“We should train the way we expect and intend to fight,” directed Marine Corps Commandant General David Berger in his Commandant’s Planning Guidance issued in July 2019, which designated education and training as one of his five priority focus areas. “Training must be focused on winning in combat in the most challenging conditions and operating environments.”

“We must make the most of every learning opportunity in garrison before units go to the field. Training must include appropriate background reading, tactical decision games, modelling and simulations, and augmented reality. Everything should be subject to a formal critique—which is a particularly important part of performance-oriented training.”

Enabling the Marine Air-Ground Task Force to win in combat is the primary focus of Program Manager Training Systems (PM TRASYS), located in Orlando. It is the Marine Corps acquisition arm for training systems and includes three teams; Collective Training Systems, Individual Training Systems and Range Training Systems.

“Over the past year, our Force on Force Training System (FoFTS) Next program has been the priority of effort for the program office,” Colonel Luis Lara, PM TRASYS [Booth 1433] told the Show Daily. “The previous system, the Instrumented Tactical Engagement Simulation System (I-TESS) increment II, is reaching the end of its service life.”

The FoFTS Next is the most significant project now underway within the Range Training Systems portfolio, with a projected cost of more than $300 million. PM TRASYS is taking a phased approach: the first was white paper submissions from potential vendors in Q4FY19; the second was a recently completed capability demonstration. A few more phases are planned, but the final phase is the potential production phase, provided it meets the objectives.

Three companies - Cubic [Booth 1948], Ravenswood Solutions [581] and Saab Training & Simulation [800] - were selected to participate in a demonstration at Aberdeen Test Center, MD. “The demonstration was very small,” explained Lara. “We had about 20 Marines instrumented and we were just making sure that their systems were able to perform in the manner that they described. One of the key aspects of our requirement is that we’re switching from the MILES standard for laser engagement to the OSAG standard which is mostly used by our NATO partners.”

“Phase 2 concluded with a question and answer session with each vendor that participated in the capability demonstration. The purpose of this was to better understand their technology and approach to solving our force-on-force initiative. Another aspect was to refine our requirements in regard to how the Marine Corps will deliver and achieve force-on-force training in the future.”

Continued on p6
Decades of trusted boots-on-the-ground training make us an industry leader. The ability to leverage groundbreaking technologies to blend synthetic and live elements into a single training environment makes us the right partner.

RAYTHEON.COM/TRAINING

VISIT US AT BOOTH 1037
WEDNESDAY, DECEMBER 4
CONFERENCE HIGHLIGHTS

REGISTRATION HOURS
0700-1800 (South Concourse, S220CDE)

EXHIBIT HALL HOURS
0930-1800

SIGNATURE EVENTS (SEE SERVICE UPDATES/PROGRAM BRIEFS AT RIGHT)
0830-1000 The Impact of Data and Simulations for 21st Century Warfare (Room S301AB)
0830-1200 AI Game Theory: Game Changing or Game Over? (USSOCOM) (Room S330EF)
1030-1200 Navy Flag Officer Panel – The Navy the Nation Needs Now (Room S330BCD)
1400-1530 Alignment of Army M&S Across the M&S Enterprise and the Army Future Force Modernization Enterprise (Room S310AB)
1400-1530 Multi-domain Battlespace Training (Room S330BCD)

FOCUS EVENTS
0830-1000 Imagine 2030: AI-Empowered Learning (Room S320GH)
1030-1200 Perspectives on Competency-Based Learning (Room S310C)
1400-1530 Patient Safety in Healthcare: The Role of Modeling and Simulation (Room S310C)
1400-1530 Multinational Perspectives on Live, Virtual and Constructive Implementation in Ops (Room S330EF)
1600-1730 Black Swan: To Tell the Truth, I’ve Got a Secret (Room S310AB)

COMMUNITY OF INTEREST
0830-1000 Adaptive Instructional System Interoperability Standards (IEEE Project 2247.2) (Room S329)
1030-1200 Learning Engineering: A New Academic Discipline and Engineering Profession (Room S329)

LAUNCH PAD
1400 Omni-Directional Treadmill - Infinadeck (Booth 793)
1430 The Robot Operating System (ROS) and the Gazebo Simulation Environment - Huntington Ingalls Industries (Booth 793)
1600 Computer Vision on the Edge - MapBox, Inc. (Booth 793)
1630 Disruptive Training Across the Spectrum of Use Cases Using Virtual Immersive Experiences – Enduvo (Booth 793)

PROFESSIONAL DEVELOPMENT: (SEE PROGRAM GUIDE FOR TITLE/AUTHOR LIST)
0830-1000 Paper Sessions (Rooms S320A-F)
1030-1200 Paper Sessions (Rooms S320A-F)
1400-1530 Paper Sessions (Rooms S320A-F)
1600-1730 Paper Sessions (Rooms S320A-E)
1600-1730 Future Leaders Presentations (Rooms S320F)

SERVICE UPDATES/PROGRAM BRIEFS TO INDUSTRY
US ARMY:
0830-1000 PEO STRI Training and Simulation Industry Symposium updates (Room S330BCD)
1145-1245 STE: Improving Realism in Live and Virtual Wednesday (Room S230D)
1300-1400 Live Training Transformation (LT2) Marketplace - How Industry Can Participate (Room S230D)
1400-1500 Future Army System of Integrated Targets (FASIT) Program of Record Introduction (Room S230D)
1600-1730 PEO STRI Training and Simulation Industry Symposium updates (Room S330BCD)

US AIR FORCE:
1300-1400 KC-10 Training System (Room S230C)
1430-1530 C-5 Training System (Room S230C)
1600-1700 C-17 Training System (Room S230C)

US MARINE CORPS:
1300-1430 Trackless Mobile Infantry Target 1:1 (Room S230B)
1445-1545 Combat Vehicle Training Systems Version 3.0, Advanced Gunnery Training System (Room S230B)
Conference Chair Spotlights the I/ITSEC Difference

In his opening remarks during Tuesday morning’s opening ceremonies, Brian Holmes, I/ITSEC 2019 Conference Chair, highlighted some of the factors and features that make I/ITSEC the world’s leading modeling and simulation event.

The unique blend of peer reviewed papers and presentations, coupled with over 400 exhibitors demonstrating the most relevant and cutting-edge technologies is what sets this conference apart,” he said. “Under the leadership of my trusted partner in this year’s event, Program Chair, Ms. Jennifer Arnold, this group of volunteers has created a program consisting of 126 technical papers, 41 special events, 18 tutorials and nine professional development workshops. The strength of our program is due to the efforts of those volunteers that make a difference with the amount of time they spend, usually on their own time away from their families.”

Pointing to some of the unique features of I/ITSEC 2019, he added, “Each year we continue to strive to create new events that push the boundaries, such as this year’s Iron Dev competition, where developer teams are given a challenge and, like a food network show, they use a secret ingredient to help solve warfighter challenges. That should be fun and I urge you to go check that out.”

Holmes continued, “We also have a new medical focus event entitled Patient Safety and Health: The Role of Modeling and Simulation to continue the dialogue surrounding patient safety and the role that M&S has in supporting patient safety across healthcare.”

Identifying the I/ITSEC Fellow program as “recognizing an individual whose contributions have fundamentally shaped the simulation and training capabilities being delivered today,” he recognized this year’s Fellow, Dr. Richard Fujimoto from the Georgia Institute of Technology.

Reiterating his appreciation for the efforts of I/ITSEC volunteers and conference leadership, he shared an observation from Theodore Roosevelt.

“Teddy Roosevelt said it best when he said: ‘The best executive is the one who has the sense to pick good people to do what he needs done and enough self-restraint to keep from meddling with them while they do it.’ And thanks to our talented and passionate volunteers, I’ve truly been able to enjoy the journey as Conference Chair.”

Holmes closed his comments with “a very special thanks to all the men and women who have served or are currently serving in the Armed Forces. My hope is that we can all recommit this week to work together to ‘win the war of cognition’ and provide them with the best training, simulation and education solutions possible.”
MAK ONE

THE FLEXIBLE SIMULATION PLATFORM FOR ALL DOMAINS

Booth #1322

LAND

SEA

AIR

SPACE

VT MAK
PM TRASYS Preparing Marines... continued from p1

The production phase could lead to a prototype production decision for the 16 battalion sets the Marine Corps requires. In order to support the MAGTF force-on-force requirement, the threshold requirement is for instrumenting up to 7,000 Marines.

In a separate project, the Range Training Systems office examined whether ‘training as a service’ contracts would improve the value of Integrated Training Exercises (ITX). “We must be able to say with confidence that the $5.5 million we expend per ITX rotation is causing greater readiness and, therefore, providing a return to the service for the investment,” stated the Commandant’s Planning Guidance 2019.

Lara explained that in October, “the Marine Corps conducted a proof of concept for the new model of force-on-force training. ITX 1-20 was the largest instrumented exercise to date at Twentynine Palms, CA, where nearly 8,000 Marines were instrumented. PM TRASYS facilitated the support of the exercise by coordinating across the Marine Corps and working with the US Army to provide enough sets of gear to instrument the exercise. For the training as a service proof of concept we basically had the contractor facilitate the exercise through managing our government owned equipment and also providing subject matter expertise and developing quick after action reviews. They were able to do a quick hot wash at every level from squad all the way to division, letting them know how they performed. I can say that there was a lot of value gained from that proof of concept. MajGen. David Furness, Commanding General, 2nd Marine Division, said that he was really impressed with the capability that was provided.”

“Some of the things that were done during the exercise in the realm of electronic warfare, designed to replicate what a near peer threat might do to us, was really beneficial for the 2nd Marine Division,” observed Lara. “The exercise was over 50 days long, which again is the longest instrumented exercise to date. There were a lot of valuable lessons learned, for example, how to operate in an EW environment with instrumented Marines and logistics management during the exercise.”

In the realm of Individual Training Systems, PM TRASYS singled out the Marine Common Driver Trainer (MCDT) as one of the significant achievements within the portfolio. “Collaboratively with the US Army Program Executive Office for Simulation, Training and Instrumentation, we awarded a contract to replace all of the legacy driver training systems. What’s really unique about the MCDT is that it gives you the ability to replicate not just one vehicle type but all of the combat and tactical vehicles in the Marine Corps fleet to include the latest Joint Light Tactical Vehicle as well as the Amphibious Combat Vehicle currently in development.”

“The beauty of the MCDT is you’re going to be able to have a common product baseline for the software because most of the vehicles are going to operate in the same type of environment whether it’s rain, snow, desert, mountains off road, or on road. All you’re going to do is switch out the hardware, the different vehicle cabs, so that you get the same field of view as the actual platform. We are anticipating spending close to $61 million on that over this year and next.”

PM TRASYS explained the efforts by the Collective Training Systems office to implement the USMC’s Live, Virtual, Constructive - Training Environment. “During FY19, an Analysis of Alternative (AoA) study was completed to assess potential materiel solutions that address validated capability gaps identified in the LVC-TE Initial Capabilities Document (ICD). Of the 12 alternatives identified in the study, five were determined to be feasible. These alternatives were briefed to Commanding General Training and Education Command (TECOM), MajGen William Mullen and Commander, Marine Corps Systems Command, BG A J Pasagian, last year. Following the brief, direction was given to proceed with prototype development of an LVC-TE system of systems utilizing the Army’s LVC-Integration Architecture (IA) with Marine Corps legacy training systems, to further refine the LVC-TE requirement and reduce risk once the program is funded. The systems in consideration for the Increment 1 prototype include Supporting Arms Virtual Trainer (SAVT), the Combined Arms Command and Control Trainer Upgrade System (CACCTUS), the Aviation Distributed Training Environment (ADVTE) and Virtual Battlespace 3 (VBS3) from the Deployable Virtual Training Environment (DVTE).”

“The Marine Corps wants to take a hard look at doing LVC-TE Increment 2 utilizing a new development Contractor-Owned, Contractor-Operated acquisition strategy for future increments.” A Business Case Analysis for this strategy is currently being conducted.

Once funding is available, the current efforts PM TRASYS has undertaken will allow it to field this training capability to Marines within 12 to 24 months.
Minimize risk.

Our technology powers prototyping and testing for the Army’s AH-64 Apache.

Visit Booth 1612 to learn how.

tsd.huntingtoningalls.com
Military Keynote Examines Global Challenges

Tuesday morning’s opening ceremonies included a keynote address by General Stephen “Seve” Wilson, US Air Force Vice Chief of Staff, in which he identified a range of global challenges that need to be addressed through the application of critical technologies, including modeling and simulation.

Wilson was introduced by the US Air Force Service Executive for I/ITSEC, Colonel Philip Carpenter, who characterized him as “someone who is truly one of the Air Force’s experts on training readiness and lethality.

“Our Defense Department is embarking on the largest transformation, I would argue, in decades,” he began. “And we don’t just want industry’s help. We need industry’s help. We need it badly. So, thanks for the partnership that you all have with us to make our military better, stronger.

Praising the validity of this year’s conference theme, he offered, “It’s clear. You all get it.”

On behalf of the entire total force, thank you for being such a huge part of what enables all the men and women in uniform to maintain the combat edge necessary to prevail on the battlefield.

—General Stephen “Seve” Wilson, US Air Force Vice Chief of Staff

Wilson went on to offer several examples of modeling and simulation technologies that have been introduced across the Air Force, adding, “The growing complexity of both the global landscape and modern warfare requires that we continue to adapt, improve and increase our training and simulation capability.’

He pointed to various aspects of that changing global landscape, including “how the threats are changing and how we need to adapt to stay ahead.

“If you look back just upon our short Air Force history in the last 70-so years, the population of the planet has tripled,” he said. “When we started as an Air Force, the population of the planet was 2.3 billion. Today it’s 7.6 billion. In the next 20 years it will grow about another 2 billion. And while population growth is declining in most developing states, in the poorest 47 countries, they are expected to see their populations double. So, what do you think that’s going to do for challenges like migration, similar to what we’re seeing today? How will those countries cope?”

Turning to the threat posed by China, Wilson provided a personal perspective of changes.

“When I came into service, China’s GDP was less than $300 billion,” he said. “The IMF now pegs it at about $15 trillion. When I entered service, Chinese trade with the outside world was under $40 billion. It has increased 100-fold since then. And for every two-year period since 2008, China has added more value to their economy than the entire GDP of India. China isn’t backwards anymore. It’s a legitimate competitor.”

He cited some of that country’s recent achievements and current capabilities, adding his personal view that “China is all in to win.”

“It’s an all-nation effort,” he continued. “It’s industry, it’s academia, it’s national labs, it’s military, it’s what they call military civil fusion. And it would be a mistake to underestimate. Not only can they compete, I contend they have an advantage that I call 15:1”

Wilson justified that projection by offering comparative statistics of economic size, GDP growth, population size and the critical category of STEM graduates. In the STEM example, he said that China currently has eight times the number of STEM graduates as the US, with that advantage predicted to grow to 15 times in the next 5 years.

He summarized, “If you freeze those four statistics and you fast forward for 10 years, we ask who the peer and who the near peer will be.

“If we were to go to war today, we win. No question. No doubt about it. But the force we have today is not the force we’ll need to continue to deter conflict against a peer like China. Across the joint force, we took a hard look at our concepts of operations, our force designs and stacked them up against the National Defense Strategy. Each service is making modifications based on those reviews,” he said.

He concluded, “As the Vice Chief, I get to spend a lot of time working with senior leaders across all of our services and our international partners. And to a person, they tell you the same thing, that the most important weapon system on the battlefield isn’t the tank or an airplane or a submarine, or a satellite. The most important weapon system is the Soldiers, Sailors, Airmen, and Marines. And everything else, while important, is just stuff. It’s not a capability until it’s put in the hands of trained and seasoned service members. On behalf of the entire total force, thank you for being such a huge part of what enables all the men and women in uniform to maintain the combat edge necessary to prevail on the battlefield. We’re excited to partner and glad to be on this journey with you. Thanks for your help. Thanks for making a difference. And have a great I/ITSEC.”
FlightSafety Introduces New and Innovative Advanced-Technology Training Systems

Advanced technology, unmatched performance and versatility on demand. It’s why commercial, government and military organizations worldwide rely on FlightSafety training systems. Experience the future of aviation training for yourself.
The view that new training technologies can help improve force readiness and resilience while increasing survivability and lethality was the common thread tying together the Senior Leader Panel at I/ITSEC 2019.

The six senior leaders outlined their approach to preparing for a wide array of missions and threats but also how they are confronting the opportunities and challenges of accelerating technology and cybersecurity.

Fred Drummond, Deputy Assistant Secretary of Defense (Force Education and Training), Office of the Secretary of Defense, said that in order to improve force readiness, the services should continue to embrace the concept of live, virtual, constructive (LVC) training as well as emerging technologies such as 5G wireless networking.

“The advantages that 5G technology in particular are going to bring - edge computing, the low latency, high speed, ubiquitous connectivity. Think about what those training implications are going to be. There’s an opportunity for us to fundamentally change the way you train,” Drummond said.

“We’re going to get real time feedback and we’re going to be able to change training scenarios on the spot. We’re going to be having a whole new world open up to us about how we might be able to train and react in real time.”

Drummond also argued for the need for a common “one world” database that can be used across the services, which would include agreed and shared common attributes for all simulated elements.

VAdm DeWolf Miller, III, Commander, Naval Air Forces/Commander, Naval Air Force, US Pacific Fleet, gave the example of the Navy’s F/A-18E/F Super Hornet fleet, which for almost a decade averaged less than 50% mission capable.

“What we realized is we had to reform a lot of the way we were doing business. And so, we looked to outside agencies to help us out with this. Primarily, it was the civilian aircraft industry that showed us the light and helped us with our efforts. The bottom line is we got up to where we needed to be: at 80% mission capable, in a very short period.”

Now the Navy is focusing its efforts on ensuring the aircraft flying off its carriers are at their most survivable and lethal.

“As I look at what’s on the show floor and I look at the new technology, I’m excited because we need to incorporate new technology into our tactics, our techniques, our procedures, the way we train at all levels. And LVC, that live, virtual, constructive, certainly that plays a major part when we start getting into larger exercises.”

His comments were closely echoed by US Air Force Maj Gen James Jacobson, Director of Training and Readiness, Deputy Chief of Staff for Operations.

“I would say from a training and readiness standpoint, where I would like to focus today is how the future of training will impact Air Force readiness. Clearly, we have a variety of mutual readiness issues, but I think the crux of future Air Force readiness rests in this room. And in creating the environment that’s going to allow, not just air crews, but airmen at large, to train in ways that current geography, current capabilities, current threats aren’t going to allow us to do the way we’ve done in the past.”

He also noted that the days of standalone, partially-integrated training systems were over and the Air Force was getting closer to the goal of an integrated system of systems.

“As I look at what’s on the show floor and I look at the new technology, I’m excited because we need to incorporate new technology into our tactics, our techniques, our procedures, the way we train at all levels. And LVC, that live, virtual, constructive, certainly that plays a major part when we start getting into larger exercises.”

His comments were closely echoed by US Air Force Maj Gen James Jacobson, Director of Training and Readiness, Deputy Chief of Staff for Operations.

“I would say from a training and readiness standpoint, where I would like to focus today is how the future of training will impact Air Force readiness. Clearly, we have a variety of mutual readiness issues, but I think the crux of future Air Force readiness rests in this room. And in creating the environment that’s going to allow, not just air crews, but airmen at large, to train in ways that current geography, current capabilities, current threats aren’t going to allow us to do the way we’ve done in the past.”

He also noted that the days of standalone, partially-integrated training systems were over and the Air Force was getting closer to the goal of an integrated system of systems.

US Marine Corps Maj Gen William Mullen, Commanding General, Training and Education Command, categorized the Marine Corps’ training priorities across four areas: instrumentation, 21st century learning, modeling and simulation.

“Regarding instrumentation, one of the things we’ve been very good at is measuring the inputs of readiness – how many aircraft, how many vehicles are up and ready, the manning of units, the supply of units. The one thing that we have not been good at in the Marine Corps is measuring the outputs of readiness – which is how are units doing against our own training standards? Measuring those, their performance, in an objective way to provide them that feedback. So that means we need new instrumentation.”

US Army Brig Gen Stephen Michael, Deputy Commanding General, US Army Combined Arms Center - Training, said the changing nature of today’s threat - including the rise of China and Russia as peer competitors - had caused the Army to develop its multi-domain operations concept.

“Our strategy of multi-domain operations is focusing on ensuring that we’ve got the ability to fight, to dominate and win. The Army is looking at balancing readiness, because we’ve got to be ready to fight, with modernization, and the whole rational for standing up and creating Futures Command is understanding that the character of war is always changing.”

As one modernization priority, Michael cited the replacement of the Multiple Integrated Laser Engagement System (MILES) training system as being of key significance.
VBS4 does everything VBS3 does and more! VBS4 offers a massive step change in modularity, openness and ease-of-use as well as the performance and terrain enhancing capability of BISim’s new engine, VBS Blue. VBS4’s new workflow and capabilities amplify your training efforts by enabling users to start training faster, make edits and updates to training scenarios and terrains with greater ease and collaboration, and simulate training scenarios anywhere on the virtual Earth.

At I/ITSEC 2019, see a live combined arms demo of VBS4, BISim’s next generation whole-earth virtual desktop trainer and simulation host @ BISim’s booth 2534.

The VBS4 Advantage
✓ Train Anywhere on a High Fidelity Virtual Earth
✓ Dramatically Increase the Speed of Scenario Creation
✓ Generate & Edit Terrains Faster Directly Within VBS4
✓ Reduce the Need for Human Operators with New AI
✓ Share Terrain Dynamically Across VBS4 & Other Run Times

www.bisimulations.com | sales@bisimulations.com
Raytheon Presents New Virtual Training Solutions

Raytheon [Booth 1037] has unveiled two new virtual reality training systems as it pivots to meet the increasing requirements for deployable, point-of-need training solutions.

At I/ITSEC 2019, the company is debuting its new Synthetic Training Environment Soldier Virtual Trainer (STE SVT) and a virtual reality version of its portable V-22 trainer.

Designed to train dismounted infantry, the STE SVT uses virtual reality to train squads of soldiers in multiple scenarios while using real and virtual weapons.

Harry Buhl, Business Development Manager for Global Training Solutions at Raytheon’s Intelligence, Information and Services business, said the system had been designed to deliver realism and accessibility while reducing the cost and logistical challenge of high-consequence training missions.

This is the vision for the US Army’s Synthetic Training Environment, which aims to create a common synthetic environment for soldiers to train together from anywhere in the world.

“When the Army draft requirements came out a couple of months ago, we were pleased to see that we are in line with the types of capabilities that the Army is looking for. Specifically, they’re looking for a joint fires capability for training, a weapon skills development capability for training and to have that as a cohesive single system,” Buhl said. The system had been designed with an emphasis on being cost-effective and easily deployable.

“It can be used for a standalone capability if you’re in an austere environment. But it’s also cloud-enabled so that you can collaborate with other trainees in a much larger exercise. And so that assessability, that point of need capability, the ability to be able to take it anywhere in a couple of Pelican cases - we understand that the Army really wants that capability. So, we’re going to demonstrate how you can have the capability, take it anywhere in the world and be able to do the joint fire training, the weapon skills development and the use of force training all in the same trainer.”

In developing the system, Raytheon has partnered with VK Integrated Systems, which provides its SmarTak architecture; ARA Technologies [Booth 2572], which has assisted in the software development of the synthetic environment; and some other partners the company is currently unable to reveal.

Buhl said the Army was looking at the advantages of augmented reality as a longer term objective but viewed VR as an initial means forward.

“It’s a headset-type solution, software intense capability that you can pack up in a Pelican case and take with you. And as you then have the technology to come to the augmented reality solution, you have the engineering path forward. I think the Army looked backwards from its objective capability and saw the value of virtual reality to be able to get there. And you get away from these rooms of screens and projectors and sensors, and are actually able to take this and pack it up and do the training wherever you want it.”

Meanwhile, Raytheon has also debuted a virtual reality version of its portable V-22 trainer.

Aircraft Functional V-22 Trainer-Virtual Reality is a fully immersive system that provides hyper-realistic training across all experience levels, including early-career aviation maintenance students and those engaged in continuing education.

Dean Hoover, Systems Engineering Section Manager at Raytheon, said the system was designed as an easily deployable virtual trainer that allows students to work through various procedures and retains the muscle memory of carrying out the task live.

Students can access integrated interactive electronics technical manuals and 41 different operational aircrew and maintainer checklists to help them navigate the fully interactive cockpit, cabin, and exterior.

Instructors can insert up to 81 unique system failures, such as electrical power, navigation, blade-fold, and electronic warfare, into the training scenarios.

The trainer also supports multiplayer collaboration with directional audio and two-way communications with instructors and other students.

At I/ITSEC 2019, the company is providing demonstrations of the system, allowing visitors to experience the realistic nature of the training. Wearing an HTV Vive [Booth 2426] VR headset, students can use the controller to move around the aircraft and highlight and interact with all the actual knobs and switches.
The Virtual Reality (VR) head-mounted display puts you directly in the pilot’s seat of virtually any aircraft. There is a full sense of immersion brought about by the 3D, stereoscopic nature of the VR goggles.

**DESIGNED FOR:**
- Vertical Reference
- Slung Loads
- Mission Rehearsal
- Hover Training
- Pilot Screening
- Entertainment

**VIRTUAL REALITY SIMULATION**

**VISIT US AT BOOTH 413**
HII Demonstrates US Navy Training Systems

Visitors to HII’s booth will be shown the use of waterproof tablets to train crews to operate or maintain equipment or systems while in the field, classroom, or onboard ships and stations. The booth will highlight new interactive US Army and US Navy training courses. Dogfish Labs, NNS’ Technology Innovation Lab and Mobile Center of Excellence, is highlighting the Woodward Governor Augmented Reality Training Application for the US Navy’s Los Angeles-class nuclear-powered fast attack submarine. The application provides computer graphic overlays that allow sailors in the classroom to visualize maintenance procedures on a submarine’s diesel engine governor.

“Sailors have been using our training applications since 2017 at all six Los-Angeles Class learning installations around the country,” Jovan Celar, a Dogfish Labs engineer told the Show Daily. “The application walks the Sailor through step-by-step maintenance procedures, explaining exactly how to do something. It breaks a large complex task into easily digestible pieces of information.” Celar added that the Navy is now using the second iteration and a third iteration, is in development to reflect changes in technology aboard the submarines.

Another project created by Dogfish Labs is the official app for the 7 December christening ceremony for the John F. Kennedy (CVN 79) aircraft carrier, second of the Navy’s newest class of nuclear-powered aircraft carriers, at the Newport News shipyard. The app uses augmented reality to give attendees a unique experience. HII developed the technology to support training for crew of the lead ship, USS Gerald R. Ford (CVN 78).

This afternoon I/ITSEC attendees are invited for refreshments and the following presentations at Booth 1612:
1600 Al-Enabled Cyber Defense
1630 Seabed Warfare in Denied Waters
1700 The Evolution of Cyber
1730 Understanding Robot Operating Systems

Huntington Ingalls Industries [Booth 1612] not only builds more ships for the US Navy than any other naval shipbuilder, through its Newport News Shipbuilding (NNS) and Ingalls Shipbuilding divisions in Virginia and Mississippi, it also provides comprehensive training systems through its third division, HII-Technical Solutions.

Discover the many benefits of NTSA Corporate Membership

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

Corporate Membership Options

<table>
<thead>
<tr>
<th>Sustaining</th>
<th>Regular</th>
<th>Associate</th>
</tr>
</thead>
<tbody>
<tr>
<td>$5,000 in dues</td>
<td>$1,250 to $3,750 in dues (depending on # of employees involved in training and/or M&amp;S)</td>
<td>$500 in dues; designed for smaller companies</td>
</tr>
<tr>
<td>First choice of booth space (during I/ITSEC)</td>
<td>Second round of booth space selection (in early-to-mid February)</td>
<td>Third round of booth space selection (in late February)</td>
</tr>
<tr>
<td>10% discount on booth space for I/ITSEC (Maximum discount = $5,000)</td>
<td>5% discount on booth space for I/ITSEC (Maximum discount = dues amount paid)</td>
<td>No discount on booth space for I/ITSEC</td>
</tr>
<tr>
<td>Seat on Executive Committee and Invitation to M&amp;S Awards Dinner</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Additional exposure at I/ITSEC</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

All corporate members of NTSA receive these core benefits:
- Reduced registration fees for all employees for all NTSA & NDIA events
- Member listing with hyperlink on the NTSA website
- NTSA’s monthly e-newsletters
- National Defense, NDIA’s award-winning magazine

VISIT TRAININGSYSTEMS.ORG/MEMBERSHIP  |  CONTACT CAROL DWYER AT CDWYER@NDIA.ORG
Think air combat training. Think Leonardo DRS.

Leonardo DRS has more than 30 years of air combat training experience, more than 5,000 airborne instrumentation units in service worldwide, and well over 2 million service hours of air combat test and training sorties. It’s no wonder Leonardo DRS Air Combat Training Systems (ACTS) have been chosen by our customers to prepare combat-ready pilots for whatever is next.

Discover the proof that is in the numbers, and stop by booth 872 or meeting room 395.
MetaVR
Virtual Reality Scene Generator

Geospecific, high resolution, virtual terrain of Mischief Reef, an occupied reef located in the South China Sea.

Find us at I/ITSEC 2019, booth #1348.
Norwegian Students Demonstrate the Power of STEM

Norwegian students Camilla Hugoy, Victor Urnes and Hans Gjerland, together with chaperone Gizem Ates, arrived in Orlando from Ferde, Norway, where they are members of the Reodor Technology Club, an organization that provides youth with access to advanced technologies and tools.

The group’s trip to I/ITSEC is in recognition of a recent 12-month project during which they designed, engineered and built a 6DOF flight simulator based on Prepa3D. The project was sponsored by local industry in the Ferde area.

According to Urnes, the 17-year old project manager, it started with the purchase of a Piper twin engine aircraft that suffered structural failure and crashed in forest near Oslo.

The students stripped the plane down to the cockpit and “started building it up again, cleaning it and removing all the panels and cutting wire cables. It took around one month to clean the entire plane. And then we started building – almost everything from scratch. We used as much of the original airplane as possible,” he added.

During the process of changing out the original wire controls with sensors and actuators, the team encountered an early challenge that one of the aircraft yokes was missing. After pricing a new one at several thousand dollars, they 3D scanned the surviving yoke and printed a new one.

“At first we tried to do the 3D scanning ourselves with a camera,” added Hans Gjerland. “But we had never done it before so we failed. But then we sent it to a guy in Norway who was running a 3D scanning studio and he did it for us. There is video on YouTube of him doing it.”

The team purchased fabric and manufactured their own exterior screens, which utilize three projectors and software to compensate for warping effects.

“After that we started building the platform,” Gjerland said. “We built the top platform and bottom platform by ourselves, and we bought the cylinders from China,” Urnes explained. “But the problem we had when we mounted this thing is that the joint was too small, so it [scraped] at the connector. So, we went to our local tractor seller and got new joints meant for tractors that we then re-mounted on the platform.

“There was a bit of machining required to make it fit,” he acknowledged. “But the company Hellenes has a lot of machines, so they made new flanges for us.”

He noted that part of the original scraping problem was due to the unique simulator design that features what he described as “five to ten degrees greater range of movement than most other simulators.”

The significance of the project was reflected by the presence of Norwegian Crown Prince Haakon at the opening ceremonies.

One week before the arrival of the Prince Haakon, a “wiring issue” resulted in “an explosion” of the control card.

“So, we changed the microchip and fixed the card, because it was a one-month delivery time for a new card,” he said. “We went to a local electronic manufacturing company and they helped us to fix the card.”

“We were super lucky that the original card actually survived,” Gjerland added.

Urness said that the team subsequently contacted the seller of the card “and he specially made new software designed for our new microchip. He was extremely helpful.”

The simulator is currently located in the Hellenes House of Technology in Ferde with one report indicating interest by the Norwegian Defence Research Establishment in potentially using it.

Meanwhile the students hope that their I/ITSEC visit will pave the way for their next project, with one identified possibility being a helicopter simulator that could be used by Norwegian helicopter pilots.

Check out I/ITSEC’s YouTube channel at NTSAToday for a video interview with the students from Norway.
READINESS WITHOUT BOUNDARIES

Flexible, immersive, realistic force training across domains

Collins Aerospace removes operational boundaries, enabling your forces to effectively, efficiently and securely train across the spectrum – in live, virtual and blended environments. Immerse your operators and support personnel in our highly scalable and seamless training environments for optimal readiness.

collinsaerospace.com/simulation

FULL-SPECTRUM TRAINING

- Immersive, highly realistic environments providing LVC-enabled training
- Solutions that are secure, interoperable, open architecture and available now

Visit us at I/ITSEC 2019, booth 2501.

© 2019 Collins Aerospace, a United Technologies company. All rights reserved.

UTC Aerospace Systems and Rockwell Collins are now Collins Aerospace.
Wednesday Morning University Session Planned

One of many areas of rapid I/ITSEC growth over the past several years involves the relationship between the National Training and Simulation Association (NTSA) and an expanding number of university participants.

That growth has continued over the past year, as evidenced by the I/ITSEC Conference University Cohort Session planned for Wednesday morning, 1100-1230 in meeting room S210D.

Some 130 people have confirmed their plans to attend as of Tuesday afternoon, according to Dr. Linda Brent, event coordinator and NTSA Strategic Planner.

“Anyone who’s doing research in an organization or university is welcome to come,” she said.

The university representatives are being invited by RADM Jim Robb, US Navy (Ret.) and President of NTSA to provide interested participants an opportunity to meet with other university faculty and researchers.

Attendees will learn more about I/ITSEC, NTSA’s STEM activities, make research and collaboration connections and discuss ways to get further involved in conference activities.

The event will open with introductions and a status update of previous action items presented by Dr. Brent.

That will be followed by a presentation on the EdX joint partnership between Harvard and MIT by Mr. John Schwartz, Director of Business Development for EdX.

“After he speaks, Dr. Margaret Loper, Chief Scientist, Information and Communications Laboratory, Georgia Tech Research Institute, will speak about the research agenda,” Dr. Brent added.

“And then we’re going to have small group discussions about research interests in the community that’s present.”

The working groups will also help to identify next steps and future action items.

Inaugural I/ITSEC Career Fair

The Career Fair at today’s I/ITSEC, from 1000-1700 in Room S331C, is a pilot one-day event targeted at graduating students and veterans looking to start careers in Science, Technology, Engineering & Math (STEM). The job fair will not only allow students direct access to recruiters and hiring managers, but also provide them an opportunity to visit the conference floor and experience the start of their new career with a complimentary day pass. Government, industry and academia partners have the opportunity to recruit the ‘best of the best’ in next generation talent.


IAI Demonstrates Expanded Debriefing System

ISRAEL AEROSPACE INDUSTRIES (IAI) [Booth 1071] has supplied the Israeli Air Force (IAF) with an innovative drill debriefing system designed to perform debriefings in record time.

The system was upgraded for the recent Blue Flag Exercise held in Israel in November 2019 with air forces from the US, Greece, Germany, Italy and Israel. One notable “first” in the debriefing following the event was the processing of data from Israeli and Italian F-35 fighters, as well as real-time images of moving targets and air defense launches from a range of systems.

With the system developed by IAI’s MALAM division based on the EHUD Air Combat Maneuvering Instrumentation (ACMI) system, company representatives noted that the debriefing system is unique in its ability to integrate data from a range of training systems of different air forces.

Optimized and characterized according to the special requirements of the Israeli Air Force and the Blue Flag 2019 exercise, the system allows joint training and debriefing of all pilots who participate in the exercise.

The debriefing yields a unified air combat view of all participating aircraft and air threats based on the scenarios practiced that are fed into the system’s database to enable full documentation for future insights and learning.

In addition to using the debriefing system, IAI provided on-demand air practice services and leased an EHUD ACMI system for use in the combat aircraft of the various nations. IAI training experts supported the implementation of the system.

Jacob Galifat, General Manager of the IAI/MALAM Division, said, “This is the first time we integrated F-35 aircraft data with moving targets in the debriefing system, which has been developed and upgraded for the exercise held in Israel.”

Over 1,000 EHUD air training pods have been supplied to date across the world, as well as hundreds of debriefing systems to numerous customers.
THE TRAINING IS SIMULATED.

THE READINESS IS REAL.

When the stakes are high, success is the only option. L3Harris understands the complex missions warfighters face in combat. So we developed state-of-the-art immersive training solutions that prepare pilots across a wide range of manned and unmanned platforms. With L3Harris, they’re ready for anything because they’ve trained for everything.
Today’s Black Swan Event, ‘To Tell the Truth, I’ve got a Secret’ examines deep fake videos and the insider threat.

Since it was launched as a multi-year initiative at I/ITSEC 2015, the Black Swan special event has proven highly popular. Its purpose is to highlight the value of modeling and simulation in helping governments, emergency responders, armed services, aid organizations and other groups prepare for high impact/low probability events.

Today’s Focus Event will take place at 1600 – 1730 in Room S310AB. The Black Swan 2019 panel discussion will examine the twin threat scenario of a deep fake video authenticated by a credible insider threat. Panelists will examine the artificial intelligence (AI) algorithms behind the creation of deep fake videos and how they can be used for training and possibly public deception. The scenario will also add the intrigue of using an insider threat to authenticate this deceptive video and how insider threats can be used to gain access to inner circle information and possibly sway public opinion.

As training videos are used extensively by both the military and industry, the science of AI and its application to creating deep fake videos must be explored and understood. Insider threat knowledge and the tradecraft of information warfare includes the use of such deception and thus complicates its countermeasures. This session hopes to introduce the audience to these techniques and explore both their nefarious and beneficial uses to the training and simulation communities.

The term ‘black swan’ is used to describe a low probability/high impact event which could profoundly affect our future. Modeling and simulation can play a major part in exploring these events in a cost-effective manner.

The Moderator will be Michael van Lent, Ph.D., President and Chief Executive Officer, Soar Technology. The Session Chair will be Nina Deibler, Serco, Inc., while the Panelists are Josef Schaff, DSc., NAWCAD Lead Autonomy Architect, US Navy, NAVAIR Associate Fellow, and John Mendoza, Deputy Director, Insider Threat Office, US Air Force.
Making every round count means training as you fight.

We’re delivering digital instrumented ranges to provide the most sophisticated training for the highest risk exercises – live fire and maneuver training. These train-as-you-fight environments increase soldier lethality, precision and survivability.

Learn more at lockheedmartin.com/training

Lockheed Martin. Your Mission is Ours.
Designed for various training purposes, the Kratos [Booth 1312] holodeck staging environment uses Cross Reality (XR) technologies to allow participants to engage with different virtual and real environments.

The Army’s Night Vision and Electronic Sensors Directorate (NVESD) will utilize the holodeck to evaluate physical and psychological warfighter performance under simulated real-world conditions.

Kratos Chief Technical Officer Craig Clark said the VPH would be used to test various current and future Army systems and sensors.

“The main purpose of the VPH contract is to prototype this technology, not just for training systems, but also for more tactical systems. So, they’ll be using it to prototype future systems that the Army will be using. The system will mainly be out of Fort Belvoir, but we are doing some systems that are at Fort Rucker and we’ll have a system here [in Orlando] with PEO STRI.”

Visitors to the Kratos stand will get to experience the immersive nature of the company’s Reconfigurable Virtual Collective Training System (RVCTS).

Using mixed reality, participants can still see their hands and other real-world elements. However, the simulation features a “virtual wall” so, when users look behind themselves, they view the simulation rather than the back of the holodeck.

This allows two different participants - in this case one playing the role of a CH-47F rear gunner, the other a forward observer - to take part in the simulation in close proximity.

Clark said, that as well as creating a fully immersive experience, Kratos has designed the simulation environments to be deployable to the point of need (PoN) as well as being based on an open architecture for lower costs.

“The idea here is that the item is able to break down very easily, put into a box and be able to move into a point of need. So, in this particular case, you’re going to see three different helicopters and the component is all based on the same mixed reality platform - it all comes together in containerized systems that you just put together, stage, and then set up and execute.

“One time we put light tape on the walls, you can actually put yourself inside the virtual world, with the head gear on and you can actually touch the walls and still interact with the simulation. It’s pretty cool.”
We have rolled out a new robot – the leap-ahead T50,” Ralph Petroff, Marathon’s North America president, told the Show Daily. “The brand new T50 takes the best features of the T30 and T40 and fuses it into a single robot. The T50 robot now has a range of up to 30 miles, thanks to new battery technology of our own design. In addition to retaining features like simulated speech and sound effects, the robot also has a muzzle flash and active thermal capability.”

“Our first I/ITSEC was in 2009,” recalled Petroff. “Back then, our robot was the only autonomous ground target, or autonomous ground vehicle, of any kind in the hands of end-users. Ten years later, we are still the only autonomous robotic target, and the only autonomous ground vehicle of any kind, in the hands of end-users. Marathon manufactured more robots in 2019 than in the three previous years combined, and has expanded its US footprint to nine offices coast-to-coast, with more planned for 2020, to support use by the US Marine Corps, US Army and other customers. “We have a US facility at the state-of-the-art Robotics Technology Park in Huntsville, AL capable of producing thousands of robots for the US market,” said Petroff.

“Nearly all of our work is training-as-a-service rather than actual equipment purchase,” noted Petroff. “This has a number of important benefits for our customers: units can use their own O&M money, instead of harder-to-find procurement funding; units are not locked in to any specific vendor – if someone else makes a better robot in a few years, it’s easy to change; and Marathon provides trained robot operators, so it doesn’t add additional workload to existing range staff.” He noted that over 75 per cent of the company’s robot operators are combat veterans, enabling them to “create realistic scenarios in just a few minutes” to meet customer needs.

Recent additions to the company’s list of NATO customers include the German Bundeswehr and the Slovenian Army.
VRSG stimulates ROVER devices with streaming HD digital video of UAV or targeting pod feeds.

VRSG-rendered geospecific 3D terrain dataset of Hajin, Syria, in round-earth Metadesic format.

VRSG renders H.264 simulated UAV payload video with KLV metadata that mimics UAV and targeting pods output.

The battle, seen.
Geospecific simulation with game quality graphics.
Find us at I/ITSEC 2019, booth #1348.

VRSG provides out-the-window and sensor views for the A-10 Full Mission Trainer.
MetaVR’s Virtual Reality Scene Generator (VRSG) can provide visuals for mixed reality training solutions, inserting simulated entities into the live environment. Trainers experience the reality of the battlefield in a live environment with simulated targets, enemy assets, vehicles, aircraft and weapons provided by the image generator.

These scenes show a mix of real and simulated 3D air and ground platforms, buildings and personnel rendered by VRSG and integrated with hyper-realistic real-world terrain. The resulting training environment truly blurs the line between virtual and reality.

The battlefield is dynamic. A typical close air support (CAS) mission requires joint terminal attack controllers (JTAC), forward air controllers (FAC-A), forward observers (FO), and manned/unmanned pilot and sensor operators to work together in quickly evolving conditions. Success relies on the ability for all parties to train together on disparate platforms within a cohesive training environment.

Enter: MetaVR’s Virtual Reality Scene Generator (VRSG): a real-time 3D render engine with an extensive collection of vehicle models and geospecific terrain. VRSG provides the means for operators of disparate air and ground training systems to train within a cohesive, consistent virtual world. VRSG simulates that 3D virtual world, the friendly and non-friendly entities that exist within it, and the sensor imagery generated by a given platform and shared between aircraft and ground-based operators. Critically, any training platform that uses VRSG-rendered visuals can network together for joint training missions within a common, geospecific terrain for true, collaborative training on a CAF DMO network. Realistic behavior of all forces, including electronic warfare, are provided by a close coupling between Battlespace Simulations’ Modern Air Combat Environment (MACE) computer generated and semi-automated forces and the MetaVR VRSG image generation software.

VRSG provides the visuals for key US military training systems, including the USAF A-10 Full Mission Trainer, USAF MQ-9 MALET-JSIL Aircrew Trainer (MJAT), the US Army/USAF Multiple Unified Simulation Environment Air Force Synthetic Environment for Reconnaissance and Surveillance (MUSE/SARSE), the USAF Reserve and Air National Guard F-15 trainer, and the USAF Joint Terminal Control Training and Rehearsal System (JTCTR), among others.

All of these systems can share sensor data with JTAC throughs using remotely operated video enhanced receiver (ROVER) devices, or with embedded video capabilities inside advanced situational awareness tools like the Android Team Awareness Kit (ATAK). This allows them to see networked VRSG-generated aircraft sensor streams in real time. VRSG generates the simulated 3D scene, and the range and coordinates of a designated target on the device’s monitor:

- Reaper sensor operators training on the MJAT can send full motion H.264 video with KLV metadata to ISR assets on a CAF CMO network.
- A-10 pilots can coordinate a laser designator hand-off from the MJAT while the JTAC on the ground sees full motion video from the A-10 and Reaper sensors on their ROVER device.
- The JTAC can hand off missions from the aircraft stack to F-16s.

Much as in the real world, with VRSG, the possibilities are endless.
Serious Games

The Serious Games Showcase & Challenge (SGS&C) [Booth 2880] 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: ARA, Bohemia Interactive, Box, Engineering & Computer Simulations, HP, Integration Innovation, Inc. (i3), JANUS Research Group, NTSA, Team Speak and Trideum Corporation.

Be sure to visit SGS&C at Booth 2880 to check out the games and cast your vote for the People’s Choice Award before voting closes on Wednesday at 6:00 PM. Award winners will be announced on Thursday Dec 5th at 1:00 PM at the Innovation Showcase booth 2588.

VOTE NOW!

Visit the SGS&C Booth 2880 before Wednesday at 6:00 PM to vote for this year’s People’s Choice Award.

GET INVOLVED IN 2020

Email Serious Games Showcase & Challenge at sgschallenge@gmail.com if you are interested in becoming a future finalist, evaluator, or IPT member!
Standardization to exchange digitized military information back and forth from C2 systems and simulation is known as C2SIM. Developed by the Simulation Interoperability Standardization Organization (SISO), C2SIM is assessed by the NATO’s Modelling and Simulation Group 145 (MSG-145), within the NMSG, to prove its military relevance and operationalization against a number of use cases such as mission rehearsal and planning, training and acquisition over the entire V cycle.

MSG-145 is running activities about the operationalization of the C2SIM. Some of the activities consist of assessing the C2SIM standard by performing operational demonstrations and gathering evidence about the benefits of adopting a Standardization Agreement (STANAG) on C2SIM standard. Different use cases were defined by MSG-145 participating nations as evaluation frames such as Air, Land, Maritime operations, joint operations and Cyber warfare.

At I/ITSEC 2019, French and German representatives will present their evaluation of the C2SIM based on cases related to Air Operations. The presentation will include a live demonstration based on a Destroy Enemy Air Defense (DEAD) scenario. The scenario involves an Air C2 surrogate system (C2LG from FKIE) running in Germany and operated remotely at the NATO booth, and an air simulation (Direct CGF from DIGINEXT) deployed and operated at the NATO booth. Airbus Defence and Space is providing the C2SIM message broker communication between the Air C2 center and the NATO booth.

MODSIM World 2020
PREDICTING AND SOLVING THE PROBLEMS OF TOMORROW, TODAY

MODSIM World is a multi-disciplinary and international Modeling and Simulation (M&S) event that grants attendees the unique opportunity to learn about new M&S applications and practices across diverse domains. This year, the conference will focus on Mixed/Augmented Reality, Cyber, Defense, Learning Science, and Homeland Security to support ever-changing future demands.

ATTEND MODSIM WORLD 2020:
• Network with leaders and innovators across the M&S enterprise
• Share the latest technical expertise, knowledge, applications, and capabilities of M&S technology
• Foster the initiation, development, and research of M&S among all organizations internationally
• Promote cooperation among academia, industry, and government in anticipation of and preparation for the future
• Improve M&S technology to reduce its implementation costs

TO LEARN MORE, CONTACT:
Rebecca Epstein, CMP
Associate Director, NTSA Operations
repstein@NDIA.org
Saab ‘Beyond Live’ Training

Saab [Booth 800] has chosen I/ITSEC 2019 to introduce its new Beyond Live training system, which combines live tactical ground combat training with virtual training.

Blending live training with virtual training enables the employment of non-line-of-sight capabilities such as fire and observe missiles. These new indirect fire solutions are integrated with the exercise control (EXCON), where the users can plan, execute, control and evaluate military exercises. A new function in EXCON is Microsoft's HoloLens Sandbox, which enable a real-time 3D tracking of every participant in the exercise. The One World Terrain system from Vricon [Booth 681] provides photo-realistic 3D maps.

“By combining the technical benefits from a combination of traditional live and virtual training and then blending this, Saab is able to provide the next step of training capability to our customers with even more effective training and simulation features. Our Sandbox is a revolution, it literally opens up a whole new dimension for after-action review and analyze of training activities,” said Åsa Thegström, head of business unit Training & Simulation at Saab's business area Dynamics in a statement.

Saab announced this week that it has received a contract worth more than $91 million to support the operation of the German Army's Gefechtsübungszen trum Heer (GÜZ) Combat Training Centre in Saxony-Anhalt Gardelegen over the period 2020-26. Saab is partnered with Germany’s Flensburger Fahrzeugbau Gesellschaft mbH (FFG), a proven partnership from their previous cooperation at GÜZ from 2004-08. The contract covers the management and maintenance of all live simulation training equipment, communications infrastructure and the exercise control center. Saab will provide additional logistical services such as the servicing of vehicles and radio equipment, storage and handling of weapons and ammunition, transportation of military personnel and the overall sustainment of GÜZ.

Other users of Saab tactical training systems - Austria, Czech Republic, the Netherlands, and the US 7th Army - regularly train at GÜZ as will the British Army, another established Saab training customer, from 2020.

Saab [Booth 800] has chosen I/ITSEC 2019 to introduce its new Beyond Live training system, which combines live tactical ground combat training with virtual training.

Blending live training with virtual training enables the employment of non-line-of-sight capabilities such as fire and observe missiles. These new indirect fire solutions are integrated with the exercise control (EXCON), where the users can plan, execute, control and evaluate military exercises. A new function in EXCON is Microsoft's HoloLens Sandbox, which enable a real-time 3D tracking of every participant in the exercise. The One World Terrain system from Vricon [Booth 681] provides photo-realistic 3D maps.

“By combining the technical benefits from a combination of traditional live and virtual training and then blending this, Saab is able to provide the next step of training capability to our customers with even more effective training and simulation features. Our Sandbox is a revolution, it literally opens up a whole new dimension for after-action review and analyze of training activities,” said Åsa Thegström, head of business unit Training & Simulation at Saab's business area Dynamics in a statement.

Saab announced this week that it has received a contract worth more than $91 million to support the operation of the German Army's Gefechtsübungszen trum Heer (GÜZ) Combat Training Centre in Saxony-Anhalt Gardelegen over the period 2020-26. Saab is partnered with Germany’s Flensburger Fahrzeugbau Gesellschaft mbH (FFG), a proven partnership from their previous cooperation at GÜZ from 2004-08. The contract covers the management and maintenance of all live simulation training equipment, communications infrastructure and the exercise control center. Saab will provide additional logistical services such as the servicing of vehicles and radio equipment, storage and handling of weapons and ammunition, transportation of military personnel and the overall sustainment of GÜZ.

Other users of Saab tactical training systems - Austria, Czech Republic, the Netherlands, and the US 7th Army - regularly train at GÜZ as will the British Army, another established Saab training customer, from 2020.

Certified Modeling and Simulation Professional

THE DISTINCTION OF A TRUE M&S PROFESSIONAL

EARNING THE CMSP DESIGNATION WILL GIVE YOU:

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

Requirements include 3 – 8 years of work experience (depending on level of highest collegiate degree), 3 professional letters of reference, and successful completion of an online examination.

TO LEARN MORE AND APPLY, CONTACT:
Carol Dwyer
2101 Wilson Boulevard, Suite 700 | Arlington, VA 22201
(703) 247-9471 | (703) 243-1659 Fax | cdwyer@NDIA.org

SIMPROFESSIONAL.ORG
Visitors to I/ITSEC 2019 will gain an impressive insight of the talent which America’s high school students will be able to bring to tomorrow’s modeling and simulation community at the Future Leaders Pavilion [Booth 2980].

The students will present their projects at 1600-1730 today in Room S320F during a session entitled ‘The Future is Now!’ Awards will be presented during a ceremony tomorrow at 1415 in Booth 2588 [Innovation Showcase].

This is the 17th year that the NTSA has hosted the Future Leaders Pavilion and Paper Session. It spotlights the work of students from across the USA who are committed to excellence. Most are enrolled in engineering, computer sciences, mathematics, or modeling and simulation tracks. Since 2002, secondary schools from Alabama, Florida, Georgia, Hawaii, New York State, Texas, Virginia, as well as schools from India, the Netherlands, and the United Kingdom have been represented.

It is vital to America’s national security and economic prosperity that more students are encouraged to pursue studies and careers in the STEM field: 40 per cent of US companies report difficulty in filling positions because of a lack of STEM skills. The US would gain an extra $2.5 trillion in GDP between now and 2050 if its students scored at the international average on math and science tests.

The partnership of NTSA, the Florida High Tech Corridor Council and other ‘STEM-U-Lators’ makes it possible to bring I/ITSEC to the classroom through the STEMConnect program. Tomorrow, I/ITSEC will welcome about 600 high school students, accompanied by school chaperones and volunteer I/ITSEC member escorts, who will experience first-hand simulation, training and education solutions that will help bridge the gap between classroom theory and the applied use of STEM subjects.

I/ITSEC offers RADM Fred Lewis Postgraduate Scholarships and Leonard P. Gollobin Postgraduate Scholarships to stimulate student interest and university participation in preparing individuals for leadership in the simulation, training and education communities. Masters level scholarships are for $5,000 and Doctoral level for $10,000. Over $500,000 in scholarship awards have been distributed to date.

NTSA has established the inaugural 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 for the education of America’s youth. These new scholarship awards will help keep the MS&T workforce pipeline filled, now starting at the Undergraduate level. In its inaugural year, NTSA awarded $10,000 to each of three universities: Full Sail University in Orlando, FL; Wright State University in Dayton, OH; and, Auburn University in Auburn, AL.

The Students and High Schools Represented in the FLP

- **Bishop Moore Catholic High School, Orlando, FL**
  Marcus Lisman, Patrick Snider, Liam Sy presenting ‘Test Anxiety Management Exercise (TAME)’

- **Sachse High School, Saches, TX**
  Gabriela (Gaby) Terwillinger and Rhea Batitang present ‘Sachse Emergency Response Simulation’

- **Shaker High School, Latham, NY**
  Haejin Lee, Kayla Na and Varun Morishetty present ‘Mental Health Screening Software to Determine Suicidal Tendencies Among Teenagers’

- **Lake Highland Preparatory School, Orlando, FL**
  Matthew Poteshman and Walter Kalowsky present ‘Guppy: Bridging the Learning Gap in Computer Science Education’

- **La Salle College High School Philadelphia, PA**
  Collin Price and Benjamin Guida present ‘Unclear turn signals and their effects on road safety’

- **Benjamin Franklin High School, New Orleans, LA**
  Amy Ndaiye and Angelina Jorgenson present ‘Improving Social Cue Comprehension in Individuals with ASD Using Virtual Reality’

Congratulations to them all!
A vision to trust

Rock-solid and powerful: meet the FL/FS40

Another powerful Barco Pulse projection system that performs in extreme environments. With 100% solid-state LED illumination and no moving parts, the FL40 and FS40 are designed from the ground up for the simulation environment’s rigorous training requirements.

Providing the ultimate in image clarity with optimal brightness and contrast they deliver peak performance with solid and stable 24/7 performance. The FS40 supports night vision goggle (NVG) training, offering dual input capability at 120Hz for the most optimal training at any time of the day.

Discover more on [www.barco.com/FL40](http://www.barco.com/FL40)
Self-Paced, Real-time Insights for Next-Generation Training

For more than 70 years, CAE has been at the forefront of training innovation. As a globally-recognized training systems integrator, CAE is focused on revolutionizing the pilot training experience by delivering comprehensive solutions designed to optimize efficiency and effectiveness across the training enterprise.

The CAE Sprint Virtual Reality (VR) trainer, an integral part of the CAE TRAX Academy training continuum, is CAE’s latest product innovation that is leveraging present day digital technologies for self-paced learning. Comprised of a virtual reality headset, haptics, physical flight controls and the CAE Medallion image generator, the CAE Sprint VR trainer enables students to practice training tasks, procedures and maneuvers in an affordable, high-fidelity, immersive environment to master lessons at their own pace. Uniquely, CAE Sprint also features the CAE virtual coach with audio intervention and correction, as well as CAE Rise performance grading and assessment tools that objectively measure student progress and proficiency. This integrated suite of capabilities comes in a commercial-off-the-shelf (COTS) training device with an extremely small footprint.

As a globally recognized training systems integrator, we are proud to support the training and readiness of military pilots around the world.

Learn more about the CAE Sprint VR trainer and see a demonstration by joining us at our booth (#1734) during I/ITSEC in Orlando, Florida from December 2-5, 2019.

Scheduled launch and demonstrations:

<table>
<thead>
<tr>
<th>Monday, December 2</th>
<th>Tuesday, December 3</th>
<th>Wednesday, December 4</th>
<th>Thursday, December 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>15:30 – 16:00</td>
<td>13:30 – 14:00</td>
<td>11:30 – 12:00</td>
<td>10:00 – 10:30</td>
</tr>
<tr>
<td>Official launch</td>
<td>15:30 – 16:00</td>
<td>14:30 – 15:00</td>
<td></td>
</tr>
</tbody>
</table>

milsim@cae.com  @CAE_Defence  CAE  @CAE_Defence  cae.com/defence-security