving some remarkable successes and are moving innovation into the hands of operational personnel on a growing frequency. There are several instances where these partners are engaged in blending these technologies with more traditional training technologies and achieving greater training value and improved readiness outcomes.

This proposed focus event will take a broad innovation/application perspective on AR/VR development and operational implementation in several national use cases. Given the current trend toward AR/VR development in a variety of mission-related education and training contexts, this event will highlight some of these and provide an opportunity for each national SME to share their unique experiences and applications to date and offer lessons learned that are both common and unique to their applications and their mission areas.

Session Chair:
Mike Weber, Arorae Corporation

TUESDAY, 1 DECEMBER 2020 • 1130-1300

Winning the War for Talent: Growing, Acquiring and Retaining a Thriving Training and Simulation Workforce

TALENT IS THE CATALYST FOR GROWTH

Moderator

Jeffrey A. Raver
Vice President, Strategy, Growth and Innovation, Science Applications International Corporation

Panelists

Colonel Scott Gilman, USA
Deputy Director, U.S. Army Modeling and Simulation Office

Eric Weisel, Ph.D.
Technology Executive and Researcher, Old Dominion University

Steve Schulz
Senior Director, Talent Acquisition, Collins Aerospace

Judith Bayliss, Ph.D.
Requirements Strategist, Defense Acquisition University

Jennifer McArdle, Ph.D.
Product Strategist, Improbable LLC


Mr. Raver


Col Gilman, USA


Dr. Weisel


Mr. Schulz


Dr. Bayliss


Dr. McArdle

Talent acquisition and sustainment is gaining strategic importance across our industry. With ever changing work environments, increased pressure from all sectors and an evolving set of priorities for the new generation workforce, how industry and government grow and maintain training and simulation human capital is top of mind for all of us. Winning the War for Talent brings together a panel of training and simulation leadership from industry, the DoD, government and academia with perspectives on talent acquisition, human resource and program management, talent development, and workforce representation. Specific topics to be discussed will include workforce development, employee engagement, recognition and rewards as well as diversity and STEM. We will also explore the impact of our "new normal" on both the existing and aspirational training and simulation workforce, including how the challenges of the global pandemic, impact of the administration and work-life balance are affecting recruiting and retention. It is widely accepted that our people are our greatest asset but how we attract them to our industry and keep them engaged in an ever changing landscape is critical to our success. Talent development and expansion is the catalyst for growth across our industry. Please join us to participate in this compelling discussion around the resources we value the most: our people.

Session Chair:
Sondra Chambers, Huntington Ingalls Industries

WEDNESDAY, 2 DECEMBER 2020 • 1000–1130

The European Perspective on Immersive Technologies for Training Applications

IS xR REALLY MATURE ENOUGH TO MEET OUR MILITARY TRAINING CHALLENGES

Moderator

Wim Huiskamp
Chief Scientist Modelling and Simulation, TNO Defence Research
Scientific Advisor, NATO M&S Group

Panelists

Andy Smith
ETSA Chairman, Halldale

Paolo Proietti
R&D Manager, Leonardo S.p.a., Italian NATO STO HFM Panel Member

Rombout Karelse
M.Sc., Senior Innovation Manager, Dutch Ministry of Defence

Andrew J. Fawkes
Independent Consultant, Thinke Company Ltd., Former Chair of the NATO Modelling and Simulation Group


Mr. Huiskamp


Mr. Smith


Mr. Proietti


Mr. Karelse


Mr. Fawkes

Immersive Technology is a term used to capture Virtual Reality, Augmented Reality and Mixed Reality (xR). This technology has been around for a long time (mid-80s) and has slowly matured. The concept of xR initially gained traction in the military domain (mid-1990s), followed by a recent strong technology push in the commercial and gaming domain (e.g. HoloLens, Oculus Rift). Several interesting military training applications have been demonstrated using this more affordable commercial technology and some are being deployed as well. However, the predicted disruptiveness of this technology has not yet materialized in the marketplace. This session will provide insights in technical, human factors and economic aspects that are relevant for current and future immersive military training applications.

The European Training and Simulation Association (ETSA) ("The European Voice" of the Modelling, Simulation & Training community) has invited representatives from several European armed forces to discuss the national vision on the use of Immersive Technology for Military Training Applications. The presenters will provide an overview of current capabilities and share examples of applications that leverage the advantages of Impressiveness and address the Human Factors aspects of this technology. The evolution and mid-term plans will be discussed as well as the partnerships (NATO, EDA, R&D, Industry) that are in place or desired to further develop Immersive simulation capabilities.

The ETSA special event panel session will engage with the audience on the way ahead towards effective Immersive Technology applications and discuss how to engage with ETSA and leverage its partnership agreements with NTSA, EDA and Industry.

Session Chair:
Craig Langhauser, Collins Aerospace

WEDNESDAY, 2 DECEMBER 2020 • 1130–1300

IEEE Standard for an Augmented Reality Learning Experience Model (ARLEM)

IEEE AUGMENTED REALITY (AR) STANDARD

Moderator

Robert A. Sottilare, Ph.D.
Director of Learning Sciences, Soar Technology, Inc.

Panelists

Brandt Dargue
Associate Technical Fellow, Adaptive Learning and Virtual Environments for Learning The Boeing Company

Fridolin Wild, Ph.D.
Senior Research Fellow, Director of the Performance Augmentation Lab, Oxford Brookes University

Christine Perey
Independent Analyst & Spime Wrangler, Perey Research & Consulting

Session Chair:
Susan Harkrider, Modeling and Simulation Division, Night Vision & Electronic Sensors Directorate (NVESD)

IEEE
Advancing Technology for Humanity
The world's largest professional association for the advancement of technology


Dr. Sottilare


Mr. Dargue


Dr. Wild


Ms. Perey

The Augmented Reality Learning Experience Model (ARLEM) specifies how to represent learning/instructional activities in which the user interacts with both the real world and virtual augmentations which may be presented in a variety of senses including visual, aural, touch, and smell. ARLEM defines the dynamic layout and behavior of the augmentations relative to the physical environment and to the user as well as in response to events. The standard was designed to provide information, instruction, and feedback as needed when needed including hands-free on-the-job work instructions.

ARLEM is a device-independent standardized interchange format for the description of the learning environment and its augmentations. The goal is to lower entry barriers for authoring and the lifecycle support of learning experiences spanning real world interaction using sensors, computer vision, the internet of things, and web applications. ARLEM has become an official IEEE open standard in January 2020.

This event will show the standard and discuss why it is important to Training, Education, and Simulation industry. The event will include uses cases developed for European Space Agency (ESA) and will demonstrate the use of the standard.

The goals of the event are to:

- provide awareness of the standard and why it was created;
- provide awareness how, when, why it can/should be used;
- show how to access and use prototype ARLEM software libraries developed by the Performance Augmentation Lab at Oxford Brookes University;
- encourage use of the standard;
- encourage development of tools that conform to the standard;
- boost use within the industry to streamline productivity, eliminate waste/rework, and help future-proof new solutions;
- encourage the industry to specify ARLEM standard as a requirement to tool and device providers for use of their tools.

THURSDAY, 3 DECEMBER 2020 • 1130–1300

NMSG and SISO Simulation Standards Development

STANDARDS FOSTER INTEROPERABILITY

Moderator

Wim Huiskamp
Chief Scientist Modelling and Simulation, TNO Defence Research
Scientific Advisor. NATO M&S Group

Panelists

Robert Lutz
Johns Hopkins University Applied Physics Laboratory (JHU/APL)
SISO EXCOM Chairman

Grant Bailey
Simulation Technical Authority - Defence M&S Coherence (DMaSC), UK MoD
Chairman of the NMSG M&S Standards Subgroup (MS3)
NMSG Liaison in the SISO Standards Activities Committee (SAC)

Major Sander Cruiming
Dutch MoD

Mark Pullen, Ph.D.
Professor of Computer Science, George Mason University

Katherine L. Morse, Ph.D.
Principal Professional Staff, Johns Hopkins University Applied Physics Laboratory (JHU/APL)

Standards provide a proven method for increasing interoperability and reducing time and cost to deliver effective solutions. This is especially true in areas like modeling, simulation, and training where a mix of existing and/or newly developed components are often integrating.

M&S standardization leads from NATO and the Simulation Interoperability Standards Organization (SISO) will describe their standardization processes. You will hear from leads and proponents of three NMSG/SISO standards at different points in the standardization process—concept exploration for a new standard, a recently published standard, and a well-established, supported standard.

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 SISO session last year, plan to attend again this year to get an update of NATO and SISO standards program information.

Session Chair:
Tara Kilcullen, Training and Readiness Accelerator, NSTXL

TUESDAY
1 DECEMBER 2020
1500-1630

U.S. Air Force Acquisition Update

Session Chair:
Teresa Speck, Soar Technology, Inc.

This Special Event will provide the latest information from the US Air Force regarding acquisition initiatives, focus areas and upcoming training systems acquisition actions. It will feature remarks from Colonel Lea Kirkwood, the Air Force Program Executive Officer (PEO) for Agile Combat Support (ACS). Col Kirkwood will share her perspective on the current state of the Air Force acquisition process along with ongoing initiatives, as they apply to the I/ITSEC community. Colonel John Kurian, the Senior Materiel Leader for the Simulators Division, will follow the PEO's presentation. Col Kurian will provide an update on Air Force simulator business opportunities, as a follow on to the Training Systems Industry Symposium (TSIS) held in June. Additionally, Margaret Merkle will provide an update on the Simulators Division innovation efforts, including collaborations with AFWERX and Simulators Pitch Day 2020. Following the remarks, the audience will interact with the panel through submitted questions.

Moderator

Tracy Titcombe
Visual System Tech Expert,
Simulators Division

Panelists

Colonel John Kurian, USAF
Senior Materiel Leader,
Simulators Division

Margaret Merkle
Innovation Program Manger,
Simulators Division

Colonel Lea Kirkwood, USAF
Program Executive Officer
Agile Combat Support Directorate

THURSDAY
3 DECEMBER 2020
1330-1430

U.S. Marine Corps Program Manager Training Systems

Session Chair: LtCol Byron Harder, USMC, Ph.D., TECOM

PM TRASYS' Future Acquisition Needs Are…

- **S**tructured: PdM Training Systems Sustainment and Support created to oversee enterprise sustainment and services contracts,
- **A**gile: MACs and SAIDIQs for service requirements, definitive contracts for new acquisition systems,
- **F**lexible: Task order provide for adding, curtailing, or eliminating organizations, locations or services to meet evolving Marine Corps requirements, and
- **E**ffective: Implements Better Buying Power initiatives, promoting competition throughout the acquisition lifecycle to best manage cost, schedule and performance risks.

Moderator

Koren Odermann
Product Manager Synthetic Training Systems
Program Manager, Training Systems
Marine Corps Systems Command (MCSC)

Panelists

Colonel Luis "Lou" Lara, USMC
Program Manager, Training Systems (PM TRASYS)
Marine Corps Systems Command (MCSC)

Lieutenant Colonel Troy Peterson, USMC
Product Manager, Training Systems Sustainment and Support Services (TS4)
Program Manager Training Systems (PMTRASYS)
Marine Corps Systems Command (MCSC)

Lieutenant Colonel John Mohler, USMC
Product Manager, Range Training Systems (RTS)
Program Manager Training Systems (PMTRASYS)
Marine Corps Systems Command (MCSC)

THURSDAY
3 DECEMBER 2020
1500-1630

U.S. Navy Training Systems Leaders Update

Session Chair:
Chuck Wythe, Cape Henry Associates

Each year at I/ITSEC, a panel 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. vIIITSEC participants are welcome and encouraged to attend to hear about the state of the Navy's Training Systems.

Moderator

Michael Merritt
Acquisition Director,
Naval Air Warfare Center
Training Systems Division

Panelists

Captain Tim Hill, USN
Commanding Officer,
Naval Air Warfare Center
Training Systems Division

Captain Lisa Sullivan, USN
Program Manager,
Naval Aviation Training Systems
NAVAIR PMA-205

David Williams
Technical Division PAPM
NAVSEA PMS-339

Captain Kahry Hembree-Bey, USN
Commanding Officer,
NAVSEA Warfare Center Corona

FRIDAY
4 DECEMBER 2020
1000-1300

U.S. Army PEO STRI TSIS Update

Session Chair:
Tim Cooley, DynamX Consulting

The U.S. Army Program Executive Office for Simulation, Training, and Instrumentation (PEO STRI) Training and Simulation Industry Symposium (TSIS) updates will provide the latest information regarding the current and future PEO STRI business opportunities. This will be updated from the June 2020 TSIS and will include presentations from the Project Managers, International Program Office (IPO) and the Army Contracting Command-Orlando.

Moderator

Donna Veil
Deputy G3/G5 Plans and Strategy
U.S. Army PEO STRI

Panelists:

Colonel Cory Berg, USA
USA Project Manager
Soldier Training (PM ST)

Colonel Nicole Reinhardt, USA
USA Project Manager
Synthetic Environment (PM SE)

Colonel Corey Hemingway, USA
USA Project Manager
Cyber, Test, and Training (PM CT2)

Dale Whittaker
International Programs Office (IPO)

Mike Harris
Army Contracting Command - Orlando

Bob Wolfinger
Project Lead
TADSS Support Operations

INTERNATIONAL EVENTS

INTERNATIONAL ATTENDEES • INTERNATIONALE TEILNEHMER • LES PARTICIPANTS INTERNATIONAL • INTERNATIONAL DELTAKERE • INTERNATIONELL DELTAGARE • INTERNATIONAL DEELNEMERS

SPECIAL EVENTS

WEDNESDAY • 1000 – 1130 • PRE-RECORDED WITH LIVE Q&A • PAGE 28
Community of Interest: The European Perspective on Immersive Technologies for Training Applications

THURSDAY • 1130 – 1300 • PRE-RECORDED WITH LIVE Q&A • PAGE 30
Community of Interest: NMSG and SISO Simulation Standards Development

FRIDAY • 1000 – 1130 • LIVE WITH LIVE Q&A • PAGE 26
Focus Event: Multinational Perspectives on Augmented and Virtual Reality Impacts and Potentials

TUTORIALS

FRANCE
20020 • TU5: DATA & INTEGRATION STANDARDS • PAGE 41
An Introduction to RIEDP Concepts for Environmental Data Sharing

ITALY
20021 • TU5: DATA & INTEGRATION STANDARDS • PAGE 41
NATO Simulation Interoperability - Certification, Tools and Standards for Federated Simulation

SWEDEN
20015 • TU3: ARCHITECTURES • PAGE 39
Introduction to HLA

PAPERS

CANADA
20450 • ECIT 3: AI-ENHANCED SYNTHETIC ENVIRONMENTS
Creating Geospecific Synthetic Environments using Deep Learning and Process Automation

20429 • HPAE 1: AR/VR: THE REALITY OF LESS REALITY
Surgical Training Effectiveness Using Immersive Virtual Reality

20223 • SIM 8: MODELING THE FUTURE
Using Visual Analytics to Manage Experimental Frames

20376 • TRNG 2: KEEPING IT REAL WITH AR/VR
Virtual Reality for Transportation Incident Management Training of First Respondents in Remote Areas

FRANCE
20245 • TRNG 2: KEEPING IT REAL WITH AR/VR
Digital Firing, A New Way of Training

GERMANY
20216 • ECIT 2: PATTERNS OF LIFE AND COMPLEXITY
Real-time Simulation of Crowd Disasters

20344 • TRNG 4: WTF: WIN! TRAIN! FIGHT!
Mission Training through Distributed Simulation for Joint and Combined Air Operations

NETHERLANDS
20293 • ED 6: TRAINING DELIVERY USING EMERGING TECHNOLOGY
Exploring the Characteristics of Immersive Technologies for Teamwork

20265 • SIM 2: LVC - FAST AND EASY AS 1, 2, 3
Cross Domain Security in Airpower Mission Training through Distributed Simulation

20344 • TRNG 4: WTF: WIN! TRAIN! FIGHT!
Mission Training through Distributed Simulation for Joint and Combined Air Operations

NORWAY
20238 • ED 5: TAILORING INSTRUCTIONAL DELIVERY STRATEGIES TO UNIQUE LEARNER NEEDS
How PBL and Flipped Classroom Gave Remarkable Results in a Military Leadership Course at NDUC

SPAIN
20225 • PSMA 2: BEYOND DOGMA: RETHINKING POLICY
Why Are Lessons Not Learned, How Can Policy and Standards Ensure Data Exchange and Truly Enable Lessons to be Learned

UNITED KINGDOM
20327 • ECIT 3: AI-ENHANCED SYNTHETIC ENVIRONMENTS
Can Real-time Artificial Intelligence Techniques Be Applied to Synthetic Environments?

20349 • ECIT 7: APPLYING AI AND ML TO SIMULATE REAL-WORLD SCENARIOS
Trusting a Black Box: Explaining Complex Simulation Outcomes Using LIME

20375 • ECIT 7: APPLYING AI AND ML TO SIMULATE REAL-WORLD SCENARIOS
Machine Learning Surrogates for Highly Realistic Simulations

20347 • ED 4: THE NEXT EVOLUTION OF EDUCATION AND TRAINING
A Future Vision for the Defence Learning Ecosystem

20293 • ED 6: TRAINING DELIVERY USING EMERGING TECHNOLOGY
Exploring the Characteristics of Immersive Technologies for Teamwork

20285 • SIM 3: 007 - AGENT BASED SIMS
Never Feed It After Midnight – Testing Un-intended Consequences in Simulation

20280 • TRNG 4: WTF: WIN! TRAIN! FIGHT!
"You Have Control, AI Has Control" the 2030 Flying Instructor?

HEALTHCARE EVENTS

SPECIAL EVENTS

TUESDAY • 1330 – 1500 • PRE-RECORDED WITH LIVE Q&A • PAGE 19
Focus Event: Opportunities Abound: The Application of Simulation in Healthcare

TUTORIAL

2006 • BEST TUTORIALS • PAGE 36
A Comprehensive Introduction to Medical Simulation

PAPERS

20236 • BEST PAPER SESSION 1
Tactical Combat Casualty Care Training: A Blended Approach for Lifelong Learning

20282 • BEST PAPER SESSION 2
Quantifying Future Return on Investment of Live, Virtual, Constructive Training

20355 • BEST PAPER SESSION 2
Virtual Living Room: Bridging the Physical Distance with Virtual Reality

20467 • ED 4: THE NEXT EVOLUTION OF EDUCATION AND TRAINING
The Makings of Effective Research!

20416 • ED 6: TRAINING DELIVERY USING EMERGING TECHNOLOGY
Factors Impacting Virtual or Augmented Reality Effectiveness in Military Applications

20429 • HPAE 1: AR/VR: THE REALITY OF LESS REALITY
Surgical Training Effectiveness Using Immersive Virtual Reality

20388 • HPAE 2: DECISION MAKING: LEARNING WHERE TO GO, WHAT TO DO, HOW TO REACT
Performance Assessment in a Virtual Simulation for Integrated Austere Medical Operations Training

20364 • HPAE 3: LEARNING TO LEARN: MACHINE LEARNING TO FACILITATE ASSESSMENT
Warfighter Physiological Status Prediction

20241 • PSMA 1: DATA DRIVEN LEARNING FOR THE INFORMATION AGE
Data Informed Content Development to Meet Army Simulation Educational Needs

20243 • SIM 1: NOT YOUR FATHER'S OPERATION GAME
Generating Connected Synthetic Electronic Health Records and Social Media Data for Modeling and Simulation

20266 • SIM 1: NOT YOUR FATHER'S OPERATION GAME
A Novel Approach to Medical Team Training: Blended Reality Built on Open Source Platforms

20317 • SIM 1: NOT YOUR FATHER'S OPERATION GAME
Addressing Tactical Combat Casualty Care in Synthetic Training Environments

20212 • SIM 6: CAN'T WE ALL JUST GET ALONG WITHOUT GETTING SICK?
Cybersickness Profile Associated with Long-Duration Augmented Reality Exposure

20325 • TRNG 1: MODELING AND TRAINING TO HARD PROBLEMS
Virtual Leadership Simulator – The Missing Gap in Soft Skills Training

20498 • TRNG 1: MODELING AND TRAINING TO HARD PROBLEMS
Moving Beyond Communities of Practice (CoPs) ... Supporting Grassroots Knowledge Sharing

20445 • TRNG 7: FROM PHYSICAL TO VIRTUAL: CHALLENGES AND OPPORTUNITIES IN MEDICAL TRAINING
Tablet-Based Augmented Reality Training for Combat Lifesavers

20496 • TRNG 7: FROM PHYSICAL TO VIRTUAL: CHALLENGES AND OPPORTUNITIES IN MEDICAL TRAINING
Designing Serious Games to Train Medical Team Skills

TUTORIALS

TRACK 1: BEST TUTORIALS

2006	A Comprehensive Introduction to Medical Simulation
	2006 • MEET THE AUTHOR • TUESDAY, 1 DECEMBER 2020 • 1630-1800
20032	Understanding and Applying cmi5 in an xAPI Solution
	20032 • MEET THE AUTHOR • WEDNESDAY, 2 DECEMBER 2020 • 1630-1800
20042	Fundamentals of Adaptive Instructional Systems (AISs)
	20042 • MEET THE AUTHOR • THURSDAY, 3 DECEMBER 2020 • 1630-1800

TRACK 2: LVC INTEROPERABILITY STANDARDS

20011	Securing Real-Time Distributed LVC Simulations at Scale with Data Distribution Service™ (DDS)
20017	Distributed LVC Event Integration and Execution Process
20040	Live Virtual Constructive (LVC) Interoperability 101
	20011, 20017 & 20040 • MEET THE AUTHOR • TUESDAY, 1 DECEMBER 2020 • 1630-1800

TRACK 3: ARCHITECTURES

20015	Introduction to HLA
20031	Distributed Interactive Simulation (DIS) 101: The Basics
	20015 & 20031 • MEET THE AUTHOR • WEDNESDAY, 2 DECEMBER 2020 • 1630-1800

TRACK 4: M&S FUNDAMENTALS

2001	Simulation Conceptual Modeling Theory and Use Cases
2007	An Introduction to Cognitive Systems for Modeling & Simulation
20014	Introduction to Department of Defense Modeling and Simulation
	2001, 2007 & 20014 • MEET THE AUTHOR • WEDNESDAY, 2 DECEMBER 2020 • 1630-1800

TRACK 5: DATA & INTEGRATION STANDARDS

20020	An Introduction to RIEDP Concepts for Environmental Data Sharing
20021	NATO Simulation Interoperability - Certification, Tools and Standards for Federated Simulation
20023	Building an Education and Training Data Strategy
	20020, 20021 & 20023 • MEET THE AUTHOR • THURSDAY, 3 DECEMBER 2020 • 1630-1800

TRACK 6: EXPORTING, EXPERIMENTING, AND DISTRIBUTING

20028	Advanced Distributed Network Architectures for LVC
	20028 • MEET THE AUTHOR • TUESDAY, 1 DECEMBER 2020 • 1630-1800
20033	Experimentation Campaign: Crafting the Future
20044	The Changing World of U.S Export Controls 2020
	20033 & 20044 • MEET THE AUTHOR • THURSDAY, 3 DECEMBER 2020 • 1630-1800

TUTORIAL SYNOPSES BEGIN ON PAGE 37 • PRESENTER BIOGRAPHIES BEGIN ON PAGE 45

TRACK 1: BEST TUTORIALS

A Comprehensive Introduction to Medical Simulation

2006

Simulation tools and techniques have been a part of acquiring medical knowledge and skills for over 4,000 years, with more scientific approaches emerging hand-in-hand with the European Renaissance. These devices were initially used as a means to convey homeopathic experience and the knowledge gained through cadaveric dissection. More recently, the devices have been computerized and restructured according to modern learning theories.

This tutorial is a comprehensive overview of medical simulation to include applications that have emerged for COVID response, a brief history, system taxonomies, devices and techniques for representing external and internal anatomy and physiology for medical interventions, the role of team training, criteria for measurement and assessment, specialized military medical applications, and criteria for current simulation accreditation. The tutorial includes constructive models, manikins, part-task trainers, surgical simulators, standardized patients, physical prostheses, team training events, and certifications. These categories are drawn from taxonomies initiated by the American College of Surgeons and the Society for Simulation in Healthcare. The tutorial concludes with a predictive view into the future of the devices and practices as outlined by forward thinkers in the field.

Presenters
ROGER SMITH, Ph.D., Modelbenders LLC
DANIELLE JULIAN, M.S., AdventHealth Nicholson Center

Understanding and Applying cmi5 in an xAPI Solution

20032

Developed nearly two decades ago, the Sharable Content Object Reference Model (SCORM) is a set of interoperability standards for packaging and delivering online courses via web-browsers and Learning Management Systems (LMSs). However, SCORM is not extensible enough to support the myriad of technologies used in modern learning environments. In addition, SCORM does not provide sufficient guidance for capturing robust, interoperable learner performance data. DoD Instruction 1322.26 recommends the Experience Application Programming Interface (xAPI) data specification as the contemporary method for managing learner-performance data, and while xAPI and SCORM can be implemented together, a more modern approach to content packaging and delivery is warranted. The cmi5 specification was created to replicate SCORM functionality with the intention of replacing SCORM as the de-facto format of online courses and traditional computer-based training. The underlying use cases were so similar between cmi5 and xAPI that the AICC-led cmi5 effort adopted xAPI. The cmi5 specification defines a set of rules for how online courses are imported, launched, and tracked using an LMS and leverages xAPI to do so. Technically, cmi5 is an xAPI Profile, which means it inherits all of the characteristics mandated by the xAPI specification, but cmi5 also imposes additional requirements, including interoperability rules for content launch, authentication, session management, reporting, and course structuring, making it a sort of "super profile". The cmi5 specification enables the packaging and delivery of distributed learning resources that sit outside of a web-browser (e.g., mobile apps, offline content). The cmi5 specification will play an important role in DoD's modernization, facilitating progress from SCORM-based LMS-centric courseware to a distributed learning "ecosystem" that delivers diverse learning opportunities across a range of federated platforms. ADL has funded an effort to provide a free conformance test suite, player application, and content templates to cmi5 adopters. This tutorial introduces learners to the core concepts of xAPI and cmi5 and of the structure and communication of xAPI and cmi5 data and systems. It describes cmi5 implementation details, best practices, as well as community activities and resources.

Presenters
ANDY JOHNSON, Advanced Distributed Learning Initiative (SETA Contractor)
ART WERKENTHIN, RISC, Inc.
MIGUEL HERNANDEZ, Design Interactive

Fundamentals of Adaptive Instructional Systems (AISs)

20042

The effectiveness of artificially-intelligent adaptive instructional systems (AISs) has highlighted a need in the US military (e.g., Army Synthetic Training Environment) for intelligent, tailored, guided instruction for both individuals and teams. AISs are able to automatically adjust feedback, support, and challenge level of instruction to focus instruction to the specific needs of individual learners and teams. The marketplace for AISs (e.g., intelligent tutoring systems and intelligent mentors) has grown to a point where the IEEE standards community sees merit in developing standards and recommended practices for AIS conceptual modeling, interoperability and evaluation under Project 2247. The prevalence of AI in the IITSEC community highlights the need to understand the basics of AIS design, development, deployment, and evaluation. This tutorial provides a fundamental overview of military needs, emerging standards, conceptual models, adaptive strategies, authoring processes, and the AIS marketplace. We are providing this tutorial as an introduction to adaptive instructional systems, tools and methods.

Presenters
ROBERT SOTTILARE, Ph.D., Soar Technology
JEANINE DEFALCO, Ph.D., U.S. Army CCDC-STTC

TRACK 2: LVC INTEROPERABILITY STANDARDS

Securing Real-Time Distributed LVC Simulations at Scale with Data Distribution Service™ (DDS)

20011

Integrating simulation and training systems can be a formidable challenge. Legacy systems often use differing standards for data, voice, and video, while modern architectures demand the use of cloud-based and distributed assets. To top it off, new security requirements now force integrators to suddenly become experts in information assurance.

So how do you accelerate integration time to train to meet today's emerging threats? This objective requires training environments that can be quickly assembled and reconfigured from ready-made components. Attend this tutorial to learn how Data Distribution ServiceTM (DDS) can ease integration, while also delivering National Security Agency (NSA) tested security for real-time systems.

The Data Distribution ServiceTM (DDS) is a popular open standard managed by the Object Management Group (OMG). DDS is also the connectivity framework that successfully meets the stringent interoperability and real-time requirements of the defense industry, and is currently used in hundreds of deployed systems. DDS seamlessly stitches together legacy simulations, while adding humans and hardware in the loop, to create new secure LVC environments that can share real, augmented and virtual realities. These environments can run in a single lab or across multiple sites and DDS is still able to match physics-speed response times.

This tutorial gives an introduction to the DDS and DDS Secure standards. You will learn how to use DDS Secure to secure real-world Hardware-In-Loop (HIL) systems that already communicate over DDS to distributed LVC Simulations. The tutorial will further describe how to integrate DDS with existing simulation-based standards, which is an area where DDS can add a large suite of Qualities of Service (QoS) to help tune performance and scalability,while also providing robust security. Finally, the tutorial will highlight recent user experiences with DDS, and offer an overview of deployed systems using DDS in simulators today. This tutorial is intended for all audiences, though some familiarity with the basic principles of distributed computing is recommended.

Presenters
ROBERT PROCTOR, Real-Time Innovations, Inc.
JOHN BREITENBACH, Real-Time Innovations, Inc.

Distributed LVC Event Integration and Execution Process

20017

Integration and execution of large distributed Live, Virtual, Constructive (LVC) events consume substantial time and resources. While the underlying distributed LVC technologies are mature, the processes for integrating events are not. The IEEE Std 1730-2010 Distributed Simulation Engineering and Execution Process (DSEEP) standard defines a process model for developing an event. 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 DSEEP was developed based on the authors' integration and execution of many distributed LVC events. This implementation has nine steps, divided into 27 activities. 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.

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
MICHAEL O'CONNOR, CMSP, Trideum
KENNETH LeSUEUR, Ph.D., U.S. Army Redstone Test Center

Live Virtual Constructive (LVC) Interoperability 101

20040

The tutorial is intended for decision makers who have recently come in contact with distributed simulation and need a top-level understanding of Live, Virtual and Constructive (LVC) interoperability and the supporting standards, technology and processes. The purpose of this tutorial is to provide managers the necessary insight needed to support intelligent decision making. The tutorial will discuss the various domains of the technology and how it can potentially relate to their LVC needs. The tutorial provides a relevant use case as the mechanism to explain the concepts, processes and 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
DAMON CURRY, Pitch Technologies US

TRACK 3: ARCHITECTURES

Introduction to HLA
20015

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 also describes the new features of HLA Evolved (IEEE 1516-2010) and the upcoming HLA version (HLA 4). Finally, it provides some recent experiences of the use of HLA in NATO M&S groups as well as an overview of recent evolution of Federation Object Models for military platform simulation, Space simulation and Air Traffic Control simulation. This tutorial is intended for all audiences; however, some familiarity with basic principles of distributed computing is recommended.

Presenters
BJÖRN MÖLLER, Pitch Technologies
ROBERT LUTZ, JHU/APL

Distributed Interactive Simulation (DIS) 101: The Basics
20031

The Distributed Interactive Simulation (DIS) protocol is a well-established IEEE standard for packet-level exchange of state information between entities in military simulations. DIS facilitates simulation interoperability through a consistent over-the-wire format for information, widely agreed upon constant enumeration values, and community-consensus semantics. Anyone can obtain the IEEE-1278 standard and implement their own compliant, interoperable, DIS application. A large variety of tools and codebases simplify this effort, and enable multi-architecture integration of simulations using the DIS stand baseline. DIS focus begins with real-time, physics-based, entity-scale simulations, providing state update and interaction mechanisms which can scale to large virtual environments. This tutorial is a "DIS 101" introduction for software implementers and an introduction to the DIS philosophy for simulation systems integrators. Examples are provided using the open-source Open-DIS library for DIS v7 and Enumerations support, available in multiple programming languages. Ongoing work is included in unit testing of DIS streams, and Web-based implementations using X3D Graphics, as well as Compressed DIS and DISv8 development.

Presenters
DON BRUTZMAN, Naval Postgraduate School
CHRISTIAN FITZPATRICK, Naval Postgraduate School

TRACK 4: M&S FUNDAMENTALS

Simulation Conceptual Modeling Theory and Use Cases
2001

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.

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
JACK BORAH, Borah Enterprises LLC

An Introduction to Cognitive Systems for Modeling & Simulation

2007

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., Soar Technology
DYLAN SCHMORROW, Ph.D., Soar Technology

Introduction to Department of Defense Modeling and Simulation

20014

This tutorial will describe the fundamental technologies, terms and concepts associated with Modeling and Simulation (M&S) and describe M&S development and application in the Department of Defense (DoD). The tutorial will cover various aspects of M&S including key M&S terms and concepts that describe M&S technology, development, and application. It will include: (a) M&S terminology and concepts used in the Department of Defense (DoD); (b) M&S technology, architectures and interoperability protocols and their role in enabling key functions in the DoD; (c) The processes for developing valid representations of: DoD warfighting capabilities, threat capabilities, natural environment, complex systems, cyber, autonomy, artificial intelligence/machine learning, and human and organizational behavior. 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; and the DoD M&S role in enabling key functions of the Department. This tutorial will identify key policies and procedures for DoD M&S, and present the critical role of Verification, Validation and Accreditation (VV&A) in ensuring that models and simulations meet the needs of their users. The tutorial will present the role of M&S Standards in the Defense Standardization Program, its role within the DoD M&S framework, and its impact in DoD M&S use. The tutorial will describe the characteristics and associated challenges of M&S applications within DoD functional areas including: Training, Analysis, Acquisition, Test and Evaluation, Experimentation, Planning, Medical, Mission Engineering, Autonomy, DoD Research and Development/Employment, and Intelligence. The tutorial will also identify accessible DoD M&S information resources and explain the role of the USD (R&E) DMSCO as the focal point of DoD M&S information, practice, technology, and functional use.

Presenters
JAMES COOLAHAN, Ph.D., Coolahan Associates, LLC
JOHN DALY, Booz Allen Hamilton

TRACK 5: DATA & INTEGRATION STANDARDS

An Introduction to RIEDP Concepts for Environmental Data Sharing

20020

This tutorial provides an overview of the fundamental concepts and components of RIEDP (Reuse and Interoperation of Environmental Data and Processes), developed within the Simulation Interoperability Standard Organization (SISO). The focus of RIEDP is on the harmonization of environmental/terrain database generation processes, and the means to exchange such generated data. RIEDP promotes reusability of database generation efforts and fosters interoperability between simulations by providing standardized rules, methods, and semantics for sharing data from key stages of the simulation database generation process. RIEDP leverages existing source data formats commonly used in GIS and simulation applications. RIEDP concepts and components are embodied in two SISO products: the RIEDP Data Model Foundations and the RIEDP Detailed Features Description. The tutorial will highlight key concepts from these RIEDP specifications and will provide an overview of the RIEDP Reference Process Model (RPM), the RIEDP Reference Abstract Data Model (RADM), and how RIEDP uses existing formats and a robust approach (including semantics through attributes and attribution, innovative and efficient use of metadata constructs, data organization on media, and a set of profiles for specific application sub-domains) to share and exchange environmental data.

Presenter
JEAN-LOUIS GOUGEAT, Sogitec Industries

NATO Simulation Interoperability - Certification, Tools and Standards for Federated Simulation

20021

NATO and partner nations regularly conduct multi-national simulation-based computer-assisted exercises. These exercises can be very large with several participating nations using their own simulation and C2 systems. One of the main challenges is to ensure interoperability between participating systems. To address this problem NATO relies on standards for federated simulation and tools & processes to verify and certify compliance with these standards.

This tutorial is focused on providing the wider community with an understanding of how NATO manages and develops standards for Modelling and Simulation. In particular, the tutorial will cover how the NATO Modelling and Simulation Group (NMSG) have worked to develop the NATO Education and Training Network (NETN) Federation Architecture and FOM Design. This standard (NATO STANREC 4800) is an Allied Modelling and Simulation Publication (AMSP-04) that complements and extends other standards for distributed simulation such as HLA and RPR-FOM commonly used when integrating distributed simulations for military training and education.

In the tutorial, we will provide in-depth information on these standards and how they are applied to provide NATO partners with the means for delivering systems with a higher level of interoperability. We will also provide information on the NATO Simulation Interoperability Certification process and available NATO tools to support verification, integration and certification. The concepts of Interoperability Capability Badges and Interoperability Requirements will be introduced and their relationship with NATO simulation interoperability certification will be explained in detail.

Presenters
BJÖRN LÖFSTRAND, Pitch Technologies
REINHARD HERZOG, Fraunhofer IOSB
LIEUTENANT COLONEL TOBIAS KUHN, NATO Modelling & Simulation Centre of Excellence
HORST BEHNER, Bundeswehr Joint Materiel Office

Building an Education and Training Data Strategy

20023

Throughout their careers, DoD personnel are educated or trained by numerous organizations, each using their own IT systems and business processes. Typically, these systems are developed and implemented independently, without coordination, causing duplication in function and stovepiping of the data maintained. Many of these systems also use proprietary data repositories. As a result, data transport, control, management, governance, and ownership are not easily compatible or interoperable across network boundaries. Therefore, there is now large-scale duplication of data and a lack of interoperability, transparency, and effective management to ensure DoD-wide data quality, availability, integrity, security and usability.

The Total Learning Architecture (TLA) is a set of policies, standards, and specifications, developed by the Advanced Distributed Learning (ADL) Initiative, that is driving the DoD's Enterprise Digital Learning Modernization initiative. The TLA vision features a robust data strategy that collects and maintains fine grained data across the learner's entire career arc. These data can leverage machine learning capabilities for personalization, adaptation, and recommendation across modalities, accommodating changes to the credential, the course content, and the trained systems, to support continuous improvement and validation of learning outcomes.

The standards included within the TLA allow for fielding and sustainment of education and training solutions that dynamically change and grow in response to new technology, or new approaches to learning, while normalizing data these systems generate about human capability. The normalized data facilitates a truly global learning analytics capability and enables the enterprise-wide planning of individual lifelong learning journeys in support of an organization's human capital supply chain.

This tutorial provides an in-depth understanding of the TLA data strategy and the future learning ecosystem it enables. It introduces learners to the core concepts of data interoperability and decomposes existing systems into the basic building blocks required to support lifelong learning. The TLA relies on four general data types including metadata about registered activities, the common definition of competencies required to perform different jobs, streaming data on learner performance, and enterprise learner records that manage data about experiences, credentials, and career trajectories.

Attendees will gain a good understanding of the core TLA services that publish or subscribe to these data and transform them into meaningful information. General guidelines will be provided for implementing these standards, building an integrated data strategy, and managing the lifecycle of learner data across the DoD enterprise."

Presenters

BRENT SMITH, Advanced Distributed Learning Initiative (SETA Contractor)
JERRY GORDON, Gibbs & Cox Maritime Solutions

Advanced Distributed Network Architectures for LVC

20028

The evolving live, virtual. Constructive (LVC) simulation training environment reflects the emerging battlespace. It is highly connected and the people and systems that are working simultaneously as information collectors, forwarders, and consumers generating hundreds of thousands of information exchanges a minute. The ever-growing number of sensors and the associated demand for peer-to-peer, real-time information exchanges is compounding the effect suggesting the need for a zero-barrier exchange environment.

The emerging environment challenges legacy the simulation & training construct, which has largely been built on stacks that provide a self-contained operating environment specific to a location. These legacy characteristics are limiting because when there is a change to underlying data sets and applications, as will be the norm in the future LVC environment, implementation across the full range of weapons systems is carried out on independent schedules via independent approaches that may alter the representation due to system-specific design limitations. The impacts are realized as concurrency gaps emerge and, in some cases, differences among system representation techniques create a non-level playing field.

Over the past two decades, those local assets have been linked via connecting environments that minimally serve up common elements of the scenario to each participate via standards-based interfacing system but, the legacy model is characterized by platform-centric systems that operate on a self-contained computational environment to represent core platform and weapons system performance. The future of simulation & training will be characterized by development & delivery of scenario-specific, vendor agnostic data and applications.

Getting to the objective state requires: a fundamental shift adopting a framework that eliminates barriers to exchange and collaboration across the entire simulation & training lifecycle - planing, preparing, executing, and assessing, incorporation of a rapid innovation capability; and an architecture to support cross-enterprise access from the labs, to the system program offices, to the intelligence centers, to simulation and training centers, to deployed mission rehearsal environments, to the units and to the individual.

Achieving the objective of full spectrum LVC training requires an architecture approach that recognizes that shared data & and agile applications will power the future. Approaches that will deliver performance in an environment characterized by: real-time collective event orchestration and multi-participant collaboration; advanced software defined networking, elastic & extensible cloud computing; cross-constellation consistency in cybersecurity; and multi-dimensional SecDevOps and Multi-Level Security operations.

Presenters

WILLIAM LOUISELL, Ph.D., Cisco Systems, Inc.
CHUCK OTTS, Cisco Systems, Inc.

Experimentation Campaign: Crafting the Future

20033

Today we find the term “experimentation” in many documents, particularly those revolving around the topic of multi-domain operations (MDO). But what do we mean by experimentation? Do we all mean the same thing? Discovery experimentation and experimentation campaigns can be very powerful in exploring and defining new capabilities whether materiel or evolution of tactics, techniques and procedures to account for new challenges. Discovery experimentation is a process for using simulation to place emerging technologies in the hands of warfighters engaged in virtual battlefields to explore the military utility of new concepts for using emerging systems. Discovery experimentation is designed to allow learning and modification from trial to trial and in that way differs significantly for both traditional scientific experimentation and technology demonstrations. It can be used to explore military utility of new technologies, development of new tactics, techniques and procedures for emerging systems, definition of requirements for control devices for new systems, and consequent needs for new training. This tutorial will walk through the definition of discovery experimentation and experimentation campaigns, illustrating the concepts with a partial discovery campaign completed in 2016 to test a new concept in close air support. Using the definitions and example provided, the tutorial will go on to explore the potential roles of discovery experimentation and experimentation campaigns in the evolution of concepts and capabilities for multi-domain operations. The presentation will examine the roles of constructive and LVC modeling and simulation capabilities in addition to modified live testing, including the issues of data collection. The importance of scoping and choosing rapid modification of simulation tools will be highlighted as a means of making experimentation campaigns viable in a resource-constrained environment.

Presenters

S. K. NUMRICH (SUE), Ph.D., CMSP, Institute for Defense Analyses
KEVIN WOODS, Ph.D., Institute for Defense Analyses

The Changing World of U.S Export Controls 2020

20044

The past year has seen significant changes to the U.S. export controls, including the publication of the last categories of the U.S. Munitions List and the Commerce Control List to be revised under Export Control Reform and changes and updates to key definitions and concepts in the U.S. export regulations. This tutorial will provide an understanding of the International Traffic in Arms Regulations (ITAR) and the Export Administration Regulations (EAR) and the impact of the recent changes on the regulations and the export of controlled goods, technologies and services. The tutorial will examine the scope of the U.S. export laws, how the U.S. Government applies them to the simulation industry, including controls on software, hardware, services and activities at trade shows such as I/ITSEC, as well as discuss examples of products and services, and associated licensing strategies, in the current regulatory environment.

Presenter
DARREN RILEY, Riley Trade Law PLLC

TUTORIAL PRESENTERS (IN ALPHABETICAL ORDER)

HORST BEHNER, Bundeswehr Joint Materiel Office, Branch, Chief, German Armed Forces, Joint Materiel Office, MSCO

JAKE BORAH is the co-owner of Borah Enterprises LLC. He is a Senior Simulations/Learning Architect for the U.S. Army PM ITTS Persistent Cyber Training Environment. Jake is a Charter Certified Modeling and Simulation Professional (CMSP). He has frequently supported U.S. and Canadian government sponsored military simulation projects because of his mastery of the M&S technology, and expertise in High Level Architecture federation development. Jake has a B.S. from the United States Air Force Academy and a Master of Aeronautical Science degree from Embry-Riddle Aeronautical University.

JOHN BREITENBACH is a Regional Field Application Engineering Manager for Real-Time Innovations, Inc. (RTI). John has over 30 year's experience designing real-time, connected systems for industrial, medical, consumer, and military systems.

DON BRUTZMAN is a computer scientist and associate professor working in the Modeling Virtual Environments & Simulation (MOVES) Institute at the Naval Postgraduate School (NPS) in Monterey California. A shared theme across all his projects is establishing Web-scale distributed simulation capabilities. Currently he cochairs the Extensible 3D (X3D) Working Group for the Web3D Consortium. He wrote the book X3D Graphics for Web Authors with coauthor Leonard Daly, published April 2007 by Morgan Kaufmann. He is a retired naval submarine officer and principal investigator for the Network Optional Warfare (NOW) project. His research interests include underwater robotics, real-time 3D computer graphics, artificial intelligence (AI), and high-performance networking.

JAMES E. COOLAHAN, Ph.D., is the Chief Technology Officer of Coolahan Associates, LLC, having retired from full-time employment at the Johns Hopkins University Applied Physics Laboratory (JHU/APL) in December 2012 after 40 years of service. He chaired the M&S Committee of the Systems Engineering Division of the National Defense Industrial Association from 2010 through 2016, and teaches courses in M&S for Systems Engineering in the JHU Engineering for Professionals M.S. program. He holds B.S. and M.S. degrees in aerospace engineering from the University of Notre Dame and the Catholic University of America, respectively, and M.S. and Ph.D. degrees in computer science from JHU and the University of Maryland, respectively.

DAMON CURRY has 30 years experience in the simulation industry specializing in distributed training systems, 3D visualization, and 3D terrain. He helped start several successful simulation industry companies and is presently Pitch Technologies' manager for business development in North America. Damon is co-inventor of a realtime image processing technique and a wireless video transmission method for virtual reality with one patent awarded and another patent pending. Prior to working in the simulation industry, he served 16 years with the US Air Force, including software engineering on cruise missiles and avionics engineering on the F-16. He is a graduate of The Ohio State University with a Bachelor of Science in Electrical Engineering.

JOHN DALY is a senior engineer with Booz Allen Hamilton. He currently leads a team providing modeling and simulation technical and policy support to the Defense Modeling and Simulation Coordination Office. He has worked with OSD, Joint Staff, COCOM, Service, and DISA clients in the development of simulation systems for: training, acquisition, operational decision support, visualization of complex phenomena, testing, analysis, and operational simulation applications embedded in command and control systems.

JEANINE A. DeFALCO, Ph.D., is a Research Psychologist (Adaptive Training) with the Army Futures Command, CCDC-STTC, Orlando. Current research projects include supporting ethical decision making mediated by human virtual agents, and developing pedagogical models for the Generalized Intelligent Framework for Tutoring (GIFT) to accelerate expert problem-solving in critical care medical education. Dr. DeFalco has recently been elected to the executive committee of the International Society for AI in Education (2020), and has been active member of IEEE's working group to develop standards for adaptive instructional systems (AISs) (2018). In 2019, Dr. DeFalco was recognized with the NTSA Modeling and Simulation Award, Education/Human Performance – Team Award, for Outstanding Achievement in Modeling and Simulation for her contributions on The Generalized Intelligent Framework for Tutoring (GIFT). Dr. DeFalco received her Ph.D. in Psychology from Columbia University (2017), specializing in Human Development/Cognitive Studies in Education with a concentration in Intelligent Technologies.

CHRISTIAN FITZPATRICK *(M.S., Modeling and Simulation, Naval Postgraduate School, 2009)* is currently a Faculty Associate - Research at the MOVES Institute, Naval Postgraduate School. Within the Department, Mr. Fitzpatrick teaches Advanced Simulation Networking. Prior to joining the Faculty at NPS, Mr. Fitzpatrick served in the Marine Corps as a KC-130 pilot and Air Support Control Officer. After receiving his degree from NPS in 2009, he served at Marine Corps Combat Development Command where he developed scenarios for combat simulations to analyze the Expeditionary Fighting Vehicle (EFV) and Joint Light Tactical Vehicle (JLTV) using DoD-approved tools including COMBATXXI. He also spent 3 years at the Office of Naval Research (ONR) where he served as a Program Manager and established a tactical cyberspace/electronic warfare S&T development program.

JEAN-LOUIS GOUGEAT holds a Master's degree in Electronics and Communications and an Engineering degree in Telecommunications (1987). He has been a senior project manager at SOGITEC since 2001. He has 25 years of experience with R&D projects for the French MoD, and more specifically 25 years in simulation projects for training of military personnel, including company level training with Live simulation, Flight training with Virtual simulation and Command & Staff training with Constructive simulation. He is in charge of the development of Distributed Mission Operation (DMO) activities at Sogitec. In this area, he was project manager of the AXED project aiming at developing the DMO in the French Air Force. He has been involved in various international efforts within NATO, from the genesis of the NATO PATHFINDER programme to the on going MSG-165 on Mission Training via Distributed Simulation among Alliance Air Forces. He is the Chairman of the Simulation Interoperability Standard Organisation (SISO) Product Development Group (PDG) on the Reuse and Interoperation of Environmental Data and Process (RIEDP).

JERRY GORDON was the Chief Architect and Technical manager overseeing the in house systems and software engineering efforts associated with the integration and evaluation of products in the ADL Initiative research Portfolio. Mr. Gordon has almost 30 years' experience as lead engineer for in-service engineering of propulsion and C4ISR systems, maritime, ground, and aviation training analysis, live/virtual/constructive simulation development, machine learning research, and serious games development. Mr. Gordon holds advanced degrees in Human Factors Engineering and Nuclear engineering, and has been active in the development of Model Based Systems Engineering (MBSE) techniques.

MIKE HERNANDEZ is a Senior Project Engineer at Design Interactive. His work in the Performance Augmentation Division includes conducting research and leading projects for a range of customers from the Department of Defense. Previously he worked as a SETA contractor with the ADL Initiative. In this role, he provided technical oversight of multiple programs related to competency-based learning, performance tracking, and data analytics. Prior to working with ADL, he spent six years working on the modernization of learning tools and technologies for the US Navy at NAWCTSD. He holds a bachelor's degree in Electrical Engineering from Florida Atlantic University and is a US Army veteran.

REINHARD HERZOG is leading the research group "Modelling and System Networking" at the Fraunhofer IOSB. He is responsible for the development of conformance test systems for various communication protocols and the design of communication infrastructures and integration middleware systems. Since 2012 Reinhard Herzog has been member of the NATO Modelling and Simulation Group "Enhanced CAX architecture, design and methodology (MSG-106) and was chairman of the NATO Modelling and Simulation Exploratory Team "Development of HLA Federates Compliance Testing Tool" (MSG-ET-035). Currently he is the NMSG-163 IVCTool activities lead.

ANDY JOHNSON is a SETA contractor and serves as the Specifications and Standards Manager at the ADL Initiative. His current focus at the ADL Initiative is on the identification of new standards and specifications that promote interoperability across DoD systems. Andy has led many working groups and standardization efforts, including those for the Experience API (xAPI). Andy has worked with the ADL Initiative for over 15 years and was one of the previous developers of the Sharable Content Object Reference Model (SCORM) and its accompanying research and tools. Andy received both his bachelor's degree in Computer Science and master's degree in Education, Communication and Technology from the University of Wisconsin-Madison. He is an avid lover of all things gaming related.

RANDOLPH M. JONES, Ph.D., Senior Artificial Intelligence Engineer and co-founder at SoarTech, is a leading developer of knowledge-rich intelligent agent software. He has been principal investigator for a variety of advanced R&D projects funded by ONR, ARI, DMSO, DARPA and other DOD agencies. He has previously held teaching and research positions at Colby College, the University of Michigan, the University of Pittsburgh, and Carnegie Mellon University. His areas of research include computational models of human learning and problem solving, executable psychological models, and full-spectrum intelligent behavior models. He earned a B.S. in Mathematics and Computer Science at UCLA, and M.S. (1987) and Ph.D. (1989) degrees from the Department of Information and Computer Science at the University of California, Irvine.

DANIELLE JULIAN, M.S., is a Research Scientist at AdventHealth's Nicholson Center. Her current research focuses on robotic surgery simulation and effective surgeon training. Her current projects include intelligent tutoring system, rapid prototyping of surgical education devices, and the evaluation of robotic simulation systems. She is a certified instructor for surgical robotics courses delivered to surgeons and OR staff members. Her background includes research in Human Factors and learning and training to enhance the higher-order cognitive skills of military personnel. She is currently a Ph.D. student in Modeling and Simulation at the University of Central Florida where she previously earned an M.S. in Modeling and Simulation, Graduate Simulation Certificate in Instructional Design, and a B.S. in Psychology.

LIEUTENANT COLONEL TOBIAS KUHN is a German Army officer acting as the Modelling & Simulation Services Branch Chief at the NATO Modelling & Simulation Centre of Excellence (M&S COE) in Rome, Italy. He joined the German Bundeswehr in 1998 as a mechanized infantryman. After finishing his degree in Computer Science at the University of the Federal Armed Forces in Munich, Germany in 2005, he changed into the IT branch of the German Armed Forces. From 2012 to 2014, he studied at the Naval Postgraduate School in Monterey (CA), USA where he finished with two Masters of Science in Operations Research and Applied Mathematics. At the M&S COE he is responsible for wargaming and simulation-based analysis. Moreover, his branch also fulfills the role of the Certification Entity for NATO's HLA interoperability certification.

KURT LESSMANN is the co-founder and Chief Technology Officer of Trideum Corporation headquartered in Huntsville, AL. Trideum, an Honor Roll Member of Inc. 5000, focuses on several core competencies: Live, Virtual and Constructive (LVC) Interoperability, Test & Evaluation (T&E), Training Solutions, Cybersecurity and User Centered Design. Mr. Lessmann has supported the Modeling and Simulation (M&S) and LVC communities for the past 25 years where he has been involved in interoperability standards development and deployment for DIS, HLA and TENA. His primary focus has been applying M&S and LVC technologies to enhance weapons system test and evaluation effectiveness. He is currently focusing on developing solutions that provide an operationally realistic distributed LVC environments that support weapon system cybersecurity vulnerability assessments. He holds a Bachelor of Aerospace Engineering Degree from Auburn University, lives in Huntsville, AL with his wife and three children.

KENNETH G. LeSUEUR, Ph.D., serves as the chief technologist in the Subsystems Test Division at the US Army Redstone Test Center (RTC). His work and research have been concentrated in HWIL testing, distributed testing, modeling and simulation, and high performance computing. He received his master's degree and doctorate in computer engineering at the University of Alabama in Huntsville.

BJÖRN LÖFSTRAND is a senior systems architect with over 20 years of experience in modelling and simulation research, standards development, simulation architectures and design of distributed simulation in support for training, analysis and experimentation. Mr Löfstrand provides key support to the Swedish Defence Materiel Administration (FMV) and the Swedish Armed Forces in the transformation of simulation-based training systems to meet current- and prepare for future requirements. This work includes engaging in NATO and international M&S standards development activities to evolve and develop standards that allow the smart design of simulation systems. He has been engaged in M&S standardization activities for many years including High-Level Architecture (HLA), Federation Development and Execution Process (FEDEP), Distributed Simulation Engineering and Execution Process (DSEEP), Base Object Models (BOMs), Real-Time Platform Reference FOM (RPR-FOM), and engaged in several NATO Modelling and Simulation Group (NMSG) technical activities. Björn is an NMSG Member at Large and has published and presented over 30 papers and articles at conferences and workshops worldwide such as ITEC, IITSEC, CAX Forum, and the NMSG Symposium. Mr Löfstrand has an M.Sc. in Computer Science from the University of Linköping (Sweden) and he is the Services and Training Manager at Pitch Technologies.

CHUCK LOUISELL, Ph.D., is a strategic programs manager at Cisco Systems, Inc. A prior USAF Weapons School instructor and Unit Commander, Chuck works across data center and cloud product lines.

ROBERT LUTZ is the Chief Engineer of the Intelligent Combat Platforms Group at the Johns Hopkins University Applied Physics Laboratory in Laurel, MD. Mr. Lutz currently serves in technical leadership positions on several autonomy science and technology (S&T) programs, such as the Safe Testing of Autonomy in Complex Interactive Environments (TACE) project. In addition, Mr. Lutz serves as the Chair of the Simulation Interoperability Standards Organization (SISO) Board of Directors and Vice Chair of the SISO Executive Committee; serves on the Tutorial Board and Fellows Committee at the Interservice/Industry Training, Simulation, and Education Conference (I/ITSEC); and is a guest lecturer on various M&S-related topics in The Johns Hopkins University Whiting School of Engineering.

BJÖRN MÖLLER is the president and co-founder of Pitch Technologies, the leading supplier of tools for HLA and other simulation standards. He received an M.Sc. in computer science and technology after studying at Linköping University and Imperial College, London. Mr. Moller has more than thirty years of experience in high-tech R&D companies, with an international profile in modeling and simulation. His experience includes positions in SISO and IEEE standards development groups such as vice chair for HLA, chair of the Real-time Platform Reference FOM and chair of the Space Reference FOM. Mr. Moller also served as secretary in the NATO MSG-080 group for Security in Collective Mission Training.

S. K. NUMRICH (SUE), Ph.D., CMSP, began her career at the engineering level of modeling and simulation and moved gradually into parallel and distributed simulation. She led a panel for The Technical Cooperation Program (US, UK, CA, AUS, NZ) in distributed simulation and represented the U.S. on the NATO Studies, Analysis and Simulation (SAS) panel as the simulation expert. Sue served as the Director of Technology for the Defense Modeling and Simulation Office. Since 2005 she has been a research staff member at the Institute for Defense Analyses where she has worked with the use of military simulation, the incorporation of human activity and behavior into simulations, and the validation of a variety of simulations. She founded and was the first chair of the Tutorial Board. Sue authored four book chapters and over 50 technical papers and has had two academic appointments. A Fellow of the Acoustical Society of America, Sue was selected as the I/ITSEC 2018 Fellow.

MICHAEL J. O'CONNOR, CMSP, is Chief Technologist at Trideum Corporation. Mr. O'Connor has more than 30 years' experience in Modeling and Simulation (M&S). He has been a key participant in the development of distributed modeling and simulation standards, including IEEE 1278 and IEEE 1516. He has held many positions in the community, including Chairman of the SISO Standards Activities Committee and Chairman of the SISO Executive Committee. He has served as the chair of the I/ITSEC Simulation Subcommittee the I/ITSEC Training Subcommittee. He has led the development of multiple simulations using DIS, HLA, and TENA. Mr O'Connor has led the technical integration of several large multi-architecture distributed events. He holds a bachelor's degree in Computer Engineering from Auburn University, and a master of science in Computer Science from the University of Alabama in Huntsville. Mr. O'Connor is a CMSP.

CHUCK OTTS is a Data Center Product Specialist for the Federal-Defense Area at Cisco Systems, Inc. He primarily works with the U.S. Air Force and System Integrators providing technical guidance on the future direction of data center architectures and software defined solutions. Chuck works with U.S. Air Force customers helping to identify technical requirements and develop next generation modern network architecture designs that exploit the capability of converged and virtualized data center functions within a mission context. Most recently, he has guided the inclusion of distributed data center functionality in the networks that support recapitalization of unmanned aerial systems ground stations. Through his career at Cisco, Chuck has served both federal and commercial organizations.

ROB PROCTOR is a Lead Field Application Engineer for Real-Time Innovations. He received his B.S. from Embry-Riddle Aeronautical University in Aerospace Studies and his M.S. from the University of South Florida in Engineering Management. Rob has over 24 years of experience in A&D Embedded SW development. Prior to his time as a Field Application Engineer, he developed and implemented real time embedded software at major Aerospace and Defense (A&D) Corporations. His roles have included developing software and system designs, mission-management and display processing systems. Rob is also involved with the SISO Layered Simulation Architecture (LSA) Study Group.

DARREN RILEY is a founding member and partner of Riley Trade Law PLLC. Mr. Riley has extensive experience advising clients on matters involving U.S. export controls and government contracts issues. He counsels clients on issues related to the International Traffic in Arms Regulations, Export Administration Regulations, the regulations of the Office of Foreign Assets Control and the Foreign Corrupt Practices Act. Mr. Riley has extensive experience advising high technology, defense industry and other clients about U.S. export control laws and other applicable statutes and regulations applying to international transactions. His experiences include conducting compliance audits and designing appropriate remedial measures, training, policies and procedures that satisfy regulatory requirements; developing and implementing export compliance systems and practices; and assisting U.S. companies and their foreign subsidiaries with understanding the limitations on doing business with countries subject to U.S. embargoes.

Mr. Riley assists clients with understanding and complying with the anti-bribery restrictions imposed by the Foreign Corrupt Practices Act. He has assisted clients with developing and establishing company practices and guidance to ensure that business activities comply with the requirements of the FCPA. Mr. Riley also has extensive experience counseling clients with commercial transactions and government contracts subject to the Federal Acquisition Regulations ("FAR") and Defense Federal Acquisition Regulation Supplement ("DFARS") regulations. He has conducted due diligence in connection with mergers and acquisitions involving government contractors and counseled clients on the potential government contract compliance risks and liabilities associated with the transactions. His practice focuses on assisting small businesses with obtaining business status certifications and navigating the complexities of doing business with government customers.

Prior to forming Riley Trade Law PLLC, Mr. Riley worked at a large Washington, DC law firm assisting clients in the areas of export controls, government contracts and commercial transactions. Mr. Riley is a member of the Defense Trade Advisory Group, U.S. Department of State and participates as member of several organizations and associations focused on international trade compliance. He is admitted to the Maryland bar and the District of Columbia bar. Mr. Riley earned his juris doctorate, cum laude, from the Howard University School of Law, has a masters degree from Columbia University Teachers College and earned his bachelors degree from Washington University in St. Louis.

DYLAN SCHMORROW, Ph.D., Chief Scientist at SoarTech, leads the advancement of research and technology tracks to build intelligent systems for defense, government, and commercial applications that emulate human decision making in order to make people more prepared, more informed, and more capable. He also serves as a Potomac Institute for Policy Studies Senior Fellow, Editor of the Theoretical Issues in Ergonomics Journal, and the Technical Advisor for the Applied Human Factors and Ergonomics Conference Series. He is one of the nation's leading experts on national security research, technology, and policy related to information technology, medical research and human performance applications. Past service includes OSD, DARPA, NAWC, NRL, ONR, Naval Postgraduate School, and Executive Assistant to the Chief of Naval Research. Dr. Schmorrow holds a Ph.D. in Experimental Psychology from Western Michigan University, as well as M.S. degrees in Psychology and Philosophy. He retired from the U.S. Navy as a Captain in 2013, after 20 years of service.

BRENT SMITH (SETA Contractor) is a Software Systems Architect with over 25 years of experience in designing and developing learning technologies for government stakeholders, defining R&D roadmaps to meet organizational objectives, and establishing chains of research that align with strategic goals. As the ADL Initiative Research, Development, and Engineering (RD&E) Principal, Mr. Smith helps ensure the ADL Initiative research agenda is aligned with its overall strategy.

ROGER SMITH, Ph.D., has spent 25 years creating leading-edge simulators for the Department of Defense and Intelligence Community. He has served as the Chief Technology Officer for the AdventHealth Nicholson Center; the CTO for the U.S. Army PEO-STRI; VP and CTO for training systems at Titan Corp; and VP of Technology at BTG Inc. He holds a Ph.D. in Computer Science, a Doctorate in Management, an M.S. in Statistics, and a B.S. in Applied Mathematics. He has published 3 professional textbooks on simulation, 17 book chapters, and over 100 journal and conference papers. His most recent book is Thinking About Innovation. He has served on the editorial boards of Transactions on Modeling and Computer Simulation and Research Technology Management journals.

ROBERT SOTTILARE, Ph.D., joined SoarTech as the Director of Learning Sciences in 2018 after completing a 35-year federal career in both Army and Navy training science and technology organizations. At the U.S. Army Research Laboratory, he led the adaptive training science and technology program where the focus of his research was automated authoring, instructional management, and analysis tools and methods for intelligent tutoring systems (ITSs) and standards for adaptive instructional systems. He is the father of the Generalized Intelligent Framework for Tutoring (GIFT), an award-winning open source, AI-based adaptive instructional architecture. GIFT has over 2500 users in 76 countries. GIFT has been integrated with a variety of augmented, virtual, and live simulation environments to guide and enhance learning and performance. Dr. Sottilare's current research includes the application of AI to enhance human performance, adaptive instruction, intelligent tutoring systems, educational data mining, and multi-agent architectures.

Dr. Sottilare has long history as a leader, speaker, and supporter of learning and training sciences forums at the Defense & Homeland Security Simulation, HCII Augmented Cognition, and AI in Education conferences. He is the founding chair of the HCII Adaptive Instructional Systems (AISs) Conference. He is a member of the AI in Education Society, the Florida AI Research Society, the IEEE Computer Society and Standards Association (senior member), the National Defense Industry Association (lifetime member), and the National Training Systems Association. Dr. Sottilare is an associate editor for the IEEE Transactions on Learning Technologies Journal. He is the founding chair of IEEE Project 2247 for the development of standards and recommended practices for AISs. He is a faculty scholar and adjunct professor at the University of Central Florida where he teaches a graduate level course in ITS theory and design.

Dr. Sottilare has also been a frequent lecturer at the United States Military Academy (USMA) where he taught a senior level colloquium on adaptive training and ITS design. He has a long history of participation in international scientific forums including NATO and the Technical Cooperation Program. He has over 225 technical publications in the learning sciences field with over 2200 citations. His doctorate is in Modeling & Simulation with a focus in Intelligent Systems from the University of Central Florida. Dr. Sottilare earned a patent (#7,525,735) for a high resolution, head mounted projection display using virtual target technologies to support virtual, live (embedded) and augmented reality training.

Dr. Sottilare is a recipient of the U.S. Army Meritorious Service Award (2018; 2nd highest civilian award), the U.S. Army Achievement Medal for Civilian Service (2008; 5th highest civilian award), the National Training & Simulation Association (NTSA) Team Award for Education & Human Performance (2019) for his contributions to GIFT, and two lifetime achievement awards in Modeling & Simulation: U.S. Army RDECOM (2012; inaugural recipient) and the NTSA Governor's Award (2015).

ART WERKENTHIN, CEO of RISC, Inc, has over 30 years' experience working with learning management systems (LMS). As an early xAPI enthusiast, Art led RISC to be the first to implement xAPI 1.0 in a commercial LMS. Since 2012, he has been an active participant on the ADL cmi5 committee. Art frequently presents and authors blog articles on both xAPI and cmi5 topics. RISC was also the first to implement cmi5 in an LMS in July of 2016. Art developed an open source cmi5 "AU Simulator" that can be used to test LMS implementations of cmi5. In addition, he developed the open source cmi5 client library for ADL in 2019. Art provides cmi5 consulting to both Learning & Development professionals and content tool vendors.

KEVIN WOODS, Ph.D., is a defense analyst, historian, and Deputy Director of the Joint Advanced Warfighting Division at the Institute for Defense Analyses (IDA). The division is primarily focused on providing analytic support to warfighters through the development of new and innovative approaches & capabilities that address emerging security challenges. The division's primary research portfolio consists of projects grouped into Joint Discovery Experimentation, Broad-Spectrum Horizon Scanning, Dynamic Red Teaming, and Comprehensive Lessons for Applied Learning. Prior to joining IDA, Dr. Woods served as a U.S. Army officer in a variety of global assignments including attack helicopter units, joint staffs, as well as training and development commands. He has a business degree from Auburn University, a degree in strategy from the U.S. Naval War College, and a Ph.D. in History from the University of Leeds. Dr. Woods is also the author and co-author of several books, articles, and studies regarding the military history of Iraq and the regime of Saddam Hussein.

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20314	**Enhancing Naval Enterprise Readiness Through Augmented Reality Knowledge Extraction** Victoria Claypoole, Ph.D., Kay Stanney, Ph.D., Design Interactive, Inc.; Christina Padron, Dynepic, Inc.; Ray Perez, Ph.D., Office of Naval Research
20502	**Towards the Development of an Automated, Real-Time, Objective Measure of Situation Awareness for Pilots** Sandro Scielzo, L3Harris; Ph.D., Justin Wilson, AT&T Center for Virtualization; Eric Larson, Ph.D., Southern Methodist University

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20355	**Virtual Living Room: Bridging the Physical Distance with Virtual Reality** Andrew Rukangu, Kelsey Mattingly, Anton Franzluebbers, Alexander Tuttle, Catherine O'Neal, Ph.D., Dawn Robinson, Ph.D., Sun Joo (Grace) Ahn, Ph.D., Kyle Johnsen, Ph.D., University of Georgia
20399	**Neuro-Optimization for Accelerated Learning Pace and Elevated Comprehension: Military Applications** JJ Walcutt, Ph.D.; Cort Horton, Ph.D., Dhiraj Jeyanandarajan, M.D., Col Walt Yates (Ret), QNeuro

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20433	**Teaming Artificial Intelligence with Digital Twins to Improve Training Effectiveness** Evan Oster, Kent Halverson, Ph.D., Zach Smith, Aptima, Inc.; Viviana Kypraios, RiverTech LLC/Akima

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20216	**Real-Time Simulation of Crowd Disasters** Christoph Lürig, Ph.D., University of Applied Science Trier

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20327	**Can Real-Time Artificial Intelligence Techniques Be Applied to Synthetic Environments?** Graham Long, Thales
20450	**Creating Geospecific Synthetic Environments Using Deep Learning and Process Automation** Bodhiswatta Chatterjee, Bhakti Patel, Hermann Brassard, Presagis

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20258	**Evolved Artificial Intelligence for Stochastic Clustering Unsupervised Learning** Randal T. Allen, Ph.D., CMSP, Lone Star Analysis

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20229	**Optimal Image to Lidar Deep Learning Regression for Height Estimation** (PUBLISH ONLY) Mark Rahmes, Ph.D., William Watkins, Glenn Boudreaux, L3Harris Corporation
20231	**Optimal Deep Learning Signal Classification with Wavelet Compressive Sensing** (PUBLISH ONLY) Mark Rahmes, Ph.D., Thomas Billhartz, David Chester, Ph.D., Chad Lau, Ph.D., L3Harris Corporation

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20322	**Utilizing Physical Props to Simulate Equipment in Immersive Environments** Jason Jerald, Ph.D., Jason Haskins, NextGen Interactions
20386	**Measuring Dynamic Occlusion Performance in Augmented Reality Training Systems** Patrick Garrity, U.S. Army Combat Capabilities Development Command Simulation & Training Technology Center (STTC); John Baker, Michael Martin, Ph.D., Scott Johnson, Jaime Cisneros, Juan Castillo, Kiel Ewing, ML Horizons

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20375	**Machine Learning Surrogates for Highly Realistic Simulations** Patrick Cannon, Ph.D., Rory Greig, Gioia Boschi, Christoforos Anagnostopoulos, Ph.D., Improbable
20504	**Generating Simulation Training Scenarios via Event Sequencing** Joshua Haley, Robert Bridgman, Robert Wray, Ph.D., Soar Technology, Inc.

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20306	**Create and Host Cyber Competition Using the Preliminary Persistent Cyber Training Environment (PCTE)** Cliff Zou, Ph.D., Bruce Caulkins, Ph.D., Christopher Thompson, Gabriel Bearden, Ty Sloan, Roy Laurens, University of Central Florida
20446	**Certified Modeling and Simulation Professional 3.0 – Reinvention!** Sean Osmond, CMSP, Contec; Steven Gordon, Ph.D., GTRI; Eric Weisel, Ph.D., Old Dominion University; Linda Brent, Ed.D., The ASTA Group LLC; Mikel Petty, Ph.D., University of Alabama in Huntsville; Ivar Oswalt, Ph.D., CMSP, The Mil Corporation; David "Fuzzy" Wells, Ph.D., CMSP, University of Central Florida – IST; Gregory Reed, Ph.D., CMSP, Northrop Grumman Corporation; George Stone, Ph.D., QinetiQ; Alan Lynch, Orange Technical College; Neal Finkelstein, Ph.D., National Center for Simulation

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20257	**Instrumentation Architecture Evolution to Enable Rapid Delivery of Training Solutions** Marwane Bahbaz, U.S. Army PEO STRI; Scott Clarke, AIT Engineering; Rodrick Stubbs, General Dynamics Mission System
20420	**Effective Data Management Strategies for Training and Readiness** Ahmed Humayun, Bryant Choung, Palantir Technologies, Inc.
20430	**Analytic Evaluation Strategies for Training Systems** Regan Patrick, Ed.D., CAE USA Mission Solutions

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20441	**Transfer Learning to Create and Understand Modular Content** Joshua Haley, Jeremiah Folsom-Kovarik, Ph.D., Alejandro Carbonara, Soar Technology, Inc.
20499	**Development of an Agile Workforce, Agilely: A Case Study** Anne Little, Ph.D., SAIC

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20371	**Human-Machine Teaming: What Skills Do the Humans Need?** Kara Orvis, Ph.D., Samantha Dubrow, Aptima, Inc.
20467	**The Makings of Effective Research!** M. Beth H. Pettitt, Ph.D., U.S. Army

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20288	**The Making of a NCO: From Team Member to Team Leader** Holly Baxter, Ph.D., Cognitive Performance Group; Larry Golba, Ph.D., U.S. Army Research Institute for the Behavioral and Social Sciences; Manuel London, Ph.D., Gary Sherman, Ph.D., State University of New York at Stony Brook
20326	**Exploring the Benefits of Adaptive Learning Methods** Evan Oster, Krista Ratwani, Ph.D., Aptima, Inc.; Alan Carlin, Ph.D., STR

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20416	**Factors Impacting Virtual or Augmented Reality Effectiveness in Training and Education** Jeffrey R. Liang, D.Eng., USAF

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20367	**AR Psychological Suitability: Training Receptivity and Training System Efficacy** Jennifer Riley, Ph.D., Kay Stanney, Ph.D., Peyton Bailey, Claire Hughes, Samuel Haddad, Cali Fidopiastis, Design Interactive, Inc.
20429	**Surgical Training Effectiveness Using Immersive Virtual Reality** Ryan Lohre, UBC Department of Orthopaedics; Aaron Bois, M.D., University of Calgary Department of Surgery Section of Orthopaedic Surgery; George Athwal, M.D., Western University Schulich School of Medicine and Dentistry/Roth McFarlane Hand and Upper Limb Centre, St. Joseph's Health Care; J. Pollock, M.D., Peter Lapner, M.D., University of Ottawa; Danny Goel, M.D., University of British Columbia Department of Orthopaedics/PrecisionOS Technology Inc.;

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20378	**Cognitive Expertise through Repetition Enhanced Simulation (CERES): Training to Understand Topographic Maps** Evan Grandoit, Marcia Grabowecky, Ph.D., Paul Reber, Ph.D., Northwestern University; Kevin Schmidt, The Air Force Research Laboratory
20388	**Performance Assessment in a Virtual Simulation for Integrated Austere Medical Operations Training** Benjamin Bauchwitz, Peter Weyhrauch, Ph.D., James Niehaus, Ph.D., Michael Makivic, William Manning, Charles River Analytics; John Broach, M.D., Peter Lancette, University of Massachusetts Memorial Medical Center; Christopher Garrison, Ph.D., Pennsylvania State University College of Nursing; Frank Ritter, Ph.D., Pennsylvania State University College of Information Sciences and Technology
20456	**Design Effective Virtual-Reality-Based Training by Linking Missions, Required Skills, and Training Methods: A Case Study of VR Applied to Help Improve Decision-Making Under Stress for Police Officers** Tim Marler, Ph.D., Susan Straus, Ph.D., Matthew Mizel, Ph.D., John Hollywood, Ph.D., Bob Harrison, Doug Yeung, Ph.D., Kelly Klima, Ph.D., Matthew Lewis, Ph.D., Theresa Kelly, Ph.D., RAND Corporation; Albert "Skip" Rizzo, Ph.D., Arno Hartholt, USC; Chris Swain, Spaces

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20217	**This is My Robot. There are Many Like It, but This One is Mine.** Daniel Yurkovich, Mollie McGuire, Ph.D., Christian Fitzpatrick, Naval Postgraduate School; Glenn Hodges, Ph.D., U.S. Army
20364	**Warfighter Physiological Status Prediction** Zhiqing Cheng, Ph.D., Innovision, LLC; Jingwen Hu, Ph.D., University of Michigan; James Yang, Texas Tech University; Diana Sanford, Ph.D., Reed Hoyt, Ph.D., Gary Zientara, Ph.D., USARIEM

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20276	**Intellection: A Game for Intelligence Collection Planning and Group Decision-Making Optimization** Mary Frame, Ph.D., Justin Morgan, Wright State Research Institute; Monique Brisson, Holly Zelnio, Ph.D., USAF;
20309	**Teamwork and Lethality in a Support by Fire Team** Gregory Goodwin, Ph.D., CCDC-SC; Katlin Anglin, Ph.D., CACI; Grace Teo, Ph.D., Quantum Improvements; Jacquelyn Schreck, Quantum Improvements Consulting

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20247	**From Silos to Manifolds: Strategies for Improved Learner Record Administration** Ashley L. Reardon, Advanced Distributed Learning Initiative
20383	**Metadata in the Future Learning Ecosystem** Yihua Liu, Advanced Distributed Learning Initiative

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PSMA 2: Beyond Dogma: Rethinking Policy

20213	**A New Approach to Policy: Creating a Culture of "Can."** Steve Ellis, Ph.D., Second Air Force; Kerry Shows, 2 AF/A3/6; Linda Ramirez, 2 AF/A3OS
20225	**Why are Lessons Not Learned, How Can Policy and Standards Ensure Data Exchange and Truly Enable Lessons to be Learned** Francisco J. Garcia de Paredes, Commander Spanish Navy, NATO - JALLC
20390	**Enterprise Digital Learning Modernization: What, Why, and Who Says So?** Kelly Sims, Office of Chief Management Officer; Sae Schatz, Ph.D., Van Brewer, Ph.D., Advanced Distributed Learning Initiative; Amy Rogers, DODHRA DCPAS; Sharon McMahon, OUSD(I)/HCMO

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20294	**MBSE for Simulator Sustainment: They Said It Couldn't Be Done** Christopher Reed, George Ayers, Jr., U.S. Air Force; Marilyn Evans, Huntington Ingalls Industries; Joseph Doak, Patrick Reynolds, Austin Abraham, Carlton Jackson, Buford McCusker, James Sermersheim, Huntington Ingalls Industries - Technical Solutions Division
20296	**Improving Requirements Development Efficiency and Quality with Decision Aids** Harry Sotomayor, Barbara Pemberton, Ph.D., U.S. Army PEO STRI; Paul Butler, Bill Fetech, Amy Lim, Taylor Talbott, The MITRE Corporation
20312	**Developing Capability Requirements for Training Systems** Byron R. Harder, Ph.D., TECOM (RTPD)

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PSMA 4: Operations and Innovation - Working in Harmony

20379	**Innovation Is Ugly: Managing Change in Operational Training Environments** Jennifer Lewis, CMSP, Joyner Livingston, Diana Pineda, CMSP, SAIC
20423	**Preparing for the Future of War - M&S Driven Operational Exercises in Support of Joint All-Domain Command and Control** Joshua W. Fuller, U.S. Army

PSMA 4 • MEET THE AUTHOR • WEDNESDAY, 2 DECEMBER 2020 • 1630-1800

PSMA 5: Experience Design for Simulation-Based Training

20418	**Demonstrating the Need for Usability Assessment within Software Development Standards** Mitchell Tindall, Ph.D., Beth Atkinson, Emily Anania, NAWCTSD, Emily Rickel, Barbara Chaparro, Embry-Riddle Aeronautical University
20476	**Re-Thinking the Tactical Small Unit Synthetic Training Model** Kevin Owens, Kevin Gupton, Applied Research Laboratories: The University of Texas at Austin, Benjamin Goldberg, Ph.D., CCDC - Soldier Center, Simulation and Training Technology Center, Kevin Hellman, Combined Arms Center Fort Leavenworth, KS

PSMA 5 • MEET THE AUTHOR • WEDNESDAY, 2 DECEMBER 2020 • 1630-1800

PSMA 6: Looking to the Future

20405	**Methodologies Applied on LT2 to Achieve a Long-Term Strategic Vision** Marwane Bahbaz, U.S. Army PEO STRI; Rowland Darbin, Benjamin Baker, General Dynamics Mission Systems
20465	**Advancing the Research Agenda for the Modeling, Simulation, and Training Community** David "Fuzzy" Wells, Ph.D., CMSP, SMST/IST, UCF; Eric Weisel, Ph.D., Saikou Diallo, Ph.D., Old Dominion University; Brian Goldiez, Ph.D., Virginia Modeling, Analysis, and Simulation Center; Curtis Blais, Ph.D., Naval Postgraduate School
20475	**VV&A Redux: The Case for Considering 4E Cognition** Nick Armendariz, Patricia Bockelman, Ph.D., University of Central Florida

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SIMULATION

SIM 1: Not Your Father's Operation Game

20243	**Generating Connected Synthetic Electronic Health Records and Social Media Data for Modeling and Simulation** Anne Tall, Cliff Zou, Ph.D., Jun Wang, Ph.D., University of Central Florida
20266	**A Novel Approach to Medical Team Training: Blended Reality Built on Open Source Platforms** Ed Sims, Ph.D., Rachel K. Wentz, Ph.D., Dan Silverglate, Vcom3D, Inc.; Conner Parsey, U.S. Army Futures Command
20317	**Addressing Tactical Combat Casualty Care in Synthetic Training Environments** William Pike, U.S. Army CCDC-SC STTC; Paul Cummings, Richard Madrid, Jr., Engineering & Computer Simulations Inc. (ECS)

SIM 1 • MEET THE AUTHOR • TUESDAY, 1 DECEMBER 2020 • 1630-1800

SIM 2: LVC - Fast and Easy as 1, 2, 3

20261	**Predictive Performance Modeling for Distributed Live, Virtual, Constructive Environments** Rebecca Cebulka, Ph.D., NAWCTSD
20265	**Cross Domain Security in Airpower Mission Training through Distributed Simulation** Manfred Roza, Ph.D., Arjan Lemmers, James Quarmyne, Netherlands Aerospace Center NLR; Peter Van Onzenoort, Royal Netherlands Air-Force Air & Space Warfare Centre
20329	**Rapid Simulation Model Development for Computer Generated Forces** Jackie Z. Zhang, Infinitas Engineering, Inc.

SIM 2 • MEET THE AUTHOR • TUESDAY, 1 DECEMBER 2020 • 1630-1800

SIM 3: 007 - Agent Based Sims

20285	**Never Feed It After Midnight – Testing Un-Intended Consequences in Simulation** Nicholas Moylan, XPI Simulation Ltd.
20407	**Adaptive Synthetic Characters for Military Training Simulations** Volkan Ustun, Ph.D., Rajay Kumar, Ph.D., Adam Reilly, University of Southern California Institute for Creative Technologies; Seyed Sajjadi, Adaptive Synthetic Characters for Military Training Simulations; Andrew Miller, NFlux, Inc.

SIM 3 • MEET THE AUTHOR • WEDNESDAY, 2 DECEMBER 2020 • 1630-1800

SIM 4: It's Just Semantics…

20220	**Semantic Segmentation and Data Fusion of Microsoft Bing 3D Cities and Small UAV-based Photogrammetric Data** Ryan McAlinden, Meida Chen, Ph.D., Andrew Feng, Ph.D., Lucio Soibelman, Kyle McCullough, Pratusha Bhuvana-Prasad, University of Southern California Institute for Creative Technologies
20221	**Generating Synthetic Photogrammetric Data for Training Deep Learning based 3D Point Cloud Segmentation Models** Ryan McAlinden, Meida Chen, Ph.D., Andrew Feng, Ph.D., Lucio Soibelman, Kyle McCullough, Pratusha Bhuvana-Prasad, University of Southern California Institute for Creative Technologies
20400	**Semantics-Aware 3D Segmentation and Modeling System for Immersive Simulations and Training Scenarios** Anil Usumezbas, Ph.D., Bogdan Matei, Ph.D., Rakesh Kumar, Ph.D., Supun Samarasekera, SRI International

SIM 4 • MEET THE AUTHOR • WEDNESDAY, 2 DECEMBER 2020 • 1630-1800

SIM 5: Morphing Meshes and Models

20270	**Methodology to Utilize Pre-Computed Voronoi Diagrams to Enable Dynamic Deformation and Destructibility of Environmental Meshes within a Simulation Environment** Ryan McAlinden, Raymond New, Kyle McCullough, Noah Nam, University of Southern California Institute for Creative Technologies
20365	**Turning Real World Objects into Photorealistic One Poly Models** Darren Flowers-Finley, Jonathan Bishop, Collins Aerospace
20389	**Physics-Based, Multi-Modal Synthetic Human Image Generator** Devendra Tolani, Ph.D., Mun Wai Lee, Ph.D., Eric van Doorn, Ph.D., Daniel Ashley, Gang Mei, Roger Xu, Intelligent Automation Inc., Zhiqing Cheng, Ph.D., Innovision, LLC, John Kerekes, Ph.D., Nina Raqueno, Ph.D., Rochester Institute of Technology, Huaining Cheng, Ph.D., Air Force Research Laboratory

SIM 5 • MEET THE AUTHOR • WEDNESDAY, 2 DECEMBER 2020 • 1630-1800

SIM 6: Can't We All Just Get Along Without Getting Sick?

20267	**Collaborative Development of Synthetic Task Environment by Academia and Military** Meredith Carroll, Ph.D., Summer Rebensky, Florida Institute of Technology; Wink Bennett, Ph.D., Xueyu Hu, Airman Systems Directorate, Warfighter Research Readiness Division
20382	**The Common Image Generator Interface - Is it Really?** (PUBLISH ONLY) Sean Duff, Kenny Dixon, CAE USA, Inc.

SIM 6 • MEET THE AUTHOR • THURSDAY, 3 DECEMBER 2020 • 1630-1800

SIM 7: From Carrier Pigeon to Tweeting – Winning the Software Battles

20384	**Using a Design Structure Matrix for Representing Network Topologies** Andrew N. Hand, Pinnacle Solutions, inc.
20444	**Training Responses to Cyber Attacks in a Perception-Based Campaign Model** Charles Burdick, CAP Innovative Decisions, Inc.; Deepinder Sidhu, Ph.D., Cyberspace Analytics Corporation

SIM 7 • MEET THE AUTHOR • THURSDAY, 3 DECEMBER 2020 • 1630-1800

SIM 8: Modeling the Future

20223	**Using Visual Analytics to Manage Experimental Frames** Rob Barwell, Carleton University; Peter Dobias, Ph.D., Defence Research and Development Canada
20380	**Population Migration Decision-Making** Neil Sleevi, CGI Federal; Steven Hall, Ph.D., Anne Marie Baylouny, Ph.D., Matthew Zefferman, Ph.D., Susan Aros, Ph.D., Naval Postgraduate School; Jumanne Donahue, Ph.D., TRADOC G-2 M&S
20455	**Implementation of Autonomous Vehicles within a Multimodal Traffic Simulation Framework** Eliot Winer, Ph.D., Vijay Kalivarapu, Ph.D., Iowa State University

SIM 8 • MEET THE AUTHOR • THURSDAY, 3 DECEMBER 2020 • 1630-1800

TRAINING

TRNG 1: Modeling and Training to Hard Problems

20325	**Virtual Leadership Simulator – The Missing Gap in Soft Skills Training** Andrew Clayton, Ed.D., Air University; Carrie Straub, Ph.D., Mursion
20488	**Visualizing the Logistics Dimension with Map-based Simulations** Michael Hugos, SCM Globe Corp; Dennis Duke, Ed.D., Florida Institute of Technology
20498	**Moving Beyond Communities of Practice (CoPs): Supporting Grassroots Knowledge Sharing** Lara Bove, SAIC

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TRNG 2: Keeping it Real with AR/VR

20245	**Digital Firing, A New Way of Training** Joachim Laguarda, Kevin Ly Van, Ph.D., Benoit Houssu, Thales
20336	**Situational Awareness Methods in Virtual Reality Training: A Scoping Review** Kaitlyn Ouverson, Melynda Hoover, Stephen Gilbert, Ph.D., Michael Dorneich, Ph.D., Eliot Winer, Ph.D., Iowa State University
20376	**Virtual Reality for Transportation Incident Management Training of First Respondents in Remote Areas** Bruno Edmond, Ph.D., Max Kinateder, Ph.D., Natalia Cooper, Ph.D., Irina Kondratova, Ph.D., P.Eng., Chunyun Ma, Ph.D., Cathy Agyemang, Helene Fournier, Ph.D., National Research Council Canada

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TRNG 3: Enhancing Team Training	
20281	**Mapping e-Learning Preparation to Training Objectives in a Multinational Exercise: A Q-Matrix Approach** Biljana Presnall, Jefferson Institute; Ryan Baker, Ph.D., University of Pennsylvania
20289	**A Qualitative Study on Behavioral Markers of Team Cohesion and Efficacy to inform the Army's Synthetic Training Environment** Sean Normand, Ed.D., Northrop Grumman; Joan Johnston, Ph.D., CCDC Soldier Center Simulation & Training Technology Center (STTC)
20345	**Capture-the-Flag: Paradigm Utility for Enhancing Red Team Readiness** Tashara Cooper, Jonathan Harris, Ph.D., NAWCTSD
TRNG 3 • MEET THE AUTHOR • WEDNESDAY, 2 DECEMBER 2020 • 1630-1800	
TRNG 4: WTF: Win! Train! Fight!	
20280	**"You Have Control, AI Has Control" The 2030 Flying Instructor?** Helen Gardiner, Thales UK
20341	**Air Force Orbital Mechanics and Space Operations Training in Virtual Reality** Matthew Fahnestock, U.S. Air Force
20344	**Mission Training through Distributed Simulation for Joint and Combined Air Operations** Arjan Lemmers, Royal Netherlands Aerospace Centre NLR, Richard Hemmings, Clark Swindell, USAFE AFAFRICA
TRNG 4 • MEET THE AUTHOR • WEDNESDAY, 2 DECEMBER 2020 • 1630-1800	
TRNG 5: Data Driven Recommendations	
20297	**MILES Emitter Unit Integration for Area Coverage Weaponry** Samantha Markowitz, Brendan O'Neil, Edward Cole, Matthew Tomik, U.S. Army CCDC AC
20360	**Data Visualization to Improve Evaluation for Live Training** Grace Teo, Ph.D., Eric Sikorski, Ph.D., Jennifer Murphy, Ph.D., Quantum Improvements Consulting; Gregory Goodwin, Ph.D., U.S. Army Combat Capabilities Development Command - Soldier Center (CCDC SC)
20396	**Defense Workforce Readiness Pipeline** JJ Walcutt, Ph.D.; Robert H. Epstein, Air Force Agency for Modeling and Simulation; James Torgler
TRNG 5 • MEET THE AUTHOR • WEDNESDAY, 2 DECEMBER 2020 • 1630-1800	
TRNG 6: Military Applications for Personalized Learning	
20227	**Precision Learning at CSCS: Teaching to the Student, Not Just the Class** Janet Spruill, Aptima, Inc.; Lloyd Kleinman, II, U.S. Navy Center for Surface Combat Systems (CSCS); Jeffrey Beaubien, Ph.D.
20287	**Adaptive Blended Learning Experience (ABLE)** Jody Barto, Ed.D., Tarah Daly, Cognitive Performance Group; Amy Lafleur, USMC Training Command
TRNG 6 • MEET THE AUTHOR • WEDNESDAY, 2 DECEMBER 2020 • 1630-1800	

TRNG 7: From Physical to Virtual: Challenges and Opportunities in Medical Training	
20410	**Same Injury, Different Outcome? Investigating Hesitation while Treating Female Casualties** Jessica Bell, Robert Thomson, Ph.D., United States Military Academy at West Point; Mark Mazzeo, U.S. Army Combat Capabilities Development Command; William Pike, Ph.D., U.S. Army CCDC-SC STTC
20496	**Designing Serious Games to Train Medical Team Skills** Ashley McDermott, Ph.D., James Niehaus, Ph.D., Peter Weyhrauch, Ph.D., Charles River Analytics
TRNG 7 • MEET THE AUTHOR • THURSDAY, 3 DECEMBER 2020 • 1630-1800	
TRNG 8: Unmanned, Unarmed and Artificially Intelligent	
20302	**A Framework for Action Detection in Virtual Training Simulations Using Synthetic Training Data** Andrew Feng, Ph.D., Andrew Gordon, Ph.D., University of Southern California Institute for Creative Technologies
20436	**Maintenance Training with Digital Twins and Structured Machine Learning** Jeremiah T. Folsom-Kovarik, Ph.D., Robert Sottilare, Ph.D., Soar Technology; Ray Perez, Ph.D., Office of Naval Research
20447	**Considerations for Adapting Training Technologies for Manned-Unmanned Teaming Operations** Emily Anania, Ph.D., Beth F. Wheeler Atkinson, Tawne Frick, James Pharmer, Ph.D., John Killilea, Ph.D., NAWCTSD
TRNG 8 • MEET THE AUTHOR • THURSDAY, 3 DECEMBER 2020 • 1630-1800	
TRNG 9: Using Evidence to Demonstrate Effective Training	
20206	**Performance Measurement Applications and Associated Data Requirements for LVC Training** Jeffrey Beaubien, Ph.D., Michael Tolland, Jared Freeman, Ph.D., Aptima, Inc.
20224	**Quantifying Learner Expertise Using Unobtrusive Measures of Cognitive Load During Training** Jeffrey Beaubien, Ph.D., John Feeney, Ph.D., Noah DePriest, Aptima, Inc.; Rachel Elkin, M.D., David Kessler, M.D., Nathaniel Damaghi, Columbia University Irving Medical Center; Todd Chang, M.D., Children's Hospital
TRNG 9 • MEET THE AUTHOR • THURSDAY, 3 DECEMBER 2020 • 1630-1800	

Continuing Education Units: A vIITSEC Opportunity

"CEUs are a convenient and efficient way to keep track of my participation in professional development activities."

Continuing Education Units (CEU) were established in 1970 to create a unit of measurement to quantify continuing education and training activities. CEUs apply to technical and educational settings such as vIITSEC. The primary focus of vIITSEC 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 and Paper Sessions**, CEUs are managed and maintained by the University of Central Florida, Division of Continuing Education.

Why should I earn CEUs at vIITSEC?

- Participation in the tutorials, papers 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 and Papers are CEU eligible.
- Who may attend these events? The Paper and Tutorial 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 a $45 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 vIITSEC?

1. Be sure you are appropriately registered (you can confirm when you check in onsite) for CEU credits.
2. Login to your account in the Attendee Service Center on the virtual platform.
3. Once available, add all the Paper/Tutorial Sessions you plan to view into your profile, under My Sessions.
4. Once on the virtual platform you may also continue to add Papers/Tutorials to your account inside the auditorium by clicking on "Add to my agenda"
5. All sessions must be added before vIITSEC closes on Friday, 4 December
6. Your sessions will then be sent to UCF for processing of your CEUs.
7. 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.

Contacts

CEU processing: Jana Breburdova, **jana.breburdova@ucf.edu** or **407-882-0247**
Virtual Sessions/Profile Assistance: Reneé Despot, **rdespot@ndia.org** or **703-247-9490**

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. vIITSEC provides an excellent opportunity for the DoD acquisition workforce members to earn mandatory CLPs.

STEM

STEM Week at vIITSEC

Please join the National Training and Simulation Association (NTSA) as we host STEM Week at the vIITSEC conference. Concurrent with vIITSEC, we are planning a week of STEM activities for teachers, students, and academicians across the country.

Classroom activities, scheduled between 10:00 and 3:00 eastern on Monday and Tuesday, will include:

- A career panel of experts guiding students interested in STEM careers
- Tours of booths, companies, and Government agencies focused on modeling and simulation technologies
- Our STEM Pavilion hosting national programs and activities
- Presentations and demonstrations by high school students on projects using technology and simulation
- Tours of labs around the country
- For teachers, there will be special sessions on Monday and Tuesday from 4:00 p.m. – 6:00 p.m. eastern time with hands-on teacher training opportunities

For teachers, there will be special sessions on Monday and Tuesday from 4:00 p.m. – 6:00 p.m. Eastern time with hands-on teacher training opportunities. All programs will also be recorded and available for the remainder of STEM week.

For a complete schedule of events, and to register for any or all of the events of STEM week and vIIITSEC, please visit us at **https://tinyurl.com/yy9mc5u9**. All STEM week activities are free to students and teachers and the teachers who register early for STEM week will also have the opportunity for a complimentary registration to vIITSEC!

MONDAY, 30 NOVEMBER 2020

0900-1100 **Health Science and Modeling, Simulation, and Training**
REGISTRATION LINK:
https://attendee.gotowebinar.com/register/4692462050870182416

1300-1500 **Engineering and Robotics in Modeling & Simulation**
REGISTRATION LINK:
https://attendee.gotowebinar.com/register/3793144002721577744

1500-1600 **Innovation in Simulation Education: High School and Technical School Lab Tours**
REGISTRATION LINK:
https://attendee.gotowebinar.com/register/5208612391389428240

1500-1600 **COMAP High School Mathematical Contest in Modeling (HiMCM): Integrating Modeling Into Your Classroom and Curricula**
REGISTRATION LINK:
https://attendee.gotowebinar.com/register/7728984412833794574

1600-1630 **How to Help Your Students Earn a Modeling and Simulation Certification with the National Center for Simulation: High School and Technical School Educators**
REGISTRATION LINK:
https://attendee.gotowebinar.com/register/2733794236196247054

1600-1745 **Introduction to Modeling: Let's Get Started**
REGISTRATION LINK:
https://attendee.gotowebinar.com/register/3001393376145973518

TUESDAY, 1 DECEMBER 2020

0900-1100 **Cyber Security & Computer Science in Modeling & Simulation**
REGISTRATION LINK:
https://attendee.gotowebinar.com/register/6552048474764377872

1100-1200 **Get Ready to Model! How to Succeed in a Modeling Contest**
REGISTRATION LINK:
https://attendee.gotowebinar.com/register/2555253339054168080

1200-1300 **Career Panel – So You Want to Be in a STEM Career?**
REGISTRATION LINK:
https://attendee.gotowebinar.com/register/23581636611856656

1300-1500 **Military in Modeling & Simulation**
REGISTRATION LINK:
https://attendee.gotowebinar.com/register/8879419921649272332

1400-1500 **Future Leaders Pavillion Q&A Session A**
REGISTRATION LINK:
https://attendee.gotowebinar.com/register/5899701628935159568

1500-1600 **Future Leaders Pavillion Q&A Session B**
REGISTRATION LINK:
https://attendee.gotowebinar.com/register/5899701628935159568

1500-1600 **Innovation in Simulation Education: High School and Technical School Lab Tours**
REGISTRATION LINK:
https://attendee.gotowebinar.com/register/5057064504709447948

1600-1630 **How to Help Your Students Earn a Modeling and Simulation Certification with the National Center for Simulation: High School and Technical School Educators**
REGISTRATION LINK:

1600-1700 **How to Create an Avatar from a Photograph!**
REGISTRATION LINK:
https://attendee.gotowebinar.com/register/5010054885064443408

WEDNESDAY, 2 DECEMBER 2020

1100-1700 **UNIVERSITY COHORT MEETING EVENT**
1200-1315 I/ITSEC's Value to the Academy
1330-1445 Opportunities for Federal Funding in Support of University-based Research
1500-1530 Overview of the Certified Modeling and Simulation Professional Program (CMSP)
1545-1700 Future Research Requirements to Advance the Army's Training Capabilities
REGISTRATION LINK:

1530-1730 **nCASE Intro to Arduino Overview**
REGISTRATION LINK:
https://attendee.gotowebinar.com/register/2306522918173078798

THURSDAY-FRIDAY, 3-4 DECEMBER 2020

1200-1800 **On-Demand Programs, including Monday-Tuesday events**

Visit STEM Pavilion at vIITSEC for more information.

SERIOUS GAMES
SHOWCASE & CHALLENGE

The Serious Games Showcase and Challenge (SGS&C) invites you to join us in celebrating our 15th anniversary. In lieu of holding our annual challenge, our vIITSEC booth will take you on a journey through the evolution of serious games as experienced through the lens of past SGS&C participants.

Founded in 2006, the SGS&C aimed to bring awareness of the impact that games have on learning, and to provide quality exemplars to amplify the serious application of games.

This year's vIITSEC event will tell the stories of how the event has achieved these goals.

For 14 years, SGS&C has consistently provided a showcase of exceptional games at I/ITSEC, while offering developers recognition as finalists and award winners. For the 2020 vIITSEC event, we are digging deep into our archives of prior finalists, winners, event leadership, and sponsors to share key trends that have shaped our serious game history.

Join us to gain insight into the future of serious games informed by historical patterns and trends.

We invite you to visit our virtual booth throughout the conference to view on-demand content highlighting the evolution of serious game design and key industry-shaping technology -- elements that contributed to the current industry position, and those that influence future forecasts of serious game design and employment.

Choose your own path, select among video narratives on the growth and impact of games in consistently represented market segments: military, healthcare, and education. Hear stories told from a variety of game developer, early adopter, and influencer perspectives.

By joining us, those interested in the use of games for serious purposes will be enlightened by historical patterns and trends to inform future thinking on the application of serious games.

Access the event on demand via the Serious Games booth in the Exhibit Area

Look for our traditional **Serious Games Showcase & Challenge** to return to I/ITSEC in 2021

For more information:
Jenn McNamara
jmcnamara@breakawaygames.com

sgschallenge

@sgschallenge

sgschallenge.com

serious-games-show-case-challenge

30th Annual RADM Fred Lewis Postgraduate Scholarship Recipients

In honor of RADM Fred Lewis, the former President of NTSA, these scholarships are offered to stimulate student interest and university participation in preparing individuals for leadership in the Modeling & Simulation, Training and Education communities. By investing in our future workforce, the scholarships encourage expansion of the I/ITSEC community and promote innovation through direct investment in our community's future leaders. The awards are offered at a Masters level in the amount $5,000, and at a Doctoral level in the amount $10,000.

M. Einaam Alim
The University of Alabama in Huntsville
Computer Engineering

Desmond Bonner
Iowa State University
HCI & Industrial Engineering

Lauren Campbell
George Mason University
I/O Psychology

Tashara Cooper
University of Central Florida
Combined ISD and Modeling & Simulation

Victoria Lew
Embry-Riddle Aeronautical University
Human Factors

Kendall Moore, Jr.
Mississippi State University
Computer Science

Olivia Newton
University of Central Florida
Modeling & Simulation

Robert Philpott, III
Iowa State University
Aerospace Engineering

Barbara McDaniel Undergraduate Scholarship

NTSA continues the **Barbara McDaniel Undergraduate Scholarship** program this year to acknowledge the substantial contributions of a long-time I/ITSEC leader. Mrs. McDaniel, the recipient of the I/ITSEC 2017 Lifetime Achievement Award, tirelessly supported all aspects of I/ITSEC since 1993. She began her career as an educator, so these awards will honor her life-long passion in the education of our youth. NTSA understands the importance of students pursuing Modeling & Simulation degrees and how vital it is to the modeling, simulation, and training (MS&T) industry. These new scholarship awards will keep the MS&T workforce pipeline filled, now starting at the Undergraduate level.

In its second year, NTSA awarded $10,000 to each of three universities:

- **Alabama A&M**, Huntsville, AL
- **Seminole State University**, Heathrow, FL
- **Wright State University**, Dayton, OH

4th Annual Leonard P. Gollobin Postgraduate Scholarship Recipients

Alexxa Bessey
Clemson University
I/O Psychology

Emily McCabe
Mississippi State University
Mechanical Engineering

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.

IMPORTANT DATES FOR 2021

When to Apply Applications must be postmarked by 25 June 2021. (Don't Delay!)

How to Apply See **http://www.iitsec.org/education/students-and-teachers/scholarships** for complete application details.

Award Announcement 6 August 2021

Post Graduate 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 2021).

See Study Disciplines at **http://www.iitsec.org/education/students-and-teachers/scholarships**

Award Amounts Available for Fall 2021
$10,000 (Doctoral Candidates)
$5,000 (Masters Candidates)
Be our guest at I/ITSEC 29 Nov – 3 Dec 2021

Direct Further Inquiries and Provide Submissions
I/ITSEC Scholarship Program
c/o The National Training and Simulation Association
2101 Wilson Boulevard, Suite 700
Arlington, VA 22201
(703) 247-9490 or **rdespot@ndia.org**

Scholarship Chair
Janet Spruill, Aptima, Inc.

EXHIBIT HALL

NTSA Sustaining Member • NTSA Regular Member • NTSA Associate Member

As of 27 November 2020

3D Planeta
4C Strategies
5DT (Fifth Dimension Technologies)
Adobe
Advanced Simulation Technology, Inc. (ASTi)
AIVA
A P Ventures, LLC (APV)
Atlantic Canada Aerospace & Defence Association (ACADA)
Australian Department of Defence
Avalon Holographics
B-Design 3D Ltd.
Bagira Systems Ltd.
Bihrle Applied Research Inc
Bluedrop Training & Simulation
Boeing
Bohemia Interactive Simulation
Booz Allen Hamilton
Brightline Interactive
Brunner Elektronik AG
CAE
CAE Healthcare
Cervus Defence and Security Ltd.
Chiron Global Tech Pty. Ltd.
Collins Aerospace
Compusult Ltd.
Contec Americas, Inc.
Cubic Mission and Performance Solutions
Dedicated Computing
Dell Technologies
Deloitte Consulting LLP
Design Interactive, Inc.
Diamond Visionics LLC
Dynepic, Inc.
Eduworks Corporation
Engineering & Computer Simulations
Epic Games
Flightsafety International
GaardTech Pty. Ltd.
General Dynamics Information Technology
General Dynamics Mission Systems
Georgia Tech
Google LLC
GSA Federal Acquisition Service & FEDSIM
IAI
Immersive Display Solutions, Inc.
Immersive Wisdom, Inc.
InVeris Training Solutions
Iron Dev
IT²EC
KBR
Kognitiv Spark
Kongsberg Digital
Kratos
L3Harris
Laerdal Medical
Leidos
Lockheed Martin
LSI, Inc.
LuxCarta
MACE Virtual Labs
MAK Technologies
ManTech International
Marathon Targets, Inc.
Marine Corps System Command (PM TRASYS)
MBX Systems
Military Officers Association of America (MOAA)
Modeling and Simulation Enterprise (MSE)
Modest Tree
MS&T Magazine/Halldale Group
National Defense Industrial Association (NDIA)
National Security Technology Accelerator
National Training & Simulation Association (NTSA)
Naval Air Warfare Center Training Systems Division
Northrop Grumman Corporation
Phoenix Defense
Pitch Technologies AB
PLEXSYS Interface Products, Inc.
PNY Technologies
Precision Flight Controls
Presagis
PTC
QINETIQ
QRA Corp.
Quantum3D/HAVELSAN
RAVE Computer Association, Inc.
Ravenswood Solutions
Raytheon Intelligence & Space
Real-Time Innovations (RTI)
Red Lotus Technologies
REDspace, Inc.
Rheinmetall Electronics GmbH
RUAG Simulation & Training AG
Saab
SAIC
Scalable Display Technologies, Inc.
SCALABLE Network Technologies
SCM Globe Corp
Serious Games
SimFront Simulation Systems
SimiGon, Inc.
Smart Eye AB
Soar Technoloy, Inc.
Sony Electronics, Inc.
SSE
STEM Pavilion
Stirling Dynamics
Technical Systems Integrators, Inc.
Tobii Pro
Trideum Corporation
Twin Oaks Computing
UCF School of Modeling, Simulation, and Training
UNIGINE Holding S .a r.l.
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INNOVATION SHOWCASE

Session Title	Company Name
Learning in the New Age and Amidst a Pandemic	Adobe
B-One Playground - Train Where You Are	Bagira Systems
Training for Military Readiness	Boeing
Innovating Training for the Digital Battlespace	Booz Allen Hamilton
Digital Immersion for Training and Operational Support	CAE
Panorama HiLite Product Launch	Collin Aerospace
Accelerating the Future of Live-Virtual-Constructive Training Convergence	Cubic Mission and Perfomance Solutions
Ready Solutions for Al	Dell Technologies
The Innovation Path: Going from Dissemination to Adoption	Epic Games
FlightSafety international Innovation in Tranining Technology	FlightSafety International
Innovating for Tomorrow Today	L3Harris
vIITSEC 2020 Exclusive SimMan 3G Overview	Laerdal Medical
Critical Capability Chat: Distributed Mission Training with Lockheed Martin	Lockheed Martin
ManTech Solutions and Innovation	ManTech
QinetiQ, Create it, Test it, Use it	QinetiQ
Identifying the Most Common Pitfalls of Immersive Training Programs	RAVE Compter
Operationally-focused Training to Close Critical Skill Gaps in the Cybersecurity Workforce	Raytheon Intelligence & Space
Affordable Date-Driven Training, Delivered at the Point of Need	SAIC
SCALABLE Network Technologies Network Digital Twins	SCALABLE Network Technologies
Integrated Training Decision Support System	SimFront Simulation Systems
Virtual Table Top (VTT) and CyberChEC: Reimagining the Future	Trideum Corporation
How VR is Boosting Innovation. Featuring GE Hitachi Nuclear Energy, "El Retono" University and The Spanish Military Health School	Virtualware
VRgluv Haptic Force Feedback Gloves for VR Traning	VRgluv

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Show Daily

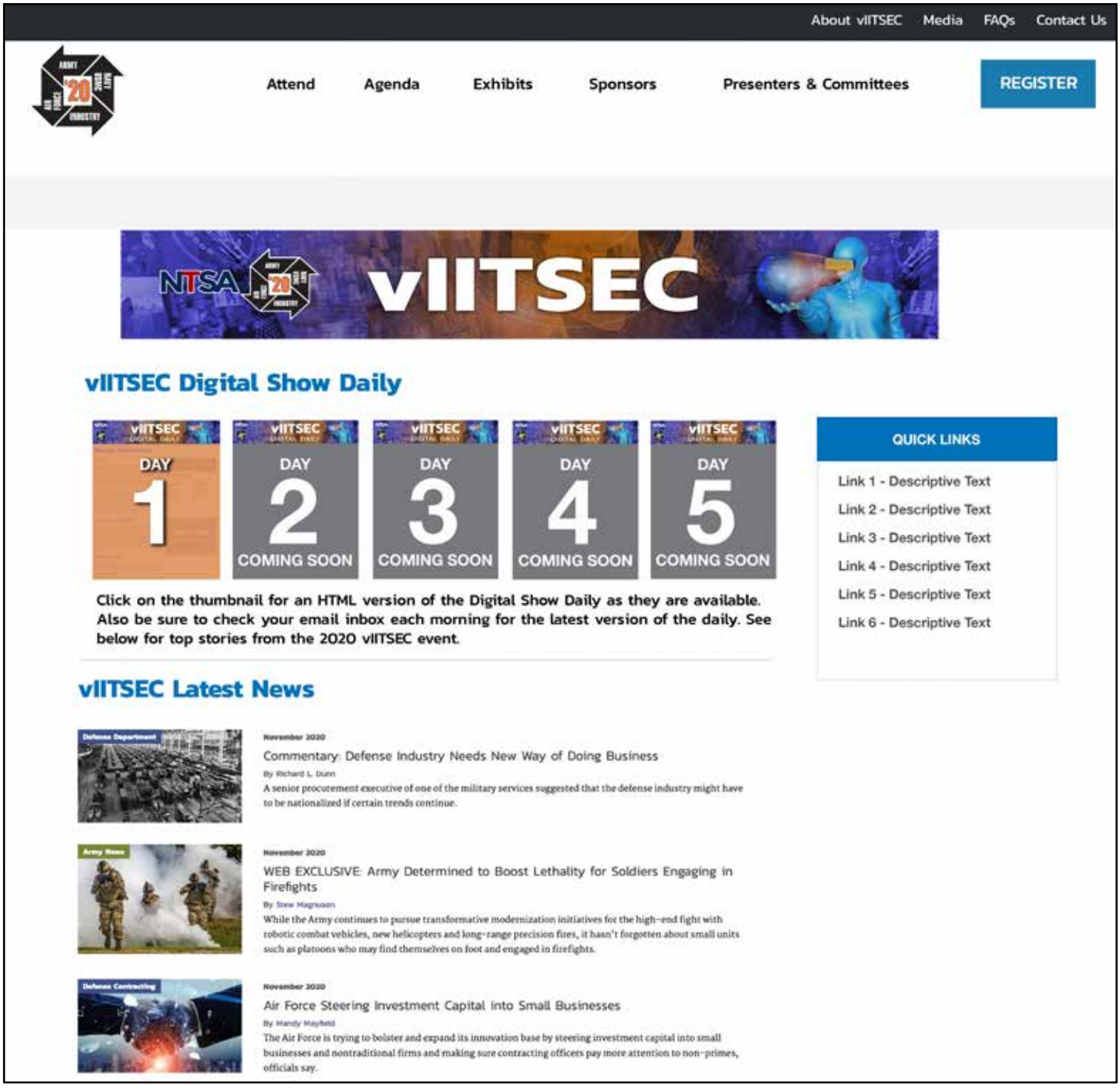
Visit the Show Daily website where attendees of the conference will be able to keep up with conference highlights, editorial content, a daily wrap-up, and a look-ahead for the next day.

vIITSEC Proceedings

The vIITSEC Knowledge Repository provides a valuable link to the vIITSEC training, simulation and education community. Access the online papers repository available at **www.iitsec.org** post-conference.

vIITSEC 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 vIITSEC.

Prior to the conference, contact John Williams at **(703) 362-7005** or **jwilliams@ndia.org**; check out more details on the vIITSEC News page at **viitsec.org/media**.



National Training and Simulation Association

The NTSA, an affiliate of NDIA, represents and promotes the business interests of companies in the simulation, training, mission planning/rehearsal, and support services industry. NTSA's corporate and individual members enjoy access to our online M&S community at NTSA Connect, reduced fees on all NTSA events and services, as well as a monthly e-newsletter and 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.

For membership information, contact **Carol Dwyer** at **cdwyer@ndia.org**. Visit the NTSA website **trainingsystems.org**.

National Defense Industrial Association

Based in Arlington, Virginia, the National Defense Industrial Association (NDIA) is a non-profit, educational association representing industry, government, and academia. 1600 companies and 65,000 individuals 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 two 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.

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

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 empowering 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 22 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.

www.womenindefense.net

Certified Modeling and Simulation Professional

Events at vIITSEC

PRESENTATION

Being a CMSP demonstrates knowledge and currency in a constantly changing career field. Yet, the certification program needs to be renewed and reborn to remain relevant. This ON DEMAND presentation describes CMSP 3.0, where this process stands today, and what it will become tomorrow.

CONVERSATION / MATCHMAKING

Be sure your profile has CMSP as an area of interest so that you are matched up with likeminded vIITSEC attendees! And look for the CMSP Discussion Group to start a conversation or ask a question.

SHOW DAILY INTERVIEW

The importance of the CMSP program will be discussed by Dr. Oswalt; its value to individual and organizations, and the role it plays in the M&S community as a whole.

UNIVERSITY COHORT MEETING

Check out the CMSP session as part of the University Cohort Meeting on Wednesday. We'll be discussing the program, CMSP 3.0, and there will be time for Q&A. Visit the STEM Pavilion for additional information.

EXHIBIT BOOTH

Visit the NTSA booth for CMSP information and materials such as recertification instructions. You can also ask questions about the newly formed committees!

CMSP CERTIFICATION

Requirements: 3 – 8 years of work experience, CMSP application (and fee), resume, 3 letters of recommendation, signed Code of Ethics, and successful completion of the CMSP exam. Certification lasts for 4 years, after which recertification is required. For more information, visit TrainingSystems.org/CMSP or contact Carol Dwyer at cdwyer@NDIA.org.

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I/ITSEC

550 Exhibitors

17,400 ATTENDEES

1,984 International Visitors

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16,000+ Subscribers

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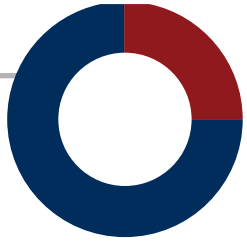
75% of NTSA's corporate members are **Small Businesses***



*25 million or less in defense revenue annually

CMSP Certified Modeling & Simulation Professional

575 Certified M&S Professionals

230 CORPORATE MEMBERS

CORPORATE LEVELS

SUSTAINING
$5,000

- Early booth space selection for I/ITSEC 2021 (in Nov/Dec)
- 10% Discount on I/ITSEC 2021 exhibit space (maximum discount = $5,000)
- Access to NTSA Connect, an online community for M&S and Training professionals
- Mega Directory listing that connects suppliers to customers in industry and DoD
- Seat on the NTSA Executive Committee
- Invitation to the M&S Awards Dinner and Membership Lunch
- Booth highlighted in I/ITSEC Pocket Guide
- Recognition on signage, ribbons, Exhibit Guide, and other I/ITSEC publications
- All linked employees receive a discount on NTSA/NDIA events, NTSA's monthly e-newsletter, and a complimentary subscription to *National Defense* Magazine

REGULAR

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1 – 100	$1,250
101 – 500	$2,500
500+	$3,750

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- Early space selection for I/ITSEC 2021 (in March)
- Access to NTSA Connect, an online community for M&S and Training professionals
- Open to educational institutions, foundations, and companies with fewer than 20 employees that work in training & simulation positions
- All linked employees receive a discount on NTSA/NDIA events, NTSA's monthly e-newsletter, and a complimentary subscription to *National Defense* Magazine

INDIVIDUAL
$125

GOVERNMENT
COMPLIMENTARY

- For individuals sharing the interests and objectives of NTSA
- Access to NTSA Connect, an online community for M&S and Training professionals
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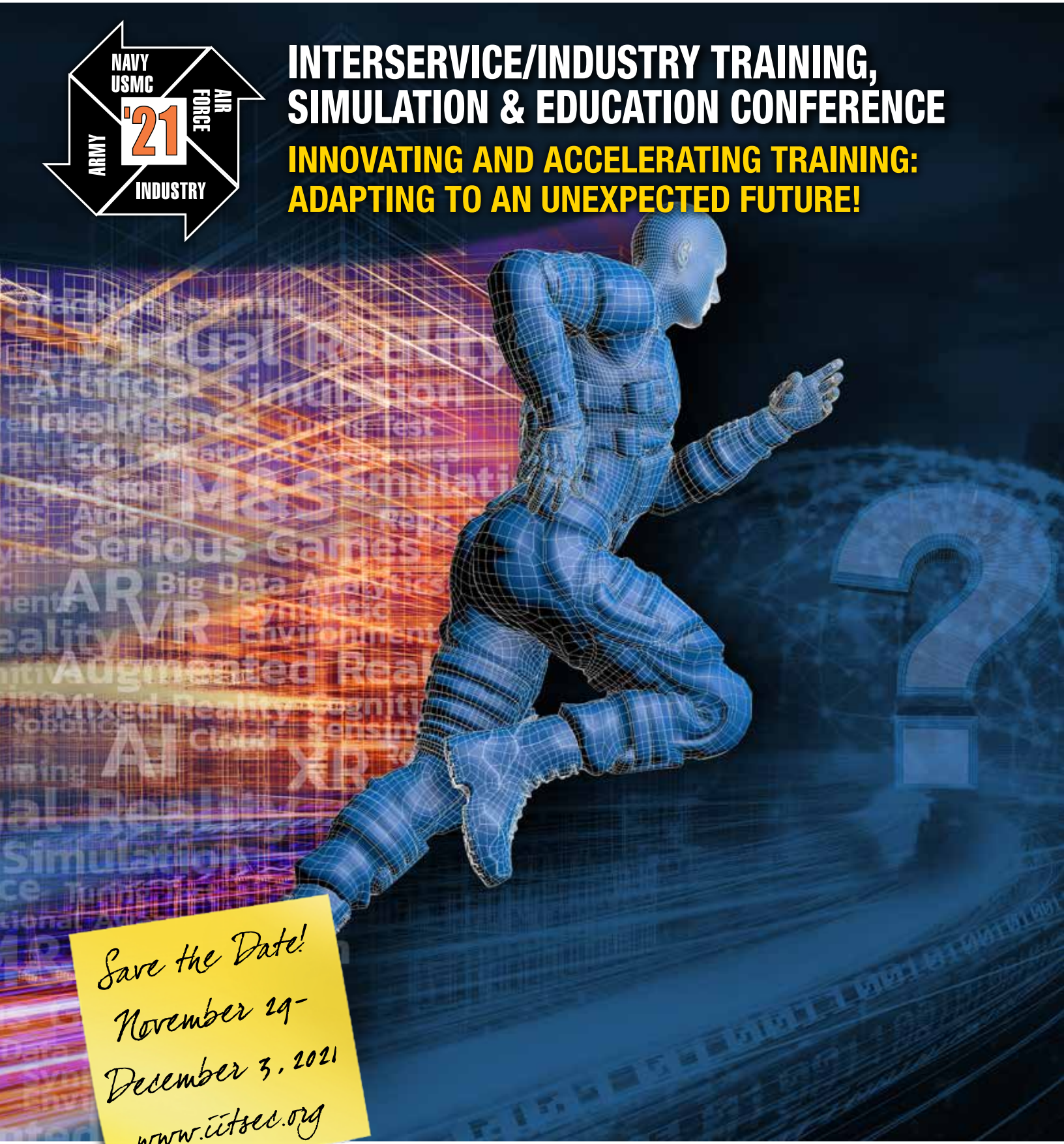

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CALL FOR PRESENTATIONS

PAPERS • TUTORIALS • PROFESSIONAL DEVELOPMENT WORKSHOPS

ABSTRACT DEADLINE: 1 MARCH 2021

Subcommittees/Categories

- Education
- Emerging Concepts & Innovative Technologies
- Human Performance, Analysis and Engineering
- Policy, Standards, Management & Acquisition
- Simulation
- Training

Tutorials

Information on core M&S, training and education topics suitable for management and technical personnel.

The submission process for the I/ITSEC Papers, Tutorials and Professional Development Workshops coincide. Submittal details will vary slightly, but the milestones will match.

Follow the

2021 Presentation Submittal

for 2021 Abstract Submittal which will be posted in December.

http://www.iitsec.org/authors

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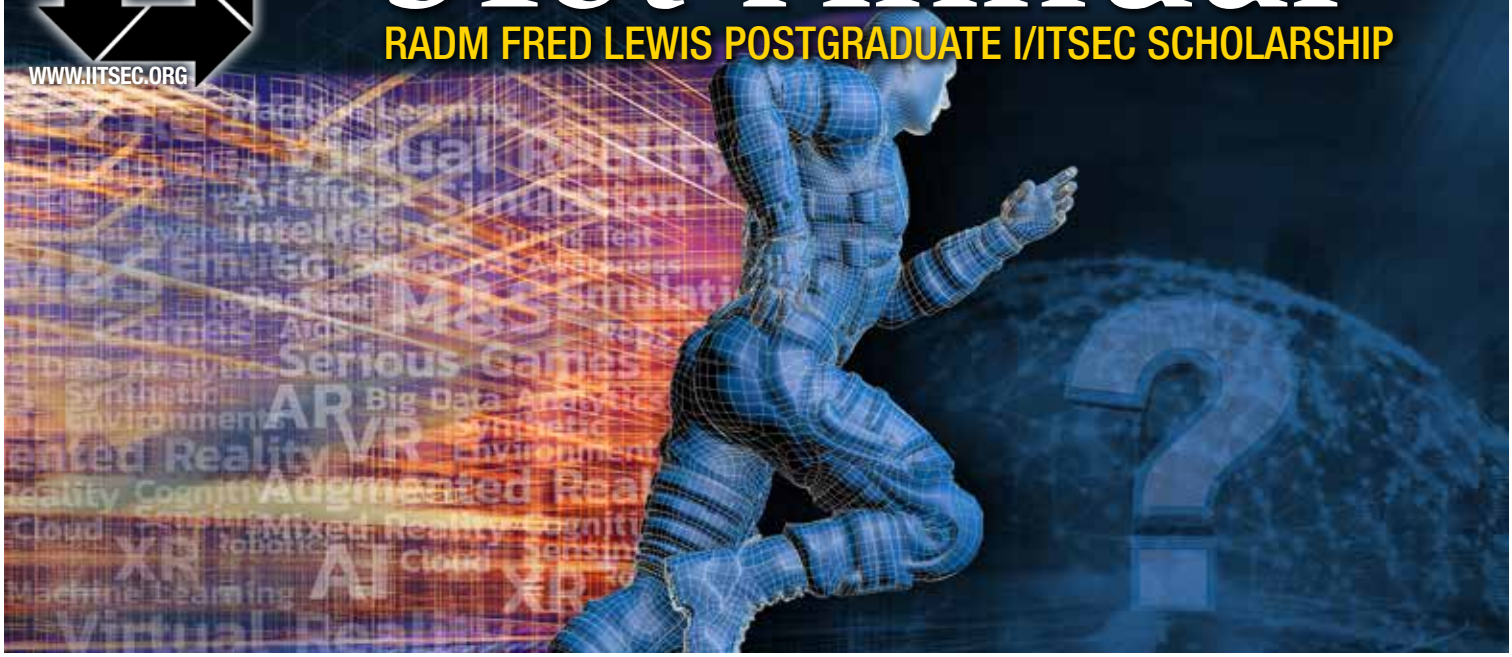
31st Annual

RADM FRED LEWIS POSTGRADUATE I/ITSEC SCHOLARSHIP



NATURE OF SCHOLARSHIP

The Interservice/Industry Training, Simulation and Education Conference (I/ITSEC) is pleased to announce the Thirty-First Annual RADM Fred Lewis Postgraduate Scholarships and Gollobin Award. The Lewis Scholarships are being offered at a Masters level in the amount $5,000, and at a Doctoral level in the amount of $10,000. From the pool of applicants to the RADM Fred Lewis I/ITSEC Postgraduate Scholarship Recipients, one will be selected for the Gollobin Award. The scholarships are being offered to stimulate student interest and university participation in preparing individuals for leadership in the Modeling & Simulation, Training and Education communities. By investing in our future workforce, the Lewis Scholarships and Gollobin Award encourage expansion of the I/ITSEC community and promote innovation through direct investment in our community's future leaders. In the event that suitable candidates for one level are not identified, funds may be combined to provide two awards at the same level of study. The scholarship recipient(s) will attend I/ITSEC '21 (November 29-December 3, 2021) at the expense of the I/ITSEC organization, where he or she will be recognized, view the latest in simulation, training and education technologies and meet leading figures from Government, Industry and Academia associated with this community.

ELIGIBILITY

The applicant must be a U.S. citizen and successfully complete undergraduate studies by the end of Spring Term 2021. The applicant also must be enrolled or accepted for a full-time masters or doctoral program at a U.S. Institution with a focus in any of the following areas:

- Engineering (Modeling, Simulation and/or Training Related)
- Operations Research/Systems Analysis/Mathematics
- Distance Learning Methodologies
- Human Factors (Psychology or Engineering)
- Instructional Design and Training Methodology
- Computer Science and/or Information Sciences

SELECTION CRITERIA

- The applicant must have a stated interest and career goal in the Modeling & Simulation, Training and/or Education Industry.
- The award will be based on student merit as determined from the submitted application documents (see "How to Apply").

CONDITION OF AWARD

- The scholarship must be used for education expenses (tuition, books, fees, room and board) and is subject to the established procedures/policies of the applicant's institution.
- If the successful applicant terminates his/her graduate studies and there are remaining funds, the institution will retain such funds for award to another student of their choice following the above eligibility guidelines.
- The successful applicant will prepare an abstract and, if approved, a paper to be presented at I/ITSEC in the respective area of study one year after completion of the degree program or within three years of scholarship receipt, whichever occurs first.

SELECTION PANEL / SCHOLARSHIP ADMINISTRATION

A panel consisting of individuals from academia and I/ITSEC chairs will determine the selection. Administration of the scholarship program will reside with the National Training and Simulation Association (NTSA), an affiliate of the National Defense Industrial Association (NDIA).

HOW TO APPLY

Submit the following to the I/ITSEC Scholarship (Lewis Scholarship) Program, postmarked no later than 25 June 2021.

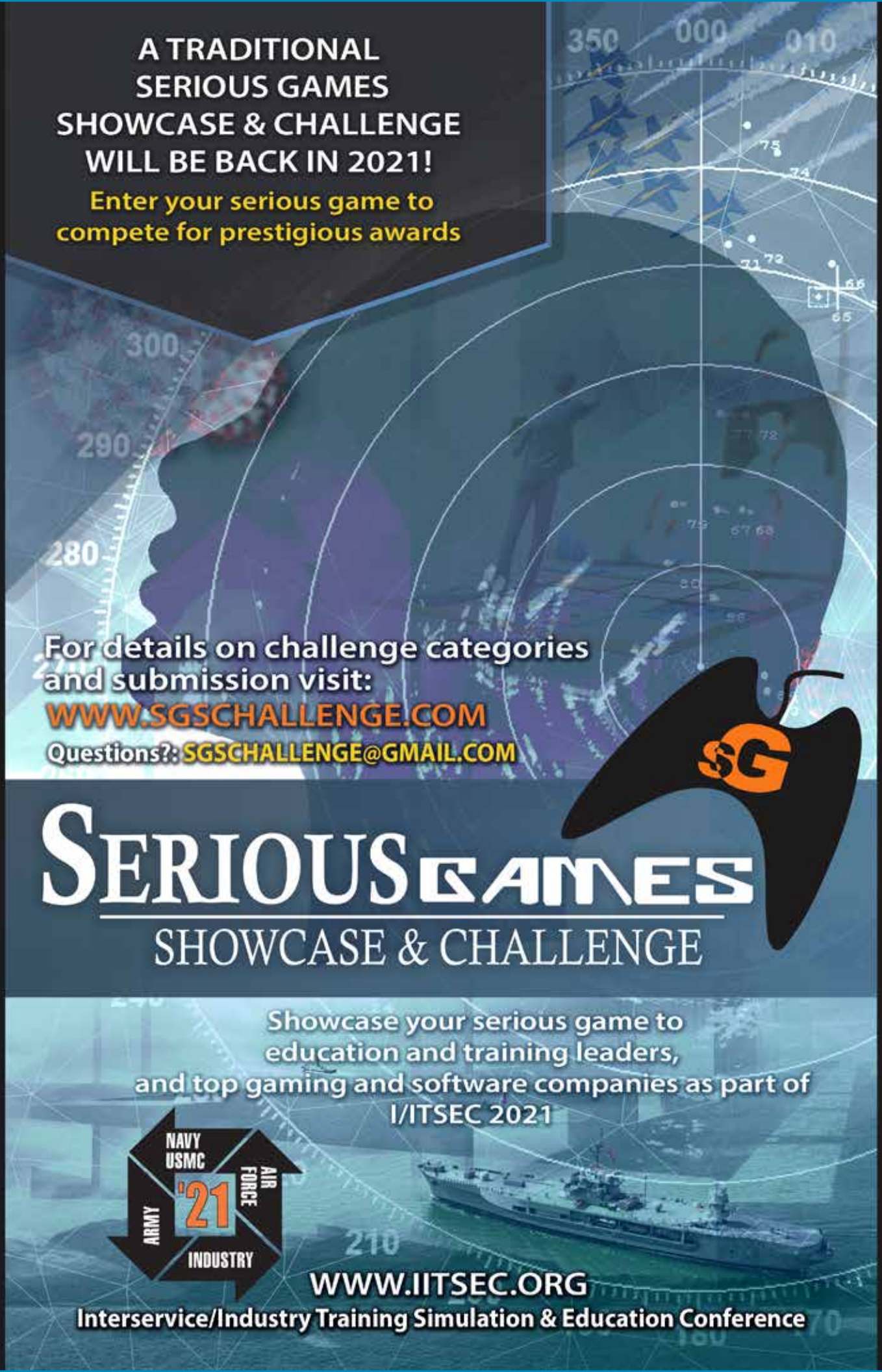
1. Statement of how the scholarship will aid student in career pursuit (not more than 500 words). The synopsis must include a description on how the scholarship fits into the applicant's planned career by incorporating the Modeling, Simulation, Training or Education field.
2. Proof of U.S. Citizenship (copy of Birth Certificate, Social Security, or Passport).
3. Personal resume to include positions, outstanding awards, publications (if any) and leadership capabilities. Ensure that your contact information (i.e. mailing address, phone and e-mail) is included.
4. Undergraduate transcript.
5. Graduate transcript (if applicable). Transcripts must be official.
6. Recommendations from major advisor and one professor from the aforementioned focus areas.

DIRECT INQUIRIES AND PROVIDE SUBMISSIONS TO:

National Training & Simulation Association
I/ITSEC Scholarship Program
2101 Wilson Blvd, Suite 700, Arlington, VA 22201-3060

Phone: (703) 247-9480
E-mail: dlangelier@ndia.org

SUBMISSION DEADLINES • POSTMARKED 25 JUNE 2021 • AWARD ANNOUNCEMENT 6 AUGUST 2021
FUNDS WILL BE MADE AVAILABLE TO THE STUDENT(S) FOR THE FALL 2020 TERM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