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Project Tripoli Supports Marine Corps Training Goals

Continuing to build on its Live Virtual Constructive–Training Environment (LVC-TE) milestones, the Marine Corps is moving from the planning to the execution phase of Project Tripoli, a service-wide effort that reflects close cooperation and coordination between Marine Corps Systems Command Program Manager for Training Systems (PM TRASYS), requirements sponsor, Marine Corps Training and Education Command (TECOM) and other service organizations.

Project Tripoli supports the Commandant of the Marine Corps' update of *Force Design 2030*, in which he described innovation as a hallmark of the Marine Corps and critical to the service's ability to evolve. He emphasized the importance of intellectual rigor, close and consistent coordination, ruthless analysis, and potential abandonment of familiar ideas, capabilities and platforms, noting that the anticipated proliferation of expeditionary long-range precision fires, loitering munitions, infantry battalion organic precision fires, unmanned systems and electronic warfare capabilities, among others, will pose an enormous challenge to the ability to train collectively and create combat readiness. Additionally, he offered that emerging Marine Corps capabilities will quickly outpace current training infrastructure, live-fire ranges, and exceed environmental and other local governmental policies and restrictions in both the Continental United States and overseas.

To mitigate these issues, the Commandant prioritized modernization of training capabilities as one of the top three investments in support of *Force Design 2030* and Project Tripoli is seen as the means through which the Marine Corps will train at all echelons, across all domains and in disparate locations which will breathe life into *Force Design 2030* while developing and refining a warfighting capability able to meet tomorrow's challenges.

"Project Tripoli is the Marine Corps' enterprise-level effort to support simulation-based training for home-station and distributed training events," explained LtCol Marcus J. Reynolds, USMC, PM TRASYS. "It will support the Commandant's vision for *Force Design 2030* by providing a comprehensive venue to train using emerging concepts, systems and capabilities across all domains. It also provides the infrastructure for commanders to plan and execute with careful and deliberate consideration of the operational environment and allows for numerous training iterations with minimal training costs and reduced setup times."

According to Mr. Joseph Lomangino, LVC-TE Lead in the Synthetic Training Integration and Management Branch at TECOM, the LVC-TE training environment is intended to deliver a number of primary benefits.

"For example, by making training ranges as complex as the battlefield is expected to be in 21st Century warfare, we not only will train as we fight, but
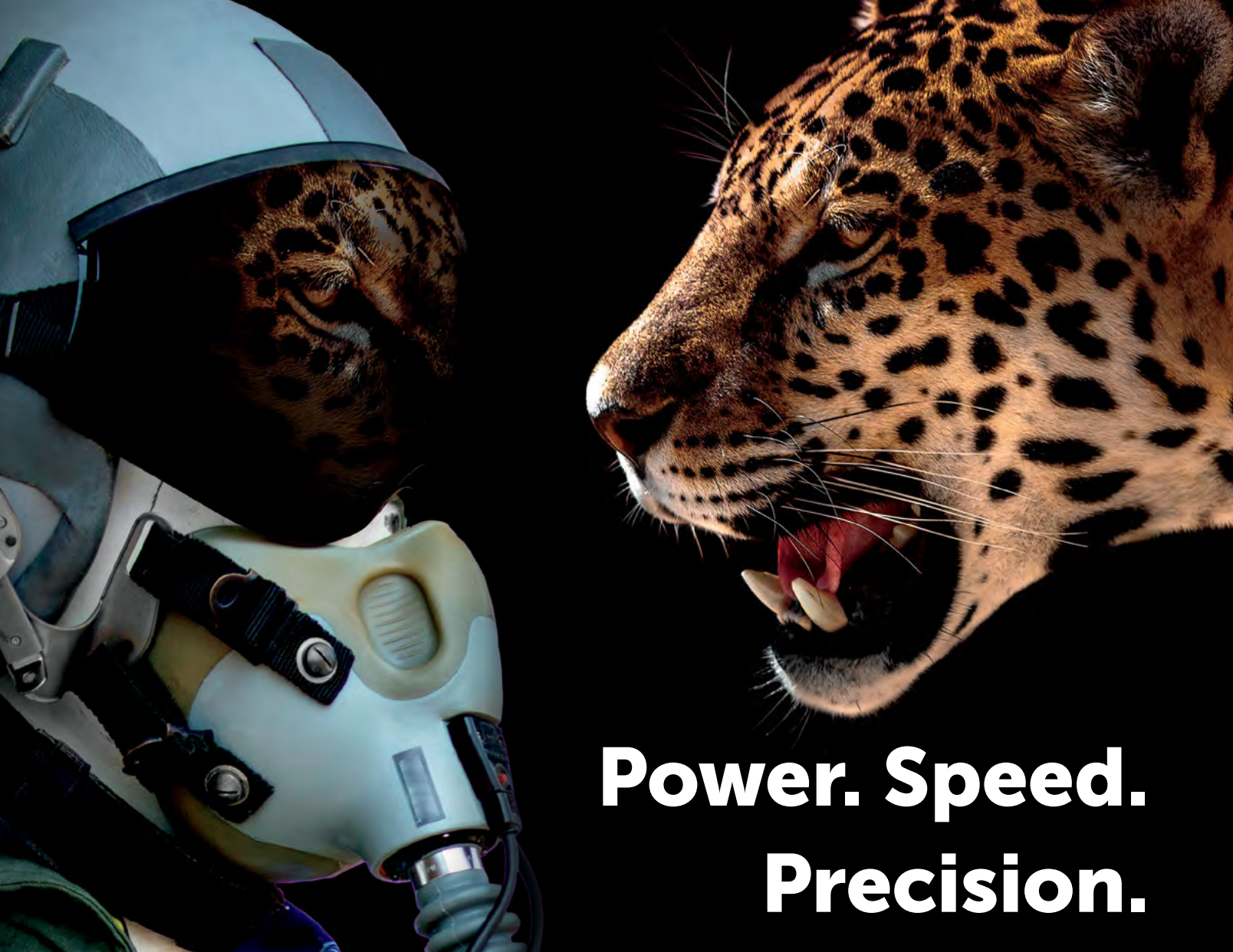
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WEDNESDAY, NOVEMBER 30
CONFERENCE HIGHLIGHTS

REGISTRATION HOURS
0700-1800 *(West Concourse)*

EXHIBIT HALL HOURS
0930-1800

SIGNATURE EVENTS
0830-1000 Accelerating Innovation to Bridge the Valley of Death *(Room W304GH)*

0830-1000 The NBT TalX – The Consumer Metaverse Meets Defense *(Room W311ABCD)*

1030-1200 Naval Aviation Flag Officer Panel *(Room W304AB)*

1030-1200 The NBT TalX – Beyond the Hype: Perspectives on XR and the Metaverse for Training *(Room W311ABCD)*

1400-1530 The NBT TalX – Defense Leaders' Perspectives on the Military Metaverse *(Room W311ABCD)*

1400-1530 Principal Cyber Advisors' Panel *(Room W304AB)*

1400-1530 Transforming Training with Allies and Partners to Confront and Deter Russian Aggression *(Room W304EF)*

1600-1730 Getting Real, Getting Better – A Navy Flag Officer Panel *(Room W304AB)*

1600-1730 The NBT TalX – Vision of the Military Metaverse *(Room W311ABCD)*

FOCUS EVENTS
0930-1800 I/ITSECverse *(Exhibit Hall – Booth 1332)*

0830-1000 Synthetic Environments to Enable Multi-Domain Operations *(Room W310AB)*

0830-1000 Adaptive Training at Scale: Ready for Primetime? *(Room W300 – Theatre)*

1200-1700 I/ITSEC Career Fair *(Room W110 A)*

1400-1530 Training, Analytics and Experimentation *(Room W309AB)*

1600-1730 Space Warfighter Training Transformation: A Visual Approach *(Room W310AB)*

1600-1730 Joint Service Interoperability and Modeling and Simulation in the DoD *(Room W304GH)*

1600-1730 Back to the Future – A Green Planet May Require Nuclear Power *(Room W300 – Theatre)*

1600-1730 Best From Around the Globe *(Room W304EF)*

COMMUNITY OF INTEREST EVENTS
1030-1200 M & S Emerging Technologies: Innovation Opportunities and Challenges *(Room W308C)*

1030-1200 Joint Wargaming Interoperability Showcase *(Room W309AB)*

1400-1530 The New Frontier: Training for the Space Mission *(Room W310AB)*

PROGRAM BRIEF
0830-1000 Navy Training Programs' Vision: Platforms, Sailors, Environment *(Room W309AB)*

PROFESSIONAL DEVELOPMENT
(Download the I/ITSEC app for synopses)

0830-1000 Paper Sessions *(Rooms W307ABCD; W308A)*

1030-1200 Paper Sessions *(Rooms W307ACD; W308A)*

1400-1530 Paper Sessions *(Rooms W307ABCD)*

1600-1730 Paper Sessions *(Rooms W307ABD; W308AB)*

Opening Ceremonies Feature Military Keynote Speakers

Tuesday morning's I/ITSEC 2022 Opening Ceremonies featured U.S. Air Force and U.S. Space Force senior leaders delivering keynote remarks in an informal "fireside chat" format, highlighting their thoughts surrounding the necessity to accelerate training and the role of the I/ITSEC conference to accomplish that.

Conference chair Matt Spruill formally opened the event with a call to order. "On behalf the United States Air Force and the entire conference committee, I welcome you to the 56th anniversary of the world's largest training, simulation and education conference, I/ITSEC 2022," he said.

Spruill introduced service executive Colonel Charles "Matt" Ryan, USAF, Senior Materiel Leader, Simulators Division, Agile Combat Support, Air Force Lifecycle Management Center, Wright-Patterson Air Force Base, Ohio, who welcomed the keynote speakers and the moderator of the "chat," Rear Admiral James A. Robb, USN (Ret.), President, National Training and Simulation Association.

Major General Shawn N. Bratton, USSF, Commander, Space Training and Readiness Command, opened his remarks by expressing that with Space Force approaching its third birthday, he looks forward to engaging with the I/ITSEC community. "It's been a busy third year for us, especially in Space Training and Readiness Command (STARCOM) and across the whole Space Force," he said. "We've been working hard on service components and presenting capability out to the combatant commands. And, as this audience knows, the foundation of all of that is the training and education that those forces receive to ensure that they're ready for combat should that come."

He continued, "STARCOM does all the training, education and test activities for the fielding of new systems, so this is the perfect place to be to talk to you all, to see what industry is working on and how we can benefit from

that in Space Force, and to share with you some of the things we're working on."

He said during STARCOM's first year the focus was "bringing people into this new service" and addressing "culture and identity."

"As we go forward, the focus in year two for STARCOM is about readiness. How do we attack the advanced training, that specialty training that we need to instill the skills in our guardians to be prepared for competition and conflict?"

He identified areas of focus such as the National Space Test and Training Complex, "which is the range complex, kind of the gym, if you will," he said. "That's one of the big areas where we need help from industry, and I'd be extremely interested in what you have to offer and where we can go together in developing that for the Space Force."

In his opening comments, General David W. Allvin, Vice Chief of Staff of the U.S. Air Force, said, "The situation we find ourselves in in this country is going to require the very best of us, and really supporting this idea of accelerating change from the vision document that Air Force Chief of Staff General Charles Q. Brown wrote when he came in. It really captures what we need to be focused

on. I appreciate the title, *Accelerate Change or Lose…* If you do not accelerate, you're falling behind. The title really speaks volumes."

Referring to the acceleration of placing "meaningful capabilities into the hands of warfighters," he asserted, "You might have a fantastic capability that has the potential to be a game changer, but if you do not have all of the attendant training and education that brings in, trains, educates, brings proficiency for the most important weapon system, that's the airmen, the guardians, then it's all for nothing. That's why I think this conference is supremely important – it has the innovators."

Robb posed several questions to the service leaders across wide-ranging areas of attendees' interests including training capabilities and requirements, unique needs in Space Force training, increasing diversity in force acquisition, AI integration and budgetary factors.

Robb's closing question to each leader was, "What is your challenge to industry? What can they do for you, and what areas would you recommend they focus on?"

Bratton reiterated his message that "A big technical challenge for us is the build-out of the National Space Test and Training Complex. How do I take guardians, immerse them in the environment as a crew force, and train them so that they're ready and prepared for conflict should that day come. But we don't get there on our own, we have to partner to win this and partners are out here in the audience."

Allvin concluded, "What we need to do for industry is do a better job of defining the problem, rather than giving the specs for the solution, so hold us accountable for that. But at the same time, when we define that, we will look to you to be able to apply these innovative solutions. They're not all going to work, but we are working on the Air Force side and across the government to increase our understanding of how to leverage those [solutions] and turn them into programs of record… So keep the dialogue coming. None of us is as smart as all of us."

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Department of the Air Force Panel

Signature Events at I/ITSEC 2022 on Tuesday afternoon included the Department of the Air Force (DAF) Senior Leader / General Officer Panel.

Moderated by Rowayne A. "Wayne" Schatz Jr., SES, Director for Studies and Analysis, Office of the Secretary of the Air Force, the panel included: Lieutenant General Richard G. Moore, Jr., USAF, Deputy Chief of Staff for Plans and Programs, Headquarters U.S. Air Force; Thomas J. Lawhead, SES, Assistant Deputy Chief of Staff, Strategy, Integration and Requirements, Headquarters U.S. Air Force; Major General Shawn N. Bratton, USSF, Commander, Space Training and Readiness Command; and Major General Albert G. Miller, USAF, Director of Training and Readiness, Deputy Chief of Staff for Operations at Headquarters, U.S. Air Force.

Schatz opened the panel with a reference to this year's I/ITSEC theme, Accelerate Change by Transforming Training, which he characterized as "in the spirit of our Chief of Staff General Brown's, memorandum, accelerate, change or lose."

He offered, "In that memo, General Brown said that, unlike the past, much of the emerging technologies that will determine our future are no longer created or funded by the Department of Defense. But the processes with which we build capabilities for our airmen have not adapted to those changes. The ways in which we test, evaluate and train with them do not meet current or future demands. While we have made progress, our airmen need us to integrate and accelerate the changes necessary to explore new operational concepts and to bring, more rapidly, the capabilities that will help them in the future fights."

Moore focused his opening comments by explaining his office's responsibilities for what he described as "two primary deliverables," - the FY'24 – FY'28 POM and "The Plan," which reflects longer range need projections.

While characterizing those items as "particular dry topics," he went on to say, "What is exciting is that over the last couple of cycles, there has been a fairly dramatic increase in all of the services [budget] top lines. And with that comes a great deal of capability that we truly need. And a lot of it fits into this discussion. One of the things I'll go back to was a comment that the Vice Chief made this morning. And that is all the bright shiny things in the world without capability development and training and readiness to go behind them doesn't actually get you what you need. You would have to have all of those pieces together. And so one of the things that we'll work on with him in the FY'25 cycle is to make sure that we have a balance between the things that we're buying, and there are a lot of new things being bought because of the increase in budget top lines, and the capability to develop the readiness and the training that go behind them."

Lawhead expanded on that theme, noting, "It was mentioned this morning: It's really easy and exciting to get excited and focused on the bright shiny objects. And keeping the DOTMLPF and training side and organizational side of the future force is critical. We've got nascent capabilities in our force design now, working with A1 [office], to actually start to build a better future human capital force design for the Air Force, and what that future looks like. Obviously, assessing, training and educating that force is going to be critical."

From a Space Force perspective, Bratton offered, "I'd love to dive just a little deeper into some of the things we talked about in the bigger room [this morning], but mainly the test and training infrastructure. And we keep those things together, we're trying hard to keep them together, as we build this out for the Space Force."

He described the ongoing development of the National Space Test and Training Complex, also called "The Range," explaining, "It really gets into the details of what sensors I need around the world to be able to observe activities in space. What sensors do I need on orbit to be able to observe test and training activities? What do I want to fly on orbit for training?"

"There are a lot of sensors out there that we use today for space traffic management, but there's nothing that's really either purpose built or dedicated to testing and training," he added. There's no training version of a T-38 [aircraft] on orbit where we go and fly. And the discussion we're having at Space Force, which goes back to the live versus simulation discussion, is: What do we need to go get to make sure that the team is prepared when we put them on the field? What is the value? How do we measure the value of live training versus simulated training in a meaningful way? And how do we measure the value of our training events against readiness, that ultimate measure?"

Miller added, "It's an honor to be on this panel with this distinguished panel, and I also want to extend my thanks to everybody here, especially the industry partners. This is where we learn what's in the realm of the possible, that Lieutenant General Moore is going to have to fund for us. I don't want his job. He has a very challenging job, because there is so much that we need to get after, and he only has so many resources to do it within."

The opening statements were followed by a question and answer period that included both broadly and individually directed questions.

Soar Tech

Asserting that it's time to start expecting real solutions from artificial intelligence, Soar Technology, Inc. [Booth 239] is demonstrating its SpeechZero AI understanding capabilities as one of its spotlight programs at I/ITSEC 2022.

"SpeechZero is a software capability that can be integrated into both training and operational environments, that provides intelligent speech recognition, as well as speech generation capabilities," explains Brian S. Stensrud, PhD, director of simulation for Soar Technology, Inc. "SpeechZero provides a way for systems to recognize and parse and do something about speech that is delivered in a variety of different military domains."

Stensrud acknowledged that some people might draw an obvious comparison to popular systems, such as Google Home, Siri, Microsoft Cortana or other commercial off the shelf systems, cautioning that those systems lack military utility due to their requirement for an internet connection as well as specificity of unique military speech patterns that could challenge some language recognition systems.

"The commercial systems might be able to get words, and some of them are getting really good at that," he said. "But the ability for them to be able to parse that in a smart way and so that it can either support training or potentially support operations really requires a recognition system that's capable of processing things at the domain level. So what the SpeechZero system allows you to do is customize a speech recognition capability that can intelligently recognize and process specific calls and 'phraseologies' in very, very custom domains."

He said that the company efforts on SpeechZero have resulted in both a flexible capability and an authoring capability that allows end users to specify appropriate phraseology in a variety of different domains, and then apply them to their training or software system, regardless of the platform.

In terms of specific platform growth, Stensrud noted thar the company has just received a conditional award from United States Special Operations Command to create a domain specific speech recognition capability that is accessible over the Tactical Assault Kit (TAK), with company plans to conduct that effort during 2023.

"SpeechZero is a large capability," he summarized. "We have a variety of different funding vendors in various stages of maturity. We have some completed projects. We have some ongoing projects where we're both extending the capability and applying it to very specific domains."

"Recognition gets better and better every single year as we as we kind of pull in best of breed algorithms. It's basically continuing to improve both in terms of what it can recognize as well as how flexible it can be," he said.

Senior Service and Government Leaders Address I/ITSEC

On the heels of Tuesday morning's opening ceremonies, the I/ITSEC 2022 Senior Leader Panel Signature Event reflected a growing appreciation for the modeling and simulation community and the critical role that it is expected to play across a wide range of government initiatives.

This particular panel represents some success on our part with expanding our reach into the Department of Homeland Security and improving our relationships with the Secretary of Defense," offered Rear Admiral James A. Robb, USN (Ret.), President, National Training and Simulation Association (NTSA). "And this year, we have contingents from the Coast Guard that are with us, and Space Force representatives are here. So we see a growing organizational effort to try to improve and raise emphasis and advocate for training and readiness, specifically for the warfighters and first responders."

Introducing the panel members, he highlighted the diverse roles played by Dimitri Kusnezov, PhD, Under Secretary for Science and Technology, Department of Homeland Security; Lieutenant General Kevin M. Iiams, USMC, Commanding General, Training and Education Command; Vice Admiral Francis Morley, USN, Principal Military Deputy Assistant Secretary of the Navy (Research, Development and Acquisition); Caroline Baxter, Deputy Assistant Secretary of Defense (DASD) for Force Education and Training, USD P&R; Karen D. H. Saunders, SES, Program Executive Officer for Simulation, Training and Instrumentation, U.S. Army PEO STRI; Lisa Costa, SES, PhD, Chief Technology and Innovation Officer (CTIO), U.S. Space Force; Kevin D. Stamey, SES, Director for Information Dominance Programs, Office of the Assistant Secretary of the Air Force for Acquisition, Technology and Logistics; and Lieutenant General Michael Claesson, Chief of Joint Operations, Swedish Armed Forces.

In addition to the panel members, a conference video was provided by Young J. Bang, Principal Deputy Assistant Secretary of the Army (Acquisition, Logistics & Technology).

Reflecting on his panel participation as a representative of the Department of Homeland Security, Kusnezov related what he identified as "common touch points" between DoD and DHS, observing that changes around the world are non-trivial but "hard to

pin down. But it's not a steady state."

He added, "At the same time, technologies are evolving in a way that are impacting now all economic sectors, all age demographics; pervasive in ways that we really can't anticipate, but we see happening every day to everyone we know. And there's an increasing democratization of technologies also, that make them work both ways in terms of their threats. And so the emerging technology piece is another component of a changing world that is hard to pin down."

Lieutenant General Iiams offered his perspective as the lead panel member representing the Nation's naval expeditionary force.

"Readiness today is directly linked to how we're going to train now," he said, "but even more so how we're going to revolutionize and or accelerate training for the future. As global threats continue to evolve, our Marine Corps responded with new and innovative concepts, systems capabilities, technologies, all led by our Commandant's *Force Design 2030* vision that you heard about last year. But as we look to the future, our training and education forums must be at least in stride, or a fast follow, if we're going to stay onboard with these emergent warfighting approaches."

"Let me start by being very blunt," echoed Baxter. "We are running out of time. We're running out of time to rethink, to refresh and to transform military training. This is not news. But I want that message to really get across over and over and over. We're really running out of time. DoD leaders at all levels, myself, and people above me, have really recognized that this is true. And my team and I are really

running full tilt. FY '23 is really going to be the year of training in DoD, the engagement of leadership, and is really enabling my office to make some important and long overdue changes to the way that we approach and rapidly implement this shift."

She emphasized that her presence at I/ITSEC was intended to facilitate supporting information exchange and interactions, urging audience members to pull her aside and share their thoughts and messages as they see her around the show.

"To our industry colleagues, you are our partners in designing and producing the training tools, systems and equipment required to protect our national security and position our service members to be successful," she said. "It is imperative that there is no communication gap between us. We cannot afford to let requirements get lost in translation. Please listen carefully to what we need in terms of requirements and capability and performance, ask questions and push back. Ensure we're on the same page. We need to collaborate to find ways to take the ideas of warfighting, match them with technology and prototype systems quickly."

An international panel perspective was provided by Lieutenant General Claesson.

"We, as in so many other countries, not the least in Europe, emerged just recently from the 'eternal era' of world peace," he began. "And I mean that sarcastically. We barely woke up in 2008, when Russia attacked Georgia. We woke up when Russia attacked and occupied Crimea. However, there was no flow of resources. In 2020, when things were starting to go south again, obviously, the [Swedish funding] resources started coming. So with an increased budget, and a redirection back to national defense, and also with the recent application for full membership of NATO, we are from a Swedish perspective in, let's say, 'a challenging position' that needs to address both operations and, of course, growing and growing faster."

The U.S. Army's Next-Gen Virtual Collective Training Software

Bohemia Interactive Simulations' (BISim's) flagship product, VBS4, is a whole-earth virtual and constructive simulation that allows military units to create and run any imaginable military training scenario. VBS4 is a core component of the U.S. Army's Synthetic Training Environment (STE), the next generation collective training capability.

We invite you to come by our booth #1071 to see the latest VBS4 demos including brand-new military AI and other STE-related enhancements.

BISim's New Cloud-Enabled Terrain Platform - Mantle ETM

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Metris Global Targets Human Performance

Human performance technology is the focus for Metris Global LLC [Booth 2491] at I/ITSEC 2022.

According to Gary Bruce, program manager at Metris Global, the company started primarily in Army-focused Department of Defense programs, and quickly moved to include Army, Marine Corps, Navy and Coast Guard programs.

"We've worked everywhere from the technology side to primarily within the training and human performance development pieces of different organizations," he said.

Roger O'Dell, vice president of business development, explained that Metris Global chief executive officer Tom Heckens founded the company with a vision based on his own service experience as a special operations sniper, an experience that left him with a personal belief that the training he received was just not adequate for giving students the environment and the experience they needed.

"His whole mantra when starting the company was to try and make a better way; more realistic training, as well as more expected and clear outcomes for the training. And then, once we became prime contractors with the Coast Guard, he, along with the rest of the organization, was introduced to this 'new-to-us' human performance technology, which is just transformational in how it impacts an organization."

"What we're highlighting at I/ITSEC is the ability for us to move in an agile manner," Bruce continued. "And I say that purposefully. Human performance technology has really been around for a number of years, and organizations are kind of stale with that, at times. They don't have time for that. And so we use human performance technology to help organizations solve problems and take advantage of opportunities. And often we find out that they didn't know they had the problem. They didn't know there was an opportunity out there."

Bruce said that the company approach centers around the human and the people within these organizations, offering, "We've often found that the human being has gotten buried in all the modeling and simulation. And we were really focused on digging through all of that amazing technology and giving clients the realization that the biggest tool in making them successful is that human being."

"We take a holistic approach to a human being, not just a training approach to them," he said. "That's what we're trying to highlight: That holistic approach to making people better. And if you do that, you can't help but be better as an organization."

He said that I/ITSEC visitors to the company's booth will learn more about the holistic approach through case studies of past company projects, including the tools and approaches used to identify company needs.

"That's really what our trade is," Bruce summarized. "We are a lot like journalists in that we ask a lot of questions. And if you've ever had a four-year-old, that question is 'Why?' It's to get to that end state. But first, what are you looking for? What are you trying to accomplish? If you know that, then everything flows down from that. What are the inputs to get there? What are the processes to do that? And what are the inputs to that process that need to take place? So we will show them those tools. We'll show them those case studies on what we've accomplished in a number of different organizations and how we can accomplish that in their own organization."

In terms of I/ITSEC participation, Bruce said his goal is "to walk out of there feeling like people heard us. You are going to see all sorts of 'bells and whistles' during this conference. You are going to see really neat simulators and amazing technology in modeling and simulation. But often what you'll find is, 'Where's the human? Where are the people? How are they supposed to use this?' What we're going to do is help people understand that the human being is not to be forgotten in all of this technology."

Best Paper Nominees

SUBCOMMITTEE	PAPER TITLE
22218 – Education	How, When and What to Adapt: Effective Adaptive Training Through Game-Based Development Technology
22190 – ECIT	Building a World With Deepfake Content – Who Needs Real Data?
22258 – HPAE	Automated Assessment of Team Performance Using Multimodal Bayesian Learning Analytics
22461 – PSMA	Enhancing the Total Learning Architecture for Experiential Learning
22157 – Simulation	Semantic Fidelity Reckoning: Toward Normalized Simulation Interoperability in Digital Engineering
22325 – Training	VR Training System for Rehabilitation and Compensatory Analysis After Stroke

BEST FROM AROUND THE GLOBE – IT2EC AND MODSIM WORLD	
Best Paper Award at IT2EC 2022	XR Medical Simulation Training for the Future of Warfare: The Virtual Advancement of Learning for Operational Readiness (VALOR) Program
Best Paper Award at MODSIM World 2022	Implementation of Live-Virtual-Constructive (LVC) Workplace Setting to Enhance Occupational Success Among Young Adults with ADHD

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Careers in Focus at I/ITSEC

One of many Focus Events at I/ITSEC 2022 is the Career Fair, which will be held on Wednesday, November 30, from 12:00-17:00 [Room W110A]. The fair provides an opportunity to link top talent with leading companies in the training, modeling and simulation community. During this event, companies will be available in person to interview candidates, answer questions and fill jobs. Additionally, candidates will have the opportunity to participate in workshops on topics such as resume writing, interviewing skills and the state of the modeling and simulation industry.

We're excited about Career Fair at I/ITSEC 2022," observed Dr. Linda Brent, Owner/CEO of The ASTA Group, LLC and NTSA STEM Coordinator. "We did a 'hybrid' live / remote career fair a couple of years ago during COVID. And this past year, we've actually targeted two career fairs: One at NTSA's Training & Simulation Industry Symposium (TSIS) and one at I/ITSEC. And so this is technically the third year of the career fair; the first two years were kind of pilot years because of COVID and because we were just testing the idea."

Brent pointed to growth interest and participation in the event, pointing to 20 organizations that will be participating.

"Some are government organizations and the rest are small, medium and large companies. Students were able to preregister. We're getting the word out to universities in the area and to the workforce that exists at I/ITSEC. They are also welcome to attend. It's going to be running on Wednesday afternoon from 12 to five. And it's going to be a completely live event this this time around. We're not going to do a mixed hybrid. We found that it was just too difficult for the recruiters to focus on both, so we're doing a live event now and we're planning a hybrid event in the early spring," she said.

Brent added that the upcoming hybrid event will primarily be focused on internships for college students with companies that have summer internship opportunities for college students in engineering and other STEM fields.

"We'll do it as a virtual event, attracting career offices and colleges to attend and participate. And then we'll probably do another live career fair at TSIS in June 2023," she said.

Mixed-reality training with real-time eye-tracking

Enabled by MVRsimulation ✕ Varjo

MVRsimulation's Virtual Reality Scene Generator (VRSG) and the Varjo XR-3 headset enable eye-gaze visualization for simulator-based training, providing quantitative data for after-action review (AAR).
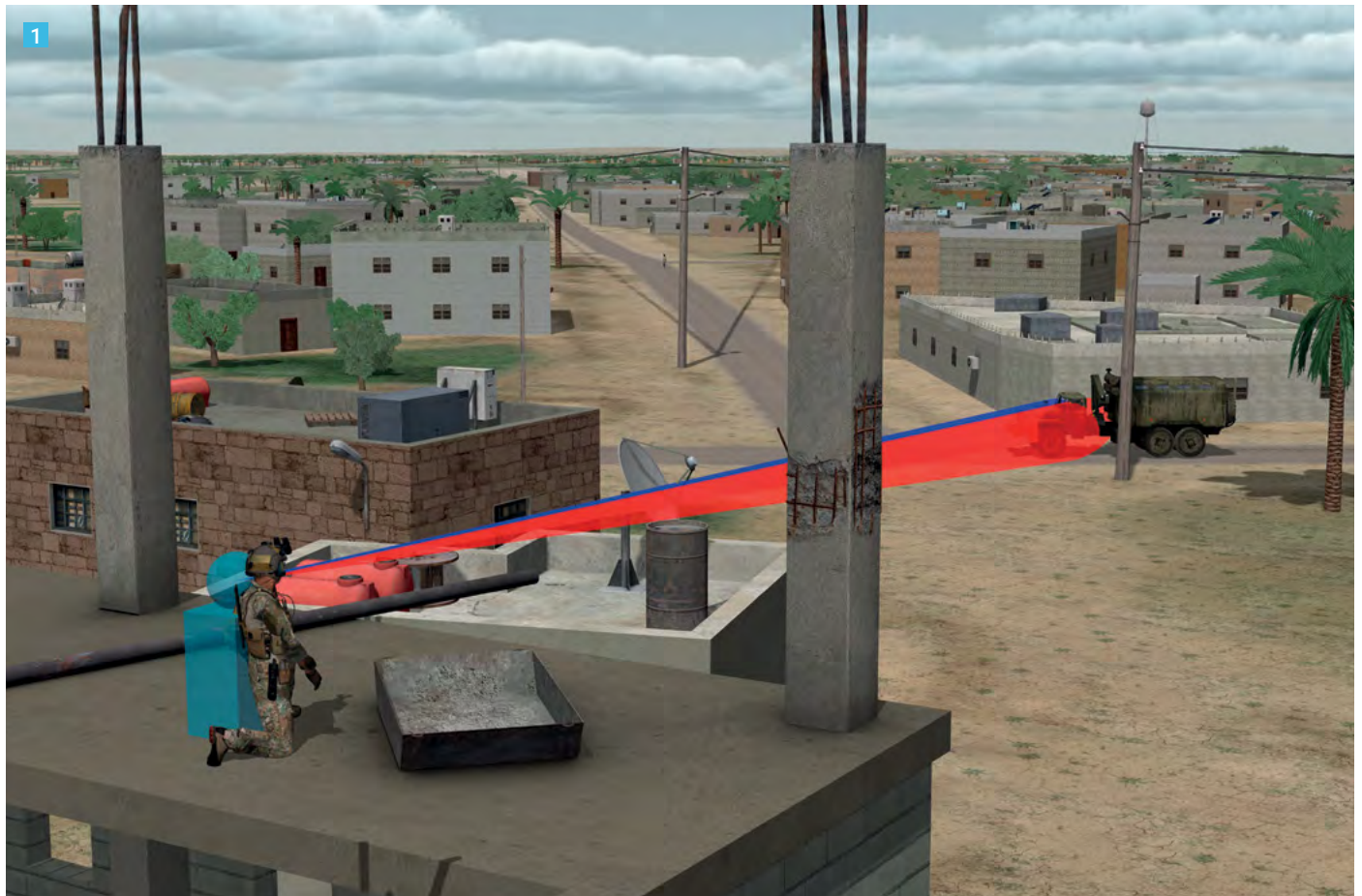
1. VRSG depicts the eye-gaze of a JTAC trainee wearing the Varjo XR-3 headset, in MVRsimulation's Hajin, Syria, terrain.

2. The gaze of an F-18C pilot showing XR-3 eye-tracking in flight over 3D terrain of Hajin, Syria.

3. The gaze of a Deployable Joint Fires Trainer operator as seen by a Part Task Mission Trainer role player during a networked joint fires training exercise.

4. The Varjo XR-3 headset captures eye-gaze without interfering with the wearer's interaction with the mixed-reality environment during training.

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VRSG tracks the XR-3 wearer's head position and orientation during the training mission, tracks the gaze vector using the Varjo device's pupil tracking functionality, and depicts the gaze of each eye independently as a color-coded 3D cone.

Experience eye-tracking in the MVRsimulation booth (#1187) at I/ITSEC 2022.

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Hadean-Microsoft Azure Collaboration Offers Cloud-Enabled Capabilities

Representatives for deep-tech startup Hadean [Booth 1460] are set to collaborate with Microsoft and power the digital transformation of the defense industrial base with scalable, interoperable and secure cloud-based military training capabilities.

Building on an ongoing business relationship, the new relationship will see Hadean's metaverse infrastructure integrated with Microsoft Azure to produce fit-for-purpose and robust solutions that can rapidly cut through data and deliver impactful outcomes for customers across government agencies, defense contractors and the armed forces.

Hadean and Microsoft have already worked seamlessly together to build, run and deliver a cloud distributed simulation to the British Army Collective Training Transformation Programme (CTTP), set to be demonstrated at the I/ITSEC 2022 Innovation Center on November 30 at 1130.

Serious Games Showcase & Challenge Europe Launches at DSET 2023

The Serious Games Showcase & Challenge (SGS&C) have found a new European home at Defence Simulation Education & Training (DSET). DSET 2023 will launch the inaugural SGS&C Europe (SGSCE) to bring new game challenges. It will be affiliated with the existing SGS&C, which takes place at I/ITSEC, and provides the opportunity for selected award category winners to participate at each event.

"We're incredibly excited about bringing the SGSCE to DSET," said Tess Butler, CEO, Ruddy Nice [Booth 3018] and DSET and a long-term supporter of the SGS&C at I/ITSEC. "It is a brilliant way of developing and showcasing new talent. We have an amazing wealth of talent and innovation in Europe and we can't wait to engage with that and benefit the whole community."

Adelle Adams, senior business development manager at RINA, is the SGS&C Industry Lead for 2023 at I/ITSEC and will be advising the first European Challenge.

"I'm thrilled to be bringing the SGS&C 'home' to the UK, and can't wait to see the games produced," she said. "We already have an affiliation with Simulation Australasia who host the SGSCA, and by creating a sister challenge with DSET this now means that our International reach is indeed global and will strengthen the SGS&C everywhere."

The Serious Games Showcase & Challenge Europe (SGSCE) will be accepting entries from government, industry and academia. The categories and rules of entry will be published on the DSET website in the next month. It is also looking for sponsors to support the whole program but especially the younger entrants with logistic expenses.

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Lockheed Martin Highlights Mission Readiness

Lockheed Martin [Booths 689 and 1748] is utilizing its presence at I/ITSEC 2022 to highlight its mission readiness capabilities across air, land, cyber and joint all domain operations.

According to Rich Benton, vice president and general manager of Lockheed Martin's training and logistics solutions business, one of the major focus areas this year reflects the widely recognized need to modernize land training.

"The need to modernize training in the U.S. and around the globe has been a common theme," Benton said. "So here at our land training solutions business, we've been focusing on three main areas: open architecture systems; improved and accelerated decision making; and strategic sustainment."

He explained, "In the first instance, when we talk about open architecture systems for Joint All Domain Operations (JADO), soldiers not only need to train differently, they need to be able to collaborate across forces, across systems, specifically across defense systems, to allow them to train in that JADO environment. And those training systems need to be deployable – not just open architecture but deployable at the point of need. Soldiers can't always be in a classroom, so we are really focused on those open architecture systems that are point of need deployable and are going to be able to work with other disparate systems as we move forward into the future."

Pointing to the company's second area of emphasis at I/ITSEC 2022, he offered, "With improved accelerated decision making, we are 'closing the kill chain,' so to speak, if you want to use that terminology. We have a lot more information and soldiers have a lot more information than they used to have, and the ability to process that information, and make the right decision in a cognitive environment, actually can create overload. So some of the systems we're highlighting show how we leverage the JADO environment, how we leverage the information coming in, and use AI or ML, to not just have data, but to get to the right data that the soldier needs."

The third area of emphasis identified by Benton highlights Lockheed Martin's capabilities in strategic sustainment.

"I think of that as predictive maintenance before you have a problem," he said. "You move the point of failure by taking the logistics information that we have done for years and being more predictive in maintaining equipment."

Reflective of these themes, a representative example of the specific demonstrations that will be conducted at I/ITSEC include the Battle Staff Trainer, which leverages the JADO environment and a virtual reality that includes the Unreal Engine application, the graphics game engine developed for Epic Games.

In addition to the demonstrations conducted in Lockheed Martin's booth, Benton expressed his belief that, "As we evolve in training, we not only have to keep up with the threat, but we have got to provide more affordable solutions that keep up with that threat. And our objective here is to increase innovation, accelerate readiness and drive affordability so they can afford the training devices relative to what we need."

He continued, "One other thing that we're pretty excited about, and this will be the first time we've done this at I/ITSEC, but we were able to get the Future Vertical Lift portable, full mission simulator. It actually won't be in our booth because it's so large; we have another space specifically for the full mission simulator. But in that simulator, you'll be able to see the DEFIANT X / RAIDER X technology that we're supporting the U.S. Army's FVL [Future Vertical Lift] program with…And this technology has been developed concurrent with the actual design."

Benton said that he hoped I/ITSEC attendees would take a few key thoughts away from their visit to the Lockheed Martin exhibit.

"One of the things is that we always look forward to I/ITSEC to connect with our customers and industry partners," he stated. "And we are going to be announcing a number of partnerships that we are using to accelerate the pace of military training relative to information."

He added, "Another factor is that I/ITSEC provides a great opportunity for us to partner with some of the small businesses that we already know, as well as a chance to look at other small businesses that play a critical role in innovation. Some of this innovation comes out of small businesses, and we're always looking to leverage that innovation. So it's a good opportunity to meet with industry partners we have with small business, but also to meet new small businesses. And I think I/ITSEC is unique from that standpoint, because it provides a great opportunity in this space to do that."

Benton concluded, "If I summed it up, I'd want people to take away that Lockheed Martin is advancing technology in this industry space, and they're leveraging commercial technology to do that. They're increasing readiness by their training devices and they're focused on decreasing cost of those things and providing them at a point of need."

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Mass Virtual [Booth 3100] is showcasing its Virtual Hangar at I/ITSEC 2022. Virtual Hangar is an immersive training platform that was developed from Mass Virtual's Mass XR and customized for the U.S. Air Force. It is now being used at more than 60 bases. According to one study conducted by the U.S. Air Force, the Virtual Hangar XR training platforms yields a 45% reduction in aircraft training downtime and a 60% reduction in classroom hours.

"A few years ago we were building a product called Mass XR, which is an enterprise development platform to not only develop with but also support the enterprise," explained John Brooks, chief executive officer of Mass Virtual. "We built a prototype that just happened to have an Air Force application with it that was called Virtual Hangar. We showed it to the Air Force, and they really liked it, because it was going to address a big hardship of the maintainers in that community. So we competed against 200 companies, were downselected to receive a $59 million IDIQ award, which has now been awarded. The program started with one aircraft but is now up to 29 aircraft and eight vehicles.

"We're a program of record inside AETC [Air Education and Training Command]," he added. "We just got that awarded with AETC and we're going to be designated as a program of record for the Air Force in the first quarter of next year."

The vehicle types recently incorporated into Virtual Hangar are primarily Air Force ground vehicles, although Brooks acknowledged that joint service use of certain vehicles could provide future service crossover applications.

"Additionally, we just started some work with the Navy for Columbia Class submarines," he said. "But primarily the biggest Virtual Hangar is enterprise-wide in the Air Force…It's just been an incredible, incredible program. We're in 10 branches of the Air Force now, so it's been an incredible thing and all of that investment in Virtual Hangar will go to all of the DoD, with additional future expansion possible in the commercial sector."

Asked about specific service applications, Brooks said, "Right now we're in discussions all the way from recruiting, where our stuff is being tested by recruiters, to where they go to their initial qualification after basic. What's amazing is that most of this stuff is what we call supplemental to the training content. In other words, they still have to get hands-on training. But it maximizes the 'first time right' attempt of those users going out and touching the aircraft."

The company applies the Virtual Hangar training capabilities to both maintainers and operators.

Brooks continued, "The Air Force came back and awarded us a $9 million contract to build the first fuselage trainer, the C-5M. We've just started that. And that's going to be a course that will actually certify a loadmaster for the C-5. That's the goal. So, it's the first of its type for VR attempts to certify individuals. Our team is still working out at Travis Air Force Base. But the great thing about our programs is that we develop them in weeks and months. We don't take years. Not only are we building this incredible capability, but we're doing it incredibly fast, helping the users today versus years from now."

Current plans have the systems deploying on two cloud-based government platforms: government Cloud One and the cloud-based system inside USSOCOM [United States Special Operations Command] / AFSOC [Air Force Special Operations Command].

"We have several platforms in AFSOC right now," Brooks said. "We have the AC-130, the MC-130, CV-22, C-32B and C-146. That's five platforms. We also have almost all the Presidential aircraft, although not Air Force One yet. We have the helicopters and the C-32B and the C-40. But we're waiting to get the Gulfstream.

He said that I/ITSEC visitors will be offered an overview of different content on Virtual Hangar, explaining, "They will be able to see how these applications are being used. It's a quick journey, in a short amount of time, where we touched on all the different types of medium, or where XR training is being implemented. We've taken samples of different pieces of the content that we've built, and you're going to see everything down to a multi-capable airman deployment area; to mission planning; to maintenance; to operation. It's a pretty fascinating view, starting from space and then going down all the way into the ground terrain.

"Our big takeaway is that the Mass Virtual Hangar is a product that is there with the Air Force, but it can be crafted for all branches… We're growing so big and the Air Force wants bigger integration, so there will be third party participation built into the system. Other companies that are building XR content will be able to populate Virtual Hanger and the system."

He concluded, "It's about getting accessibility to the masses. That's the biggest driver. And that's why we named our company Mass Virtual when we came out and designed this platform. Seven years ago, we were building it on our own. We built all of our systems on our own. It was to meet that requirement. So that's the biggest thing: to provide it and do it in a timely manner. This training is needed now, not tomorrow. And that's what we're all about: building quality, timely human performance content for the masses.

Saab Emphasizes Realistic Training Experiences

At I/ITSEC 2022, Saab [Booth 1238] will be showcasing a wide range of live, virtual and blended solutions to support hi-fidelity training, including the latest generation of the Ground Combat Indoor Trainer. Demonstrations will include developments in live training solutions including EXCON, vehicle systems, soldier systems, anti-tank weapon simulators, indirect fire solutions as well as Observer/Controller Toolbox in addition to a UAV Concept Simulator.

"At Saab, we believe that the most realistic training, coupled with immediate feedback and detailed evaluation, is the best way to prepare for any mission. That's why we put the individual at the center of our training, and build the systems around them. By exposing trainees to realistic and varied training situations, you are building that experience, allowing them to use it to make the right decisions at the right time," stated Åsa Thegström, Head of Saab's business unit Training and Simulation.

A few of the highlights this year are:

Ground Combat Indoor Trainer

This latest generation system is designed for virtual indoor training for anti-tank weapons like Carl-Gustaf M4 as well as other anti-tank weapons and small arms. It is providing true realism to customers investing in training capacity and enhanced operational capability in the land forces domain.

Observer/Controller Toolbox

The new O/C toolbox from Saab makes these tasks easier and more accurate by offering tools ranging from the unprecedented situational awareness view, configuration of simulators, to scoring of laser based gunnery training. A single tablet contains the O/C toolbox full suite of WinExcon applications (WE:apps) for the various tasks required in the field for the Observer/Controller to be effective before, during and after the exercise.

Combat Support Solutions

Indirect fire solutions, including blended as well as live solutions, including the Mortar Outdoor Trainer and UAV concept simulator, bring additional capabilities and further enhanced realism into the live training scenarios.

do so in an environment designed to enable observations, decisions and processes that are only currently experienced in on-the-job training or in a real battlefield," he said. "In addition, the products of a digitally connected set of capabilities will reduce training inefficiencies by increasing training opportunities for hard-to-get assets. So the LVC-TE is expected to give Marines a more complex mental experience, which will lead to faster and more effective battlefield decisions."

"I like to offer, when talking about simulations, and specifically Project Tripoli, two overarching areas where simulation technology makes our warfighters better," echoed LtCol Michael Donaldson, USMC, Synthetic Training Integration and Management Branch Head, Range and Training Programs Division, TECOM. "The number one goal for our LVC-TE and Project Tripoli is that we want to make live training opportunities better. We want to give Marines additional reps [repetitions] and sets that they can't normally get in their everyday activities. We are firm advocates that when simulations are integrated into a unit's training plan, they can provide the reps and sets that enable proficiency; that get us better; and ultimately enable us to maximize our return on investment during more complex live events, or high-level service events and joint events."

He added, "The second piece that I'll go into is that we also use simulations to accomplish training that many times simply cannot be done in a live environment. And that's for various reasons. There could be range limitations, costs, safety and also classification limitations that really prohibit us from getting the full return on investment in the live environment. It's nothing against the Marine on the ground out there in the field trying to do his best. There are just some things that are problematic to execute in those live environments. And with the advent of *Force Design 2030*, and some of the modernization efforts we're seeing in military operations right now, this is really the sweet spot that the live virtual constructive training environment, in Project Tripoli, is aimed at hitting."

Donaldson continued, "We see real world operations where there is the expanded use of expeditionary long range, precision fires, unmanned systems and electronic warfare. There are a lot of things we need to replicate in order to ensure that our Marines and our partners are experiencing and training to what it will be like on a battlefield and enabling Marines to go through these training situations in conjunction with our partners in our sister services, and international partners as well. That is one of the key goals that Project Tripoli will provide to our Marines – the ability to execute training tasks that are problematic to do in the live environment."

Project Tripoli is executing a software acquisition pathway that is iterative and incremental in its developmental process.

A recent milestone occurred in April 2022 with the award of the initial task order, and the Marine Corps is currently on a roadmap to deliver the first capability release next year.

According to Mr. Carlos Cuevas, LVC-TE Project Manager at PM TRASYS, the primary location is Twentynine Palms, California.

"We've been working hand in hand with that team at the Battle Simulation Center, as well as our requirements sponsor, TECOM, to make sure that that initial capability release is accomplished on time next spring," he said.

"This is an iterative process," Lomangino clarified. "This is long term. It's going to take more than a year. This is a total modernization of how the Marine Corps trains and how we are going to incorporate blending live virtual constructive training to meet all the demands of multidomain operations."

"Delivering the LVC-TE to the Fleet Marine Force in support of Project Tripoli is my top acquisition priority," Reynolds concluded. "Our continued collaboration with TECOM, as well as cross-sharing information with our Team Orlando partners, is vital as we continue to make strides on this effort in support of *Force Design 2030*. Upon its implementation, the LVC-TE will not only bolster the Marine Corps' combat-effectiveness by integrating and rendering real-time data from multiple training environments, but its modularity will allow us to avoid antiquation by allowing for the rapid incorporation of new training systems with our legacy training systems."

> This is long term. It's going to take more than a year. This is a total modernization of how the Marine Corps trains and how we are going to incorporate blending live virtual constructive training to meet all the demands of multidomain operations."
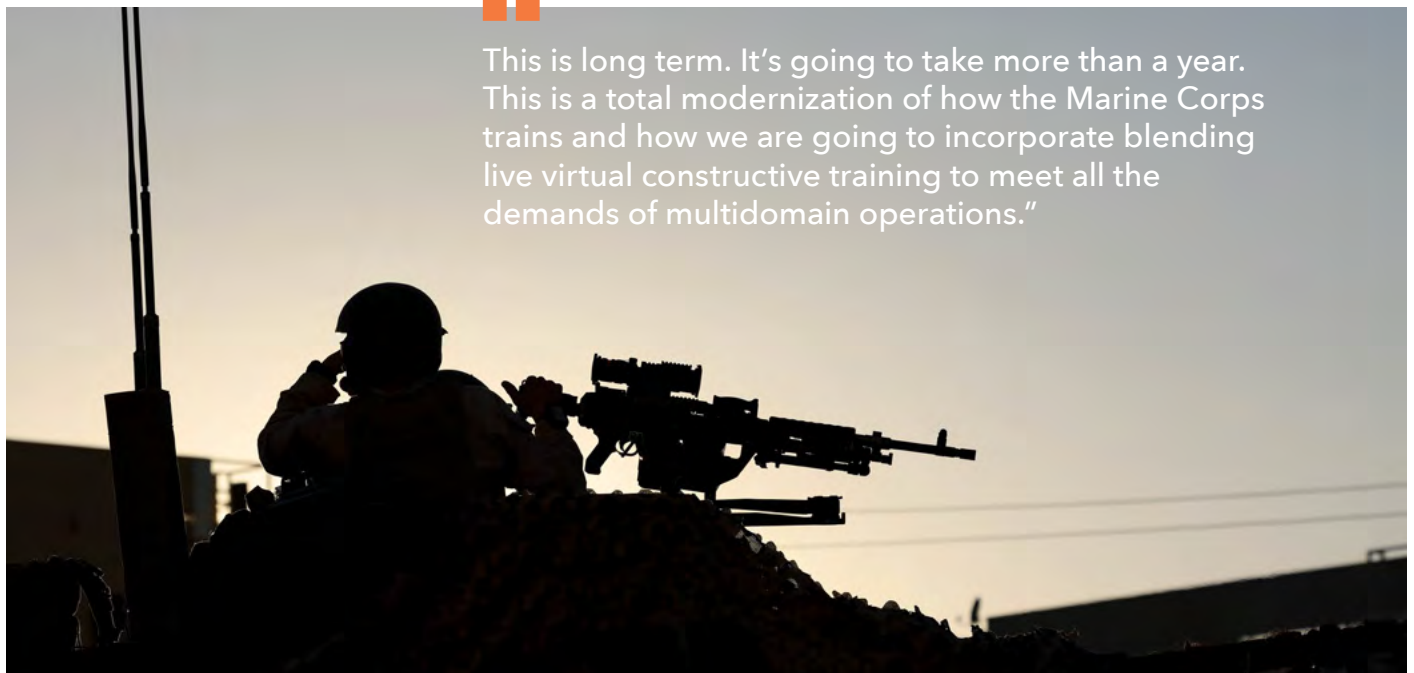
Varjo Announces New Headset

Varjo Technologies [Booth 3010], maker of professional-grade VR/XR hardware and software, has used the I/ITSEC venue to announce its newest headset, XR-3 Focal Edition, which provides superior visual quality for mixed reality implementations where real-world objects such as cockpits, car dashboards, cell phones and kneeboards are used.

The XR-3 Focal Edition offers the ultimate visual precision for advanced use cases where visualizing small text and illustrations on physical instruments in mixed reality is mission-critical. The XR-3 Focal Edition is best used for interacting with real instruments, gauges, panels and meters in mixed-reality scenarios where the trainee is fully immersed in computer-generated content yet needs to interact with the physical world immediately adjacent to the viewer. The headset provides dual high resolution, 12-megapixel cameras that are calibrated to provide improved image clarity for the range of 30 centimeters to 80 centimeters (12" to 31") from the headset in comparison to a standard XR-3. Seeing crucial dials and knobs in proper focus with content close to the video sensor requires a closer focusing point. The optimized components in the mixed reality camera system change the distance of the focus so the lens brings a sharper depth of field, closer to the user. Varjo XR-3 Focal Edition is fully TAA/BAA-compliant (the Trade Agreements Act and the Buy American Act) meaning that at least 50% of its overall manufacture cost originates from the US or designated countries and that the product has undergone substantial transformation in the US or designated countries. Trade Agreements Act (TAA) compliance is becoming an ever-increasing requirement enabling HMD-based solutions to be used for secure and classified operations. Sold with a perpetual, offline license that enables operations in non-internet connected environments that does not require users to create accounts, the XR-3 Focal Edition can support the most demanding security needed for the United States Department of Defense, intelligence, and security-critical infrastructure customers.

Furthermore, for customers looking for the highest level of security, the XR-3 Focal Edition can be delivered with radio frequency capability removed as required to operate in some classified environments. "The use of XR-based devices across the training and simulation segment has grown exponentially over the past year, and we're pleased to be working with the world's leading simulation and training companies across both civilian and defense sectors. We heard from our customers the need for more precise visuals at a closer distance, specifically when looking at dashboards, cockpits, and cell phones and we responded with the XR-3 Focal Edition to address the need," said Seppo Aaltonen, chief commercial officer of Varjo.

Industry Collaboration to Bring Augmented Reality to Hawk Aircraft

BAE Systems [Booth 465] will collaborate with Red 6 [Booth 1213] to explore the integration of the Advanced Tactical Augmented Reality Systems (ATARS) onto the Hawk fast jet trainer aircraft. This integeration will enable pilots to identify, engage and defeat virtual threats and cooperate with virtual wingmen while airborne.

The companies announced they will be working together at I/ITSEC 2022.

BAE Systems has signed a memorandum of understanding with Red 6, an augmented reality technology firm at the forefront of synthetic air combat training. The collaboration will explore ways to combine BAE Systems' experience in delivering training to military forces alongside its expertise in helmet-mounted displays with Red 6's breakthrough ATARS technology.

"The modern battlespace is becoming increasingly complex and contested and integrating technology such as Red 6's augmented reality with the Hawk aircraft is key as we prepare pilots for life in a fast jet cockpit for decades to come," said Lucy Walton, head of training for BAE Systems' air sector. "We're trusted by armed forces around the world to train over 450 pilots per year and

it's essential we have the right technologies and partnerships to ensure they stay ahead of the curve. We're really excited to combine our unique insight from working alongside air forces across the globe with the truly game-changing capabilities of Red 6."

"Readiness and lethality are critical if our warfighters are to prevail against near peer adversaries," added Daniel Robinson, founder and CEO of Red 6. "I'm thrilled that BAE Systems recognizes the radical innovation that ATARS brings to drive the change in military flight training that is so desperately needed and that together can help drive this transformational shift."

BAE Systems has been a leader in the fast jet augmented reality market for over 60 years, with company representatives pointing to development of the world's first heads up display (HUD) for the Buccaneer in 1958 and the family of Striker Helmet Mounted Display Systems (HMDS) used on Typhoon and Gripen aircraft. They assert that working with Red 6 takes this capability a step further for the pilots of tomorrow, by bringing constructed adversaries, wingmen and surface threats into the training space at a fraction of the cost and emissions of the live equivalent.

NEW SIMULATORS FOR WMATA

CITEF and e-Tech Simulation [Booth 2521], partners in developing the most advanced railway simulators, have announced that they have installed the first eight simulator cabins at Washington Metropolitan Area Transit Authority (WMATA).

"This is the first batch of 20 cabs total we will be delivering and installing at WMATA, and we are very happy with the results and the progress as we continue to get the remaining cabins ready," says Jairo Leiva, president of e-Tech Simulation.

Regardless of the challenges that the pandemic has presented, the team has pressed on and overcome the obstacles given by the unique market situation. Jose Manuel Mera, CITEF's director, stated "We are very excited about this project and have enjoyed partnering with e-Tech's team whom we have known for several years. We have come a long way to provide WMATA with the best possible simulation and training experience."

Mixed Reality Trainer for Apache

Vrgineers [Booth 2326] and DigiFlight are using the I/ITSEC 2022 venue for the first joint presentation of a conceptional mixed reality trainer for the Apache attack helicopter.

Industry representatives note that the two companies have teamed to produce a modern and comprehensive training solution for the most-survivable multi-role attack helicopter in the world. With over 1200 aircraft currently in service, the Advanced Mixed Reality Apache Trainer (AMRAT) will accelerate training pilots with high fidelity MR solutions and therefore significantly reduce the number of aircraft hours normally required to support training individual and crew tasks.

The AMRAT is built on a proprietary portable platform designed by Vrgineers, which

was originally created for the USAF. It provides the most affordable, immersive and realistic experience offered on the market today without expensive visual display systems, complicated support systems, or unique facility design requirements. The trainer includes two separate but interconnected crew stations (the pilot and co-pilot gunner station), with replicated switches, panels, flight instruments and displays connected to a computer and integrated virtual reality image generator. Currently, it is supported by a leading vendor of immersive, flight simulator software, ED Mission Systems.

The product is the result of cooperation between Vrgineers, a manufacturer of flight training simulators, and DigiFlight, a

technology company with extensive worldwide pilot training experience.

"We strongly feel that by combining our skills, we are able to deliver a training device capable of supporting Apache training tasks including individual and crew skills, preparing them to operate in any environment, fulfilling critical mission requirements," explained Marek Polcak, chief executive officer of Vrgineers.

"The possibility to conduct a seamless mixed reality environment with a portable haptic flight seat run by a true-to-life simulation engine ensures the pilot's proficiency, but most importantly delivers the sensation of a unique and genuine experience encompassing complex operational scenarios. This enables our users to save time and effort along with minimizing the cost of training infrastructure and related running hours," added Matthias Techmanski, ED mission systems director.

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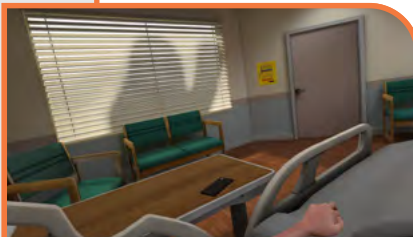
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17th Annual Serious Games Showcase & Challenge [Booth 2880]

SERIOUS GAMES
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Serious Games Showcase & Challenge (SGS&C) is one of the main attractions at each year's I/ITSEC, and plays a critical role in helping to generate interest in the use of digital games and virtual reality applications for training and education. The SGS&C provides a showcase of best-in-class learning games submitted by business, government and student developers, and awards noteworthy games to recognize their achievements. The true uniqueness of the SGS&C is that every I/ITSEC "player" has the chance to play the games, talk with the developers, and cast a vote for the coveted SGS&C People's Choice Award. The SGS&C team is appreciative of this year's sponsors: Applied Research Associates (ARA), Booz Allen Hamilton, NTSA, ITility, Boecore, Engineering & Computer Simulations, Hatalom Corporation, HP, Box, and Soar Technology, Inc. Be sure to visit SGS&C [Booth 2880] to check out the games and cast your vote for the People's Choice Award before voting closes on Wednesday at 1800. Award winners will be announced on Thursday, December 1 at 1300 at the Innovation Showcase [Booth 2588].

GOVERNMENT AUDIENCE FINALISTS

Advanced Haptics Burn Care: Escharotomy
Engineering & Computer Simulations, Inc. (ECS)

Army Fuel Digital Training Environments
Potawatomi Training, Army U, CASCOM

Virtual Reality Simulated Delirium Environment (VRSDE)
Department of Veterans Affairs, Veterans Health Administration, Institute for Learning, Education and Development
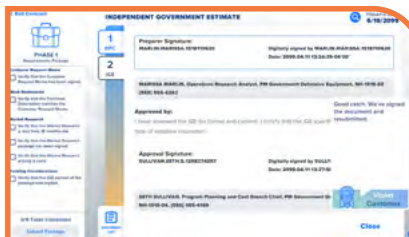

Extend the Shield
TiER1 Performance
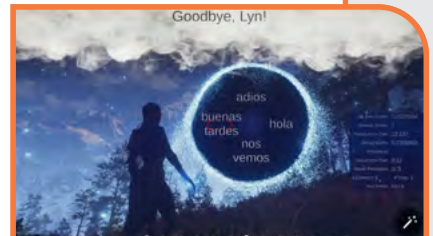
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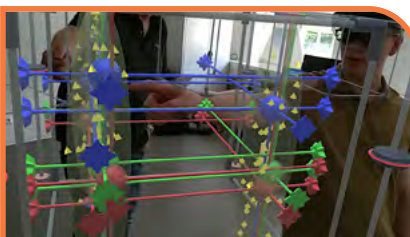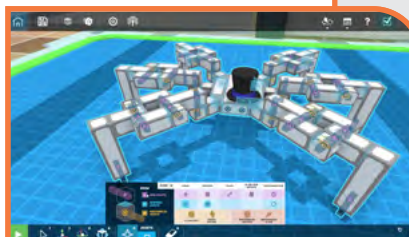

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PreSore: 3D Pressure Injury Prevention Simulation Game
Simofun and Koç University
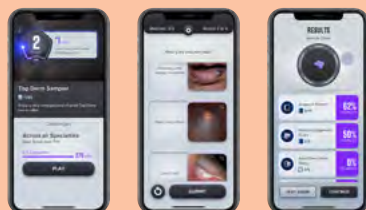

Poconostics
BlueHalo

HoloBrand
Trier University of Applied Science

RoboCo
Filament Games

STROKE-Keep the Brain Alive in 45
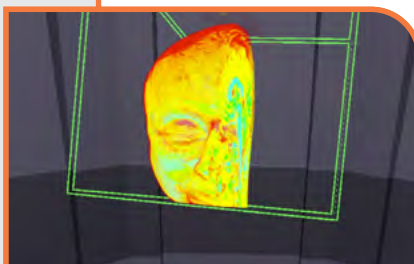Department of Veterans Affairs, Veterans Health Administration, Institute for Learning, Education and Development

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STUDENT CATEGORY FINALISTS

Medical imaging VR
Ulster University UK and Fresno State University California

Numbers and Letters
Ulster University UK and Fresno State University California

Pirates of the Sea++
Creative Gaming and Simulation Lab at Norfolk State University

Esri Creates Cutting-Edge Immersive App Builder with ArcGIS Maps SDKs for Game Engines

Esri, [Booth 635] a global market leader in geographic information system (GIS) software, location intelligence and mapping, has made rendering the real world much easier with direct access to existing geospatial data inside both leading game engines. This allows simulations to utilize it inside of a virtual reality space, or simply turn a scene into an AR application.

According to company representatives, Esri users for years have been building geospatial datasets of their environments as part of their own workflows. Using its ArcGIS Maps SDKs for Game Engines, Esri enables direct access to geospatial data. Additionally, Esri offers other sophisticated tools that capture reality for large construction sites, cityscapes or entire operational regions, accurately processing large extents and high volumes of images in a photogrammetry workflow.

Chris Oxendine, Director Defense and Intelligence Solutions at Esri said, "ArcGIS is the foundation of users' 2D and 3D data, enabling you to visualize it in an AR application or VR space, leading to better planning and enhanced decision making."

In addition to Augmented Reality (AR) experiences, it can be implemented with three common patterns: flyover; tabletop; and world-scale. With flyover AR, a scene can be explored using a device as a window into the virtual world. A typical flyover AR scenario starts with the scene's virtual camera positioned over an area of interest. Tabletop scenes use a device to interact with scenes as if they are 3D models sitting a table or desk. World-scale is a type of AR scenario where scene content is rendered exactly where it would be in the physical world. This is used in scenarios ranging from viewing hidden infrastructure to displaying waypoints for navigation.

MAK Technologies Features Simulation Software

MAK Technologies (MAK) [Booth 1413], a company of ST Engineering North America, is showcasing its MAK ONE suite of simulation software at I/ITSEC 2022. It will demonstrate a whole world synthetic environment for modeling, simulation and training in any domain as well as in multi-domain operations, including training solutions built with MAK ONE.

MAK ONE is comprised of simulation applications VR-Forces, VR-Vantage, VR-Engage, as well as infrastructure and LVC interoperability products VR-Link, MAK RTI, MAK Data Logger, and VR-Exchange. It provides the simulation framework for developers to build training and experimentation systems.

MAK will present its MAK ONE core products and demonstrate how MAK ONE can support the range of fidelities from single high fidelity vehicle/subsystem models to large-scale simulations with large numbers of entities. Alongside the core product capabilities, visitors will see several demonstrations that show the scale and breadth of MAK ONE, from managing the airspace to addressing a regional threat, to simulating a battalion conducting a ground assault.

MAK will also present its training solutions built with MAK ONE, which are tailored, ready-to-use training systems that support customer-defined training and experimentation requirements, as well as its latest MAK FIRES, a realistic and portable MAK ONE-based training system that delivers effective Call for Fire training. MAK is partnering with other companies with booths across the show floor to demonstrate specific end user capabilities built with MAK ONE.

Partnership to Pursue British Army Program

Raytheon UK, [Booth 3018] in partnership with Capita, Cervus, Improbable Defence and Rheinmetall, announced today the formation of Omnia Training; an industrial team that will be bidding to become the Strategic Training Partner for the British Army's Collective Training Transformation Programme (CTTP).

The CTTP will deliver the Future Collective Training System – a technology-enabled training system that will serve as a surrogate for warfare. It will provide the British Army with the capability to better replicate the complexity of the modern battlefield in training, giving the Army the ability to train globally whenever and wherever it needs it.

Omnia Training's partners have expertise that span complex program management,

enterprise transformation, collective synthetic training, digital platforms and data exploitation. It will work in collaboration with the Army to transform collective training and prepare soldiers for future challenging operational scenarios by creating realistic multi-domain environments.

The Raytheon UK-led team includes world class training transformation companies that will provide unrivaled expertise to deliver the Strategic Training Partner role for CTTP.

Jeff Lewis, chief executive of Raytheon UK said: "We are bringing together a team that has collaboration and innovation at its heart. Omnia Training embraces modern training technologies and methodologies that enhance the common training experience and is focused on delivering better training

outcomes for the soldier and commander.

"At the heart of our collaborative approach will be the exploitation of data and connectivity across multiple training technologies," Lewis said. "This combination will enable us to deliver a truly flexible and cutting-edge training environment and will help prepare the British Army for a range of scenarios that have traditionally been difficult to create on a training ground."

The CTTP's Strategic Training Partner will assume responsibility for the existing Army collective training system and infrastructure to deliver collective training, then work collaboratively with the Army to transform this into a fully integrated, flexible training solution and be responsible for continuously improving new army training capabilities.

Contributing to Mission Readiness

For the past 15 years, CymSTAR has provided simulation products and engineering services to prepare naval aviators to be the best of the best on their unique missions at sea.

To learn more about our products and services or to book a meeting with our team during I/ITSEC 2022, visit cymstar.com.

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