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PEO STRI and Orlando-based Partners Help to Modernize Army and Increase Soldier Lethality

With improved technology at the forefront of Army modernization efforts, the Program Executive Office for Simulation, Training and Instrumentation (PEO STRI) in Orlando leads a skilled and diverse workforce and teams with high-caliber Army partners to modernize current readiness through fielding the next generation of technology for Multi-Domain Operations (MDO) for the Joint Force.

Success of this next generation technology revolves around the Synthetic Training Environment (STE), a software solution designed to provide a collective, multi-echelon training and mission rehearsal capability for the operational, institutional and self-development training domains.

As part of efforts to improve Soldier lethality – one of six Army modernization priorities – every deploying Soldier uses some type of simulation to train and hone their critical warfighting skills. PEO STRI and its Orlando partners have worked hard to become the provider of choice for simulation, training and testing solutions to optimize both Soldier and unit readiness.

"Every Soldier who steps foot on the battlefield has trained on one or more of the training and testing capabilities we have fielded to them, honing their readiness skills and making them more lethal in battle," said Karen D. H. Saunders, SES, the Program Executive Officer for PEO STRI.

Many of PEO STRI's efforts center around the Orlando-based Synthetic Training Environment Cross Functional Team (STE CFT), one of the Army Futures Command's eight cross-functional teams designed to streamline research, acquisition and fielding processes by collaborating with the operations, science and technology, testing, resourcing, sustainment and program/cost management communities.

"The modernization period is a team effort. It is going to take the team of teams approach to bring all of our efforts to the Soldier," said Joe Parson, STE CFT, Highly Qualified Expert. "A big part of the STRI/CFT teamwork is the ability to carry the same message and compete for resources. Having both organizations working together has greatly aided in the team's ability to garner the resources necessary to speed up some of our work."

Parson said the role of the STE CFT is not to replace or replicate anything that PEO STRI is charged with performing, but rather to shepherd the requirements process to ensure the right capability is making it into the hands of Soldiers.

"PEO STRI has worked in this space far longer than the CFT or any of its individual members, so

Best Paper Nominees

SUBCOMMITTEE	PAPER TITLE
21103 – Training	Attention and Engagement in Virtual Environments: Measuring the Unobservable
21136 – HPAE	Augmented Reality in Tactical Combat Casualty Care: Physiological Ramifications
21207 – ECIT	Optimizing Optimizations: A Two-Stage Neural Network Approach for Leveraging Optimality in Time-Sensitive Solutions
21229- Education	Form From Function: Applying Flow-Driven Experiential Learning to the Integration of Immersive Technology in Formal Military Aviation Training Programs
21301- PSMA	Gender Equity in an Evolving Work Environment
21310- Simulation	Simulation for Women, Peace and Security Training

DECEMBER 1, 2021
CONFERENCE HIGHLIGHTS

EXHIBIT HALL HOURS
0930-1800

SIGNATURE EVENTS
0830-1000 **Future Application of Extended Reality and Artificial Intelligence to Enable Mission Command** *(Room 310AB)*
1030-1200 **USMC GO Panel** *(Room 310AB)*
1400-1530 **A New American Way of Training** *(Room 310AB)*
1400-1530 **Building a Comprehensive Modeling & Simulation Body of Knowledge** *(Room 330EF)*
1530-1730 **Next Big Thing: The TalX – XR Acceleration** *(Destination Lounge)*

FOCUS EVENTS
0830-1000 **Cloud-based Simulation Developments in Europe** *(Room 310C)*
0830-1000 **Navy Acquisition Menagerie** *(Room 330EF)*
0830-1000 **Next Big Thing: The TalX – XR Technical** *(Destination Lounge)*
1030-1200 **Exploring Haptics and its Role in the Learning Process for Medical-Related Training & Simulations** *(Room 310C)*
1030-1200 **AF Gaming: Advancing M&S thru Gaming Industry** *(Destination Lounge)*
1400-1530 **The Spider in the Urinal: A Panel on AI Ethics, Unpredictable Secondary Events, and AISs** *(Room 329)*
1400-1530 **USMC Large Scale Exercises** *(Room 310C)*
1600-1730 **Learning to Learn Together: How Will Human-AI Teams Achieve Mastery?** *(Room 330EF)*
1600-1730 **Black Swan – Ransomware Hits Wall Street!** *(Room 310AB)*
1600-1730 **Air Combat Cross Services Training Ranges Panel** *(Room 320GH)*

COMMUNITY OF INTEREST EVENTS
0930-1800 **Air Force Gaming & Esports Across the Military** *(Booth 1084)*
1000 **xTech BOLT Winner Announcement** *(Innovation Showcase Booth 2588)*
1200-1700 **NTSA Career Fair at I/ITSEC** *(Room 331C)*
1600-1730 **IEEE Adaptive Instructional Systems (AIS) Consortium** *(Room 329)*

PROGRAM BRIEFS
0830-1000 **US Army PEO STRI I** *(Room 330BCD)*
1600-1730 **US Army PEO STRI II** *(Room 330BCD)*

PROFESSIONAL DEVELOPMENT (See Program Guide for Title/Author List)
0830-1000 **Paper Sessions** *(Rooms 320A-F)*
1030-1200 **Paper Sessions** *(Rooms 320A-C, F, GH)*
1400-1530 **Paper Sessions** *(Rooms 320C-D, GH)*
1600-1730 **Paper Sessions** *(Rooms 320A-E)*

PEO STRI ... *continued from p1*

their expertise is clearly essential in regard to understanding the operating environment and the marketplace," said Parson. "They have long-established relationships with industry partners that the team is able to leverage when seeking expert technical advice. Their team is also quite diverse and much larger than the CFT. Therefore, it is essential for the CFT to work with PEO STRI in order to accomplish our mutual goals."

In addition to the STE CFT, PEO STRI brings together elements of the Army Simulation and

Training Technology Center (STTC) and Army Contracting Command Orlando (ACC-O), both of which are located in Orlando.

The STTC is a key partner with PEO STRI as they provide state-of-the-art applied research to develop simulation technologies, and build upon current simulation knowledge together with understanding system-of-systems environments where human, agent and teams are involved.

Likewise, ACC-O is a vital asset to PEO STRI in ensuring modeling, simulation and training products are processed expeditiously in order to get them to Soldiers at their critical time of need. Their tailored contracting solutions and business advice in support of PEO STRI have made a significant impact on the success of the mission.

In another exciting initiative directed at facilitating rapid acquisition and fielding, PEO STRI created the STRI Agile Acquisition Response team, or STAAR team. The STAAR team is a collaborative group of select individuals from various PMOs within the PEO working together to manage high-profile programs.

STAAR seeks to optimize the Army's buying power, accelerate capability deliveries and enhance the Army's warfighting dominance through strategic implementations of technology that yield a combat-ready force for

today's and tomorrow's multi-domain wars.

PEO STRI programs extend well beyond the traditional battlefield and into cyberspace, supporting the goal of Army and Joint Force MDO.

"As you know, today's global security environment remains uncertain and complex," said Tim Bishop, SES, Deputy Program Executive Officer for PEO STRI. "The United States sees significant challenges in every domain to include space and cyberspace."

One such cutting-edge PEO STRI project is the Integrated Cyber Operations Network Control Center (ICON C2), which seeks to establish, operate and manage a 24/7 operations center that integrates PEO STRI's portfolio of programs and systems into a centralized management platform that delivers assured networks, services and configurations.

ICON C2 hopes to establish an agile and responsive IT Service Management (ITSM) platform powered by state-of-the-art knowledge management tools in order to synchronize service management functions in collaboration with PEO STRI programs and missions. In addition, ICON C2 will centralize configuration and change management processes that will reduce operational overhead and promote synergy by consolidating systems and infrastructure into a single reference architecture.

In addition, ICON C2 will consolidate portfolio Risk Management Framework processes and efforts into a streamlined Authority to Operate (ATO) construct, while also creating

a consistent partner experience across the portfolio through documented standard operating procedures and user guides for functions delivered through the ITSM platform and reference architectures.

"To ensure our readiness, the Army has laid out the Army Vision for 2028 that embraces the doctrine of Multi-Domain Operations while integrating our capabilities with the Joint Force – Army, Navy, Air Force and Marines. Our units are going to have to be combined arms and multi-domain experts," said Bishop.

All PEO STRI programs and projects keep the Soldier in mind. Most importantly, and because of PEO STRI systems, Soldiers' chances of returning home to their loved ones after a combat deployment are significantly enhanced.

"Whenever possible, Soldiers are involved in the development and refinement of our products," said Sgt. Maj. Steven A. Brown, PEO STRI's Senior Enlisted Advisor. "They are the ones who will be training on our systems. So, their feedback is essential to getting it right."

Brown said a number of Soldier touchpoints are used early and often in the product development and prototype stage of PEO STRI programs. The critical feedback from these touchpoints ensures that the products actually work for the Soldiers in the manner for which they were designed.

"Soldiers are the inspiration for everything we do here at PEO STRI," added Brown. "They are our customers and deserve the best equipment available."

–PEO STRI PUBLIC AFFAIRS

Opening Ceremonies Include Unique Fireside Chat

Tuesday morning's I/ITSEC 2021 opening ceremonies included a rare "fireside chat" opportunity, during which the Chief of Naval Operations and Commandant of the Marine Corps shared their perspectives and visions for the modeling, simulation and training community.

The event began with a call to order by Conference Chair Jennifer Arnold, who welcomed the audience to "the 55th anniversary of the world's largest modeling, training, simulation and education event."

Following opening ceremonies, Arnold welcomed I/ITSEC's two sea service executives, Captain Dan Covelli, USN, Commander,

NAWCTSD, and Colonel Luis Lara, USMC, PM TRASYS, who each introduced the leaders of their respective services.

Rear Admiral James A. Robb, USN (Ret.), President, National Training and Simulation Association, coordinated the subsequent discussion with the two sea service leaders, describing it as "somewhat of a near perfect opportunity" to have both service chiefs at I/ITSEC 2021.

In his opening remarks, Admiral Michael M. Gilday, Chief of Naval Operations (CNO) "set the table" by offering some key thoughts.

"I think it's important to talk about, from a naval perspective, how the Navy and Marine Corps operate and potentially fight during crisis and into conflict," he began, "and that is as an integrated, distributed force that is coming at an adversary through many vectors and across multiple domains simultaneously.

We've been working on concepts that enhance those distributed maritime operations for a number of years now, and that includes the Marine Corps advanced basing operations concept as well as their concept of operating in contested environments."

He continued, "Capabilities, like live virtual constructive training, have allowed us, at scale, to test ourselves to mature our warfighting concepts, to hone our skills, to sharpen those skills and to learn from them. And that also informs not only what we're going to fight with, but also how we're going to train and what we're going to train with."

He went on to offer insights and lessons learned from large scale exercises over the past year.

"One is that as we develop these capabilities, there needs to be a continuous feedback loop, where, as you're developing the capability, you're getting that real-time feedback from operators. That's something we haven't perfected yet, but it's something that obviously we need to overcome and get better at in order to make this training more relevant."

Elaborating on that relevancy, he emphasized that investments must be directed toward those training capabilities that are "realistic and relevant," adding, "to that end, they need to be based on physics-based performance aspects of not only our forces, but of potential adversaries. There's a need to be reliable, obviously. And then an important piece of this is that they need to have a recording capability. Lastly, looking over the horizon, I think there are human performance aspects of this that can get tied into training much more deeply at an individual level."

In his opening comments, General David H. Berger, Commandant of the Marine Corps, pointed to "the urgency that Admiral Gilday and I feel to move at speed. We cannot be going at a comfortable, deliberate pace anymore. I think we could in the past; we cannot do that going forward. We're driven by a pacing threat that's driving us, which we haven't had before."

His second point highlighted the "unintentional" placement of training "third or fourth" in a sequence of priority.

"We go after a capability, we figure out how we're going to structure the force, we buy platforms, and then we turn to the training guy and say, 'we need a way to train on that,'" he said. "That's not going to work going forward, either. I think the training has to get to the front of the line, where we're chasing that before we're looking at a platform. We have to imagine: Can we sustain it? And can we train on it? If we can't, then we need to move on to the next option on the table."

He continued, "I grew up thinking of training and simulation as a way to train, as Admiral Gilday said, to a certain level on a platform or on a weapon system. And I think that was good enough, because we were our own competition. But when you're driven by another adversary, an adversary who has pretty similar capabilities and perhaps a bigger force than you do, then the determining factor is not how good you are on a platform. It's how you can think. So what I'm trying to learn out of this week [at I/ITSEC] is how we are going to be able to train our leaders to think."

Robb expanded the unique service-leader chat across a spectrum of I/ITSEC attendee interests, including training implications from the U.S. maritime "Tri-Service Strategy," clarification on training organizational design, possibilities for incentivizing learning, budget clarification and specific needs that the services are seeking to fill from industry.

Industry Keynote

Tuesday morning's opening ceremonies and fireside chat with the Chief of Naval Operations and Commandant of the Marine Corps were followed by an industry keynote address presented by Bob Pette, Vice President and General Manager of the Professional Visualization Products Group at NVIDIA.

"We really had a breakthrough in the last two to three years," Pette began. "The advent of AI has changed everything. And it is going to change things like you couldn't possibly even dream of, like real-time rendering that has led to advances in medical care leading to what some people are calling the metaverse," he said, though Pette expressed disagreement with the terminology. "We happen to think that metaverse is a bad name for it. We think of the metaverse as something where a virtual world's main purpose is to improve the physical world. It's not to live in the virtual, dystopian metaverse. It is to use the virtual world to improve the productivity of human beings and systems that the Warfighter needs."

He highlighted three significant technology trends that have matured over the last couple of years: real-time rendering, artificial intelligence and simulation.

"My ask of you is to not just look for the right graphics, not just look for point use cases of AI to improve analytic capability or image detection, not just look for ways to improve a physical simulation of a single entity, but to combine these technologies. The real-time rendering, combined with AI, allows us to be fully immersive in a photo real environment. It allows the vehicle or the airplane to act in a physically accurate way," he said.

"People need that photorealistic rendering," he continued. "That's the way the brain works. They need to see clouds moving the way they move, smoke plumes developing the way they develop, water flowing the way it does and waves forming the way they do in a physically accurate way. And that's what real-time rendering brings to the table."

Looking toward the future, he offered, "Where is this going? The ultimate in simulation, from my standpoint, is digital twins."

Returning to the emerging metaverse theme, he said, "We don't see the metaverse as something we want anybody to live in. People will. They do it with Fortnite. They do it with Second Life. It will become a huge industry. The way NVIDIA sees the metaverse as a way for using the virtual world to improve the physical world – physical human beings, the way they think, to improve their safety, to improve the way our machinery operates. We can test so many things in a virtual world without wasting the time to build something in the physical world."

I/ITSEC 2021 Explores "The Next Big Thing"

One question that is increasingly asked against a background of rapidly evolving M&S technologies is "What is the next big thing?" It's not a rhetorical question. And the answer can have significant consequences in areas ranging from research and development investments to program acceleration.

Fortunately, it is a question that the National Training and Simulation Association (NTSA) is not only asking but also directing its significant organizational expertise toward answering.

And many of those early answers are being presented at I/ITSEC 2021.

"'The Next Big Thing' is a committee that was formed to support NTSA to determine what is the next big thing that the conference attendees would be interested in and what the conference itself needs to address through their special events, the papers, etcetera," said Bob Kleinhample, CMSP, Vice President for Immersive Technologies at SAIC. "Basically, it attempts to identify what NTSA needs to put energy behind to help adopt that technology within the community."

Responding to the challenge from NTSA, the committee decided to look at two different time horizons. One horizon, called the "near-term horizon," looked at those technologies that are going to affect the M&S community in the next one to two years. The second timeframe, designated "long-term horizon," attempts to explore things three to five years in the future.

"So we've been looking at those two horizons," Kleinhample explained. "For the near term, we decided that we had to just pick something quickly and use our best judgment. And the committee pretty much all agreed that extended reality – and by that, we mean augmented reality, virtual reality and mixed reality – is a near-term technology that is a big interest of the tech community, has not yet been fully adopted, needs to be matured and needs to be discussed to enhance industry response to our customers."

Based on that near-term identification of extended reality, or XR, he said that the committee has created two I/ITSEC special events.

The first of those two events, called The TalX – XR Technical [Focus Event, Wednesday, 1 December, 0830-1000, Destination Lounge], will occur this morning when John Cunningham, Head of Government Solutions at Unity, moderates a panel that includes Mike Cannizzaro, Technical Development Division Chief, U.S. Army Futures Command Synthetic Training Environment Cross Functional Team (STE CFT); Major Meghan "SlacQ" Booze, USAF F-15E Instructor, Pilot 391st Fighter Squadron; Major Sean "Potus" Lipkin, USAF F-15E Instructor Pilot, Seymour Johnson AFB; Shelly Peterson, Associate Fellow, Lockheed Martin Corporation; and Matthew Stone, Team Lead, Human Systems Engineering Augmented Reality (HSEAR) Group, NAWCAD Human Systems Engineering.

"We decided that the panelists should share their expertise through TED Talk-style presentations. We wanted this to be different and exciting for the audience to get them involved. We wanted it to be in a format that really helped get people to think, to drive them a little bit out of the box in that thinking and really help us get to the underlying issues," Kleinhample said.

> ❝
> What's neat about this event is that, when it's done, those who attended will be treated to a networking social, with beverages and hors d'oeuvres, so that they can meet the speakers, talk with them, engage with like-minded people who are all interested in extended realities, and then talking amongst each other."

He noted that The TalX – XR Technical offers more of a technical track that is more likely to resonate with developers in the community and others with a technical interest.

The second event focused on the near-term technology is a Signature Event later today called the TalX – XR Acceleration [Wednesday, 1 December, 1530-1730, Destination Lounge].

"This is a showcase event where we are bringing in recognized industry leaders and thought leaders to share their perspectives about how to adopt extended reality today," he said. "What do we need to do? What should we consider? What has been successful for them? We brought in some really good heavy hitters who can engage and speak in that dynamic fashion."

Kleinhample is moderating the second event, which includes a panel comprised of Daniel Robinson, Founder and Chief Executive Officer, Red 6; Will Roper, PH.D., Advisory Board Member, Red 6; Dave Rhodes, Senior Vice President, General Manager of Digital Twin, Unity; and Nathan Thomas, Vice President of Sales, Unreal Engine, Epic Games.

Kleinhample continued, "That's a pretty good cast of speakers, and I think they should give the audience a good set of perspectives. In addition, what's neat about this event is that, when it's done, those who attended will be treated to a networking social, with beverages and hors d'oeuvres, so that they can meet the speakers, talk with them, engage with like-minded people who are all interested in extended realities, and then talking amongst each other."

While XR has been identified as the key to the near-term horizon, he said that the long-term horizon has yet to be defined. As part of that process, I/ITSEC 2021 includes a Focus Event panel for tomorrow morning called Tech Vision – Innovation Megatrends [Thursday, 2 December, 0830-1000, Destination Lounge].

Moderated by Charles Onstott, Vice President and Chief Technology Officer, CALIBRE, the Tech Vision – Innovation Megatrends event will include panelists: Aletha Duhon, Ph.D., SES, Associate Director for Analysis, Department of Homeland Security National Risk Management Center Cybersecurity and Infrastructure Security Agency (CISA); Sanjay Sardar, Senior Vice President, Digital and IT Modernization, SAIC; Daniel Robinson, Founder and Chief Executive Officer, Red 6; and General Mike Holmes, USAF (Ret.), Chairman of the Board, Red 6.

Kleinhample said that the panel members will all explore the trends that impact technology adoption in the M&S community from their individual perspectives.

Asked how the broader M&S community might best support this ongoing process, he encouraged them "to really get involved and be part of the conversation.

"There are other events they can go to," he said. "There are going to be papers on extended reality and other special events that deal with extended realities. In addition, the industry exhibits will include many booths that have XR on display."

Expressing his opinion that XR will still be the focus at I/ITSEC 2022, he added, "We are closely following that awesome Innovation Megatrends panel. We are going to listen carefully when they share their visions on the future, so that our committee for next year can start looking at The Next Big Thing in both the near term and far term. How do we continue to put energy behind XR while we start maturing something else to get in that queue? This committee and these technologies are always going to evolve. We are focused heavily on XR right now. But perhaps next year, it might be machine learning that is maturing more quickly and impacting our solutions."

He concluded, "If anyone has thoughts on this, I encourage them to reach out and engage us. Better yet, be part of the committee. We will be happy to pull you in to help shape the future of M&S technologies."
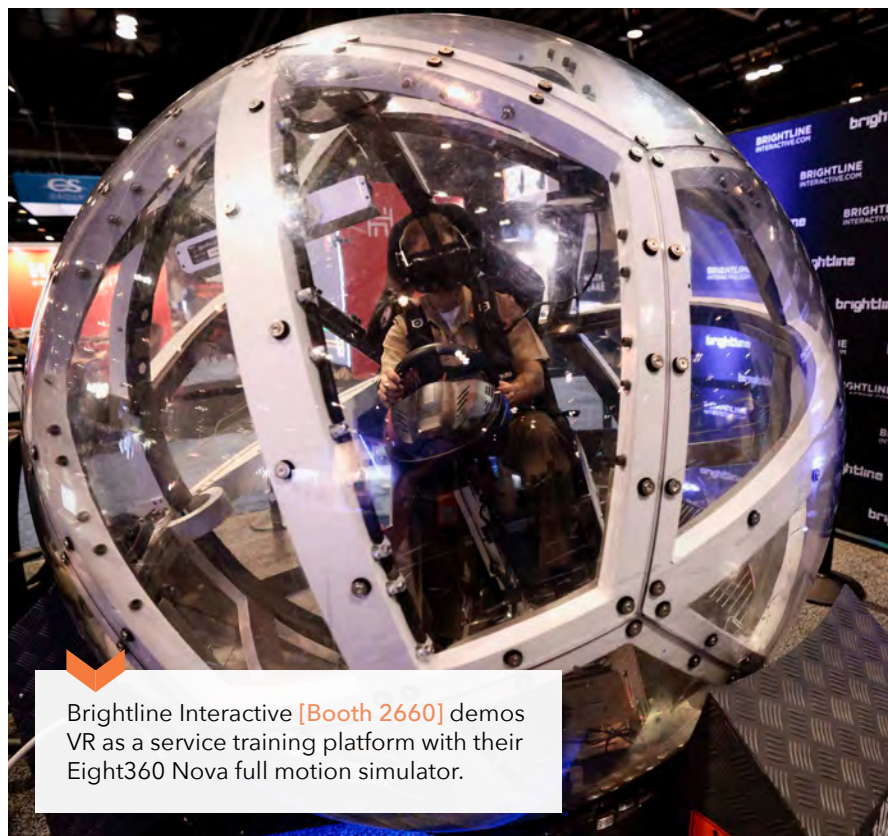
Brightline Interactive [Booth 2660] demos VR as a service training platform with their Eight360 Nova full motion simulator.
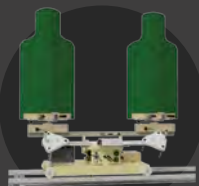
NTSA Career Fair Adds Value for Companies and Candidates

The NTSA Career Fair at I/ITSEC 2021 will take place today, Wednesday, 1 December, from 1200-1700 [Room 331C].

This one-day, live-and-virtual event will allow participants direct access to a variety of companies' recruiters and hiring managers, as well as the ability to participate in workshops and contribute resumes to a shared database.

The motivation behind the Career Fair is to add value to participation at I/ITSEC, according to Career Fair Coordinator Jeff Raver, Business Development Director, Naval Business Unit, SAIC. "Certainly, everyone understands the value of the show floor and connecting with your colleagues, and the idea of interacting with government customers and engaging with one another. But we wanted to find other ways that the companies that are here and the individuals that come to the conference could gain value from I/ITSEC," Raver said. "One of the challenges we've seen in the last few years is finding talent in the modeling, simulation and training space. Many of the companies are here at the events, and much of the talent that's out there in the world attends. So, we thought let's put together an opportunity

Companies seek talent in modeling and simulation, including building games for training.

for some businesses to be able to engage with talent that's looking to come and join the workforce."

Raver said the talent focus is generally directed in two areas – early career, including but not only college students, and transitioning Veterans. They direct outreach to colleges and universities and to Veterans organizations, engaging with them to circulate opportunities.

"Pre-COVID, we only did a live [Career Fair]

event in Orlando, so we were only looking at candidates that were in the Orlando area and companies that were present. And then last year we went into a virtual environment like everybody else for everything else, and we opened it up nationwide and invited candidates from across the country to participate, and allowed all of our recruiters to be virtual as well," Raver said. "We didn't want to lose that aspect this year, so we created a hybrid event."

Raver emphasized that all of the virtual and live candidates have access to all of the virtual and live recruiters, in an effort to create equity for those who may or may not be present. "We're looking at the future of work and the idea that people can work from home or work remotely and everybody doesn't have to always be in the office," he said. "But we've all been on calls and done events before where some people in the room have a distinct advantage over those who are calling in or who are participating remotely. So for this event, we've really been trying to create an environment where anybody that's anywhere in the country can schedule an engagement with any recruiter, whether the recruiter is virtual or live in Orlando."

Raver said about half of the approximately 20 recruiters are present at I/ITSEC, and half are participating virtually.

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Training the next generation at the US Air Force Academy

Geospecific 3D terrain | Joint & strategic mission training | Networked environment

The US Air Force Academy has purchased 100 Virtual Reality Scene Generator (VRSG) licenses for use on RPAS and fixed-wing aircraft simulators at its new Multi-Domain Laboratory (MDL).

Above: High-resolution (0.15 mpp) imagery of Buckley Air Force Base with geospecific airbase cultural models rendered in VRSG.

Opposite, top left: ZedaSoft's Mockingbird UAS/RPAS operator training system showing VRSG at the USAFA MDL (ZedaSoft image by Bryan Thomason.)

Opposite, top right: RPAS sensor view depicted by VRSG.

Opposite, bottom: VRSG real-time scene of an MQ-9 Reaper entity in flight over MVRsimulation's geospecific virtual terrain of Hajin, Syria.

| MetaVR has changed its name to MVRsimulation to align more closely with its growing suite of simulation products.

Simulated sensor view | Aircraft & payload control | Weapons control

VRSG is used as part of ZedaSoft's Mockingbird at the MDL - a reconfigurable, networked aircraft and ground control station simulator that includes pilot and sensor operator interfaces. VRSG simulates the aircraft camera payload by streaming real-time HD-quality H.264 video with KLV metadata, and provides the geospecific virtual world in which training missions take place.

See VRSG and Mockingbird in action in ZedaSoft's booth (#1573) at I/ITSEC 2021

www.mvrsimulation.com

Developers Showcase "Secret Ingredient" Capabilities at *Iron Dev*

It might sound like a cooking show. It might even have its own "secret ingredient." But the reality of I/ITSEC's "Iron Dev" event is that it showcases the capabilities of young developers while allowing senior decision makers to observe and examine "where the rubber meets the road" in the development of training solutions to improve warfighter readiness.

"Iron Dev really is a competition for junior developers across industry and various government labs to be able to show off their skills and abilities of developing innovative augmented reality and virtual reality solutions to military training challenges," explained Brian Vogt, a Solutions Architect at SAIC and an I/ITSEC volunteer helping to coordinate the event. "They demonstrate those solutions to the most senior leaders in the modeling and simulation community in a very engaging live show."

He continued, "Iron Dev provides an opportunity for the most junior folks, people who have been in the modeling and simulation industry for just a couple of years, and they're full of ambition and desire. They've done cool things in school and they've already done some cool things in industry. But here's an opportunity to showcase their capabilities for the audience as well as have conversations with general-officer level leadership in a modeling simulation community.

"And it goes both ways," he added. "Those senior leaders get an opportunity to interact not with senior-level business developers, not with senior engineers, not with senior government officials but with some of those junior developers. They get to see their perspectives, their enthusiasm, their passion and their creativity. It's just a very energetic and exciting environment."

Vogt said that Iron Dev was first introduced at I/ITSEC 2019. Developer teams were provided with a specific challenge as well as a "secret ingredient" on the first day, with the inaugural teams taking just three and a half days "to crash on some really cool

> Iron Dev teams received their challenges on 3 November and have been working to develop their solutions since that time. On Monday at I/ITSEC, the teams received the "secret ingredient" to incorporate into their solution, and will do this integration on the Show Floor

solutions." The secret ingredient for the first event was "Iron Man," which somehow had to be worked into the innovative solutions.

2020 was a virtual I/ITSEC event, and Iron Dev was revamped to provide remote teams 60 days to develop their solutions and give pre-recorded demonstrations.

"This year, we wanted to combine the best of both worlds, where the teams were able to take 60 days ahead of time to develop a solution but then demonstrate it live at I/ITSEC," Vogt said. "But the challenge was that we had a hard time getting teams to sign up. And it wasn't because they didn't want to compete. It's that right now, industry is slammed with work. So we were getting team responses that indicated that, even if they did the development on their own time, they couldn't possibly take 60 days. They are just too busy. So we basically split the difference and reduced this year's timeline to roughly three and a half weeks."

Iron Dev teams received their challenges on 3 November and have been working to develop their solutions since that time. On Monday at I/ITSEC, the teams received the "secret ingredient" to incorporate into their solution, and will do this integration on the Show Floor [Booth 781].

Vogt said there are "four fantastic teams" participating this year, including the Air Force Research Labs' Gaming Research and Integration Learning Lab (GRILL), which competed in both 2019 and 2020 and the first international team to participate. (See box at left.)

IRON DEV 2021 PARTICIPANTS

GRILL – from the USAF Research Lab
3D Media – from 3D Media
Tom Cruise Control – from i3
Agenium 3D Lab – from Agenium (France)

Brian Vogt said an advantage of doing the integration work on the show floor was that team members will have easier access to the other exhibitors and new technologies on display.

"That first year at I/ITSEC [2019], those teams worked really hard for three and a half days. But they spent their entire time in a development room, and they really did not participate in anything else I/ITSEC related. They had their heads down, working on the assigned challenge.

"We wanted to change that this year so they can actually enjoy I/ITSEC, actually participate in it and be a part of it," he said.

The exciting Final Show is Thursday, 2 December at 1030 in the Innovation Showcase [Booth 2588]. A panel of M&S senior leaders will award the Overall Best Solution and the Most Innovative Solution, while the audience will select the People's Choice Award.

"I/ITSEC is a fantastic week and very exciting," Vogt concluded. "But by Thursday morning, you're kind of exhausted, because you've been going hard at it since Sunday. So here's a solution: Grab a cup of coffee, sit down and watch the show. Watch the interaction among the developers and the judges. It's absolutely priceless and it spawns tremendous conversation afterwards between professionals, senior leaders and the developers. It's just a fantastic event from that standpoint."

Moog Spotlights New Full Flight Motion System

Moog Inc. [Booth 649] is using I/ITSEC 2021 to showcase its third generation "Gen3" all-electric Level D Full Flight Motion System.

Moog made the first all-electric motion system and was also the first to achieve Level D approval in 2006. Since then, the company has delivered more than 1,000 high payload, Level D electric motion systems, with those systems successfully helping to train and certify thousands of crews. With its network of service providers, the company supports customers in 27 countries on six continents.

"What we're looking forward to at I/ITSEC is to get back together and be able to talk to people face to face and connect the way we're supposed to," offered Craig Lukomski, Product Market Manager, Simulation and Test for Moog Inc. "There was a lot of uncertainty with virtual events, but it's nice to see people again, talk to them and feel safe doing so."

Turning to the Gen3 motion system, he explained, "We've taken this COVID lockdown time and redesigned our system to be a more cost-effective unit for the customer throughout the entire lifecycle, from purchase price to maintenance and support."

The Gen3 system achieves lower costs through a more efficient use of electricity, a field replaceable cushion and a new return-to-home feature that eliminates batteries and redundant drives using an alternative technology for storing energy while delivering on the same high level of safety.

"We really focused on power management with Gen3," Lukomski said. "In the past, facilities would face whatever power requirements the system had. But we were able to lower that power requirement through some engineering redesign of the electronics, so now a facility can get by with a smaller supply than they used to in the past. And electronic installation can be quite expensive from the facility standpoint. We reduce that by approximately two-thirds, which is pretty significant."

In addition to the power improvements, he identified a number of complementary technologies that will be on display at I/ITSEC, including the company's modular control loading family.

"Moog has a long history in this market space," he summarized. "We're a well-known and proven company that provides the kind of products our customers need. We sell our products to a lot of OEMs, like the main flight-simulator companies. Sometimes that puts us 'under the hood,' so to speak. And I would hope people would be looking for that when they're specifying their products or when they're out buying simulators."

Senior Leader Panel

Senior Service Leaders Address Global Challenges

Tuesday morning's opening ceremonies and subsequent "fireside chat" with the Chief of Naval Operations and Commandant of the Marine Corps provided rare and amazing perspectives on a range of issues important to the sea services. Significantly, that strong informational foundation was quickly followed by the Senior Leader Panel, an I/ITSEC 2021 Signature Event that provided the opportunity for audience questions on specific topics of M&S community interest.

Rear Admiral James A. Robb, USN (Ret.), President, National Training and Simulation Association, opened the session by emphasizing "the great opportunity to have dialogue" with a group of representatives from NATO, Air Force, Navy, Army and Marine Corps, who brought a mix of development, acquisition and operational expertise.

"I'm really looking forward to working with you all as we look at the future on how we change training to develop a ready, relevant, capable and lethal DoD for the future," offered Lieutenant General Kevin M. Iiams, USMC, Commanding General, Training and Education Command. "As you heard our Commandant allude to this morning and in several other forums, force design, vision and concepts are processes to take our Marine Corps forward. They're not an end state. They're not specifying what our Marine Corps will look like as a naval expeditionary force in readiness for the future. But they're going to be an iterative process that enables us to at least keep pace with, if not outpace, the current global threats."

Iiams observed, "As the old adage states: We fight as we train. That really is a truism. We need an environment that replicates the resolution and the sensory fidelity to generate perceptions and reactions approaching those that we expect in the current world and in the real world of the future. To achieve this, the Marine Corps is seeking a more immersive training venue to truly peak the senses, and greater numbers of simulation events, sets and reps to build experience. But they're not going to build what we need for the learning model by itself. We need to drive decision-making under the most austere and complex environments. We also need these

environments to be adaptive, with a wide gamut of free play that allows commanders and the Marines to explore new concepts, capabilities and try out their TTPs [tactics, techniques and procedures], so that now they have an opportunity to seize on and maintain initiative where they haven't before; to face uncertain risk and understand imperfect results. This is why we want to record [training events]. And then we need to accept, learn and move on from mistakes."

From his perspective as Principal Military Deputy to the Assistant Secretary of the Army (Acquisition, Logistics and Technology) and Director, Army Acquisition Corps, Lieutenant General Robert L. Marion, USA, stated, "When you hear the Chief of Staff of the Army talk about training, he talks about training at the individual level, at the team and crew level, at the squad level, the platoon and the company level, and then of course, battalion and brigade above that. But when he talks about training, he talks about it in the context of a pyramid, with "85% of the resources that we spend – time, money, energy, all of it – in the Army directed to those first three layers at the individual / crew / team / squad level, platoon level and company level. So that's the focus for our Army when it comes to training. It's about building blocks. It's about cohesive, lethal, well-led small units. And that's how we build combat capability in our Army."

Returning to a naval perspective, Rear Admiral Peter Garvin, USN, Commander, Naval Education and Training Command, said, "Our Sailors are world-renowned for their 'can do' spirit and their ability to find a way to succeed in the most trying situations, sometimes in spite of the help that they receive. And I've seen it my entire career; they will literally run through brick walls. It's our challenge to make sure those are the right walls to run through and that we minimize the number of walls we make them run through."

He continued, "They operate in the most remote areas of the planet in peacetime and war. And if a critical piece of gear goes down, our Sailors have to be there to fix it. And yet, as we all know, the world is changing faster than ever before, and our Sailors, who operate at the leading edge of technology, face complex new challenges. They require increased access to relevant training and information to effectively do their jobs, not all the way back at the schoolhouse, but also where they're working today. So, to continue our advantage in the maritime environment and maintain our organic capability to orient, operate and repair complex equipment at sea, we must provide our Sailors with the tools and resources required to enable and enhance their skills and proficiency."

Additional perspectives were provided by Major General Albert G. Miller, USAF, Director of Training and Readiness, Deputy Chief of Staff for Operations, Headquarters U.S. Air Force and Brigadier General Ilmars A. Lejins, LVA (Latvian Army), Assistant Chief of Staff Joint Force Development, with all presentations setting the stage for expanded participation by way of audience questions.

Presagis Launches M&S Suite 22

Presagis [Booth 2334] has announced the release of the latest version of its modeling and simulation (M&S) software portfolio, M&S Suite 22. Comprising industry-standard software – such as Creator, Terra Vista, STAGE, Vega Prime and the Ondulus family – M&S Suite 22 is setting a new standard for performance and workflow.

Leveraging an open, modular and standards-based simulation development framework, almost every product in the Suite has improved. From the powerful content creation and simulation products to the high-fidelity sensor and visualization tools, Presagis M&S Suite 22 supports a full range of applications across air, land and sea, for the defense, intelligence and disaster preparedness markets.

Years in the making, this is the first release since the 2020 pandemic.

"From social distancing and working at home, to lockdowns and shutdowns, our customers have faced and overcome serious obstacles and adapted to the world's new realities," says Jean-Michel Briere, General Manager of Presagis. "Presagis has reacted to these challenges and changed our approach to ensure that our customers can keep performing at the highest level – year in and year out."

This approach will see Presagis re-aligning version 22 releases of all the products in the M&S Suite.

Going forward, Presagis intends to bring new features to market more quickly through frequent minor releases. "Not only will this provide more-timely improvements, but will also provide the market with faster resolutions through software patches and longer support for Suite versions," adds Briere.

Version 22 features significant improvements to the content creation side of the suite. Both Terra Vista and Creator have widened their flexibility and compatibility with other tools – including Unreal Engine. FlightSIM and HeliSIM have deepened their realism and integration capabilities and included a new model. All Ondulus products were enhanced; Ondulus IR introduces Low-Light-Level Television simulation; Ondulus NVG has become physics-based; and Ondulus Radar has added new modes.

Shiny Box Announces ExxonMobil Collaboration

Shiny Box Interactive [Booth 2339] has announced a new line of cutting-edge Immersive XR Training applications using Virtual Reality, Augmented Reality and desktop computers, built in collaboration with ExxonMobil.

The Immersive Technologies group at ExxonMobil has spent years refining its approach to integrating cutting-edge technologies and building systems to support their use, supported by its development partners at Shiny Box Interactive. Now, these applications are available for anyone to reap the benefits of immersive training.

Training applications are built to the specifications of experienced subject matter expert training leaders from across ExxonMobil, under the guidance of the ExxonMobil Immersive Technologies group.

U.S. Navy Flag Officers Share Diverse Perspectives

Senior leaders from across multiple U.S. Navy organizations provided I/ITSEC attendees with a broad naval perspective during a Signature Event on Tuesday afternoon.

Vice Admiral John Mustin, USN, Chief of Navy Reserve, said that he was extremely happy to represent the Navy Reserve on the panel, offering "a little context" to help understand the decisions and initiatives involving the Fleet.

"First, the country has recognized the need to transition from what was the Global War on Terror to what is now referred to as an enduring strategic competition," he began. "So what does that mean for us in this uniform? In particular, there needs refocusing on maritime domain and issues navigating in cyberspace or in space for that matter. But it means that we as the Navy Reserve are likely to invest less in land-based non-maritime initiatives and instead, in some cases, come back to our roots about dominance in the maritime domain. The second thing it means is that we're at an inflection point, both in the Navy and again in the Navy Reserve, to define what the future looks like; to be ready not only for today, but for what might come into the next five to 20 to 50 years.

"We are perfectly optimized for yesterday's conflicts," he said, adding that a quick look at potential conflict points around the world would indicate that, in the future, the U.S. Navy Reserve will "no longer have the luxury of mobilizing at a gentlemanly pace.

"I have been tasked to transform the Navy Reserve, to shift from what we were good at yesterday, to instead being prepared for the things that we must do tomorrow. I feel a very rich sense of urgency every day that I wake up, because we don't have the luxury to sit on our hands and say what we did yesterday is going to work too long. My staff is bored from hearing me say it but those who wake up hoping that tomorrow was like yesterday, are doomed to fail," he said.

Rear Admiral John Meier, USN, Commander, Naval Air Force Atlantic, outlined differences between "proficiency-based" and "event-based" training.

As an example of recent success in training, he pointed to readiness rates for the Fleet's F-18s, stating, "It wasn't too terribly long ago, about three years ago, that we only had about 220 fully mission capable F-18s. Right now our target is 360."

Rear Admiral William Dillon, USN, Commander, Naval Air Warfare Center Weapons Division and Assistant Commander for Test and Evaluation, Naval Air Systems Command, highlighted a range of activities taking place at China Lake and Point Mugu, explaining how many of the simulation tools used at these ranges provide the secondary benefit of supporting training as well.

Rear Admiral Susan BryerJoyner, USN, Director of the Office of Chief of Naval Operations, Navy Cyber Security Division, outlined her own background as an Information Warfare Officer, describing many of the challenges associated with training information warfare threats and activities.

Referring to the "fireside chat" earlier that morning, she observed, "If you listen to the Chief of Naval Operations and the Commandant of the Marine Corps this morning, they shared these eyewatering visions of being able to track, at an individual level, the training and experience base…If I were an adversary, I would love that treasure trove. Because guess what? If you're good at tracking those kinds of units, you're going to know who's headed your way and what their strengths and weaknesses are. If we're going to fully integrate the training systems and operational systems to the level that we need, security of the information and security of the systems will be critical."

Rear Admiral Robert Westendorff, USN, Chief of Naval Air Training, outlined the Naval Aviation Training Next initiatives, along with Project Avenger, Project Hellcat and Project Corsair.

"Project Hellcat, for which the first class kicks off next Monday, December 6, is for those Naval Aviators that have selected the strike pipeline," he explained. "The concept is they fly the T6 for primary flight training and, when they select strike aviation, before they go to the T45 intermediate advanced level they stay with the T6 for about 10 flights, where they start to learn some of the advanced concepts and strike fighter maneuvering. So I can give them about 10 hours in a T6, which is less than a quarter of the cost per flight hour versus a T45."

He said that the next step in the process, dubbed Project Corsair, is targeted to begin in early February 2022.
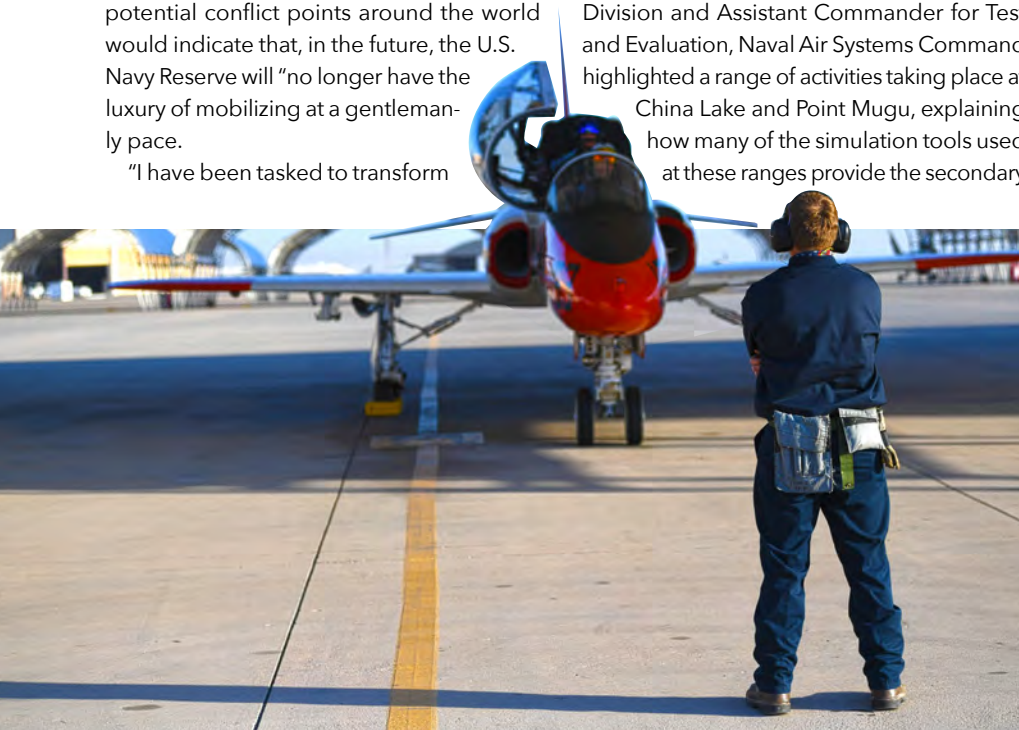
Presagis Unveils New ArcGIS Pro Add-In

Presagis [Booth 2334], a global industry leader in providing advanced software and graphical user interface tools, has utilized I/ITSEC 2021 to unveil its new "3D Environments Add-In" for ArcGIS Pro, designed to allow users to easily transform their existing 2D geospatial analysis into realistic and detailed 3D environments.

The Presagis 3D Environments Add-In was designed to address the limitations of traditional geospatial analysis, which is often done in 2D and offers limited capability to view elevations or building and terrain constraints. It can seamlessly add multiple layers of information into an existing ArcGIS Pro environment to create 3D content featuring: cityscapes and buildings (including for highly populated places, commercial areas, hospitals, etc.); vegetation; terrain; geo-specific (GS) models; and major transit hubs (e.g., subway stations, airports, train stations).

"So many sectors – geospatial, disaster management and emergency response, infrastructure, utilities and others – are still working in 2D environments," explained Jean-Michel Briere, General Manager of Presagis. "3D representation of geospatial data is increasingly critical to decision-makers, not only for simulation and training applications but also to help clearly and immediately communicate complex concepts to a broad audience.

"Conventional, manual approaches to managing 3D databases are inefficient, costly and incapable of scaling to the levels demanded in building today's complex virtual environments," Briere added. "Our 3D Environments Add-In offers a flexible solution and allows users to leverage their existing Esri data to create these impressive environments."

Moving into 3D with Presagis removes a layer of abstraction and allows for a quicker and deeper understanding of the situation on the ground, facilitating quick and informed decision-making and improving efficiency and communication. The Add-In also reduces costs by leveraging publicly available Open Geospatial Consortium Common Database (OGC CDB) data rather than extracting new (terrain and building) layers.

Employing an integrated approach, the Presagis 3D Environments Add-In is streamlined for ArcGIS Pro users and allows easy transformation or extraction of 3D files or layers. The Add-In: extends the functionality and versatility of any ArcGIS Pro software; allows the easy export of an i3S scene layer to ArcGIS Online; offers CDB file format users functionalities such as the possibility to re-use data and import it directly into Esri; can intersect 2D layers with simulation to identify critical areas; and includes tools data format conversion for I3S, 3D Tiles, glTF and OpenFlight.

16th Annual Serious Game Showcase & Challenge [Booth 2280]

In the span of 16 years, we've seen use of games grow across the DoD community as evidenced by:

- Numerous programs of record and ongoing procurements involving games
- Growth of government game labs within the DoD
- Market entry by new game developers, growth among existing game companies and acquisition or standup of game groups within almost all major prime contractors

Today, the SGS&C continues to showcase unique approaches to game design, utilization of less mainstream approaches to solving problems and novel technology employment for the I/ITSEC community.

VOTE NOW!

Visit the SGS&C booth 2880 before Wednesday at 1800 to vote for this year's People's Choice Award.

All-volunteer leadership and execution

A committed, year-round, all-volunteer organization with more than 40 members and 75 evaluators.

13 finalist games

- Business, nonprofit, government and student developers
- Representing studios from six different countries
- More than 60% of our finalists have never been to I/ITSEC
- Addresses education and training needs for: patient and medical practitioners; public safety; incident response; political science; military operations; math, coding and language skills
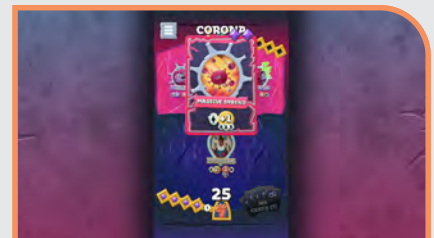
Our website has more detailed information about the finalists, including links to videos of gameplay: http://sgschallenge.com/2021-finalists/

GOVERNMENT FINALISTS

AMC Joint Inspection Simulator

USAF 423d Mobility Training Sq / Expeditionary Operations School with developer Engineering and Computer Simulations Inc
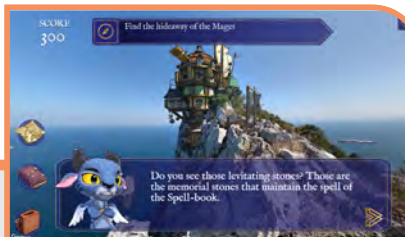
CoronaQuest

Education, Youth and Culture Department – Etat de Vaud-Switzerland

Explore: Tower Defense

Naval Surface Warfare Center Dahlgren Division with developer MetaTeq Inc

Legends of Europe

Regional Council of Brittany (France) with developer Succubus Interactive
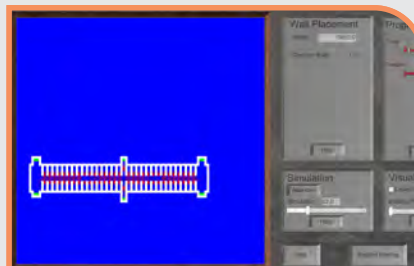
NIHCC Treasure Tour

NIH Clinical Center with developer BreakAway Games

BUSINESS / NON-PROFIT FINALISTS

Basic Vectoring powered by StrataGem
Rigil

Crowd Disaster
Trier University of Applied Science
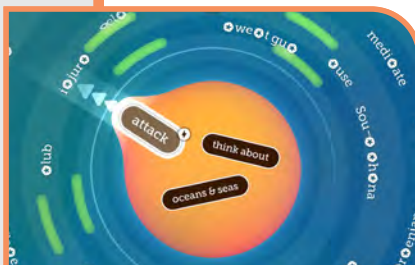
OtherWordly
IDEA Games

Street Smarts VR
Street Smarts VR

TC3Sim – 2020
Engineering & Computer Simulations Inc.

STUDENT CATEGORY FINALISTS

CodAR
Indian Institute of Technology Kharagpur, India

Lunar Exploration: Past
School of Interactive Games, Rochester Institute of Technology

Vector Unknown: Echelon Seas
Arizona State University

Exploring the Challenges of Human-AI Teaming

The challenges of teaming between humans and artificial intelligence will be explored in a Wednesday afternoon I/ITSEC 2021 Focus Event: "Learning to Learn Together: How Will Human-AI Teams Achieve Mastery?" [Wednesday, 1 December 2021, 1600-1730, Room 330EF].
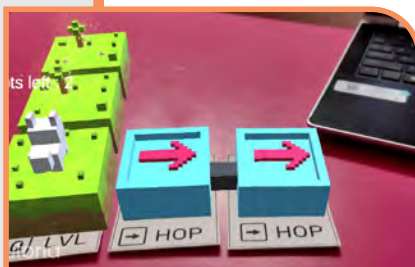
According to panel moderator Daniel Serfaty, Chairman and Chief Executive Officer, Aptima Inc., the panel will explore the question: How do we learn as human beings together with AI?

"This is not just a theoretical question," he asserted. "Because we continue to see this taking place more and more."

Serfaty referenced an I/ITSEC Special Event AI panel that he moderated two years ago, which included the "world's first" panel participation by an AI his company had designed named "Charlie," which answered questions and conversed with other panelists.

"When I was working with Charlie, I discovered that she took some time to adapt to me, in a sense that I learned to ask her questions to obtain interesting answers as opposed to dumb answers," he said. "And vice versa, by

learning about the kinds of questions and my own style of questioning, she was adapting and providing more interesting answers for the audience. And it took me a couple of days of rehearsal for that mutual adaptation to arrive at a point where I felt that I was working with her as a team."

He noted that that experience, as well as other similar AI experiences, have led people to wonder: As we introduce more and more

AI systems to help our work, do we need to have a special kind of training for the human using them?

"That's because AI is not just a regular machine," he said. "This is a machine that learns and learns as it works with you. So, do I need special skills or training to work with that machine? That's the first big question. Are we entering an age where, because humans are going to work with AI, they need to develop new skills?"

Noting that some humans still attempt to anthropomorphize AI with human characteristics, he stressed, "They are not human. They think differently. They reason differently, not better or worse, but just differently. And we may need a certain kind of training to work with AI efficiently. And again, the same is true vice versa. The engineers who will design those AI have to take into account the humans that AI is going to support and augment to aid in their jobs."

He added that these sorts of issues are addressed in an emerging field of thought and engineering development dubbed "Human-Centered AI."

Serfaty highlighted the members of today's panel, observing, "They are experts who come at AI from different angles, and each

brings a unique perspective."

Panelists include: Frederick Diedrich, Ph.D., Consultant; Greg Zacharias, Ph.D., Chief Scientist for Director of Operational Test and Evaluation, Office of the Secretary of Defense; and Michael Van Lent, Ph.D., President and Chief Executive Officer, Soar Technology Inc.

Asked about lessons and messages that he hopes the audience takes away from today's panel, he offered, "I want the audience to be developing a realistic but optimistic view of AI. It's not one extreme or the other. It's not that robots and AI are going to take over the world and, therefore, what do we have to do? I want to convince the audience that, for most systems in the foreseeable future, especially defense systems, the human is still in charge. And the optimistic part here is that, actually, by thoughtfully designing those AI systems, we can truly enhance the performance of the human."

He continued, "We can truly enhance the performance of human-commanded combat teams if we do things. One is that we make sure that the AI designer understands a thing or two about the human brain and the human intelligence and the human mind, which they are, as more and more of the new generation AI is actually designed with that. People call it empathy. I wouldn't go that far, but at least some kind of an internal model of the human.

"And the second big question is that, well, as a CEO, I know how to run my company or how to run a team as a leader. But what if one member of that team or worker was an AI? Do I have enough knowledge and training to actually manage that AI properly and to get the most performance out of it? That's a question. Who is going to provide that training, and what kind of new skills are necessary to acquire those competencies?" he asked.

Serfaty summarized, "I want my audience to understand that, basically, it's here. It's not the future. We're already dealing with those systems as we speak. Therefore, it's everybody's challenge."

He concluded, "This year's I/ITSEC theme is 'Innovating and Accelerating Training: Adapting to an Unexpected Future.' But these AI issues are neither unexpected nor the future. They are now."

Career Fair ... *continued from p12*

Scheduling for both the live and the virtual engagements is through Career Fair Plus, Raver explained, "which is the tool that we used last year. We were pleased with how that worked out, so we're using that again this year. The tool itself indicates whether the recruiter will be live or virtual, and the candidates can indicate whether they would be able to be present in the room for an interview, or whether they would be doing an interview through the tool itself."

Candidates can sign up for the event at https://app.careerfairplus.com/login.

This link will remain open throughout the event, and all the resumes that are uploaded will be shared with all of the recruiters participating.

The companies participating run the gamut from large to small, about 50/50, Raver said. "On the large-business side, for the first time this year, Microsoft will be participating as a recruiter," adding that although Microsoft has a large presence on the show floor, it will participate virtually as a recruiter. He identified other representative-recruiting companies, including SAIC, Booz Allen Hamilton, Collins

Aerospace and Boeing. "We'll have a couple of government agencies, particularly the big ones in Orlando – the Naval Air Warfare Center Training System Division, NAWCTSD, will be present at the Career Fair, as well as PEO STRI [U.S. Army Program Executive Office, Simulation, Training and Instrumentation]," he said.

"They're all looking for modeling and simulation and training candidates," he continued. "Some are more from the gaming perspective, like building games for training. Some are looking for augmented and virtual reality talent, and some for more of the traditional training roles like training systems development."

Candidates will also be able to participate in workshops on topics such as resume writing, interviewing skills and an overview of I/ITSEC for participants who may not be familiar with the event, Raver said. "And we're adding a workshop that talks about equity and diversity in the workspace," he said.

An additional benefit for candidates participating in the live event is complimentary access to the Exhibit Hall for one day, either Wednesday or Thursday.

Raver reiterated the value of the Career

> We're trying to create that matchmaking between candidates and companies so that we can help to fill some of these talent gaps that we know we have."

Fair to the I/ITSEC community. "We've all heard about talent challenges that we're experiencing now that we're coming somewhat on the other side of COVID," he said. "All of these companies being together in one spot or participating as part of the show, bringing together the companies that are traditional or non-traditional participants at I/ITSEC with the talent that is really looking to move into this industry, creates this great opportunity for the organizations and for the candidates. That's what we're hoping for. We're trying to create that matchmaking between candidates and companies so that we can help to fill some of these talent gaps that we know we have, while also helping to facilitate young people who are just entering their careers or Veterans who are transitioning out into the workforce for the very first time."

Black Swan Turns to Ransomware

Later this afternoon, one of the I/ITSEC spotlights will shift to the timely topic of ransomware in a Focus Event: "Black Swan – Ransomware Hits Wall Street!" [Wednesday, 1 December 2021, 1600-1730, Room 310 AB].

"Black Swan is kind of a thought experiment that Admiral [James] Robb came up with about seven years ago," explained Fred Fleury, an executive from ZedaSoft Inc. who serves as I/ITSEC's Black Swan Event Coordinator. "The term comes from a 2007 book by Nassim Nicholas Taleb that looks at events with low probability of happening, but if they do happen, they result in world-changing impact. It's the proverbial 'asteroid hits the planet' kind of thing."

He described the I/ITSEC Black Swan series as annual experiments that look at a specific potential event to see whether there might be something that could be done to prepare for, harden against or take some actions to enhance infrastructure resilience.

"At I/ITSEC, our main goal is to educate attendees on: What is the issue?" Fleury said. "Then, are there some things that people can do in terms of modeling and simulation to help prepare for these types of events?"

Fleury referenced past Black Swan topics, offering the representative example of the State of California splitting along political lines with international intervention in support of one of the resulting groups. The resulting I/ITSEC panel incorporated unique voices, including a political statistician who provided the audience with unique insights on political leanings across that state.

Another year, the Black Swan event focused on a coronal mass ejection, or massive solar flare, that creates a geomagnetic wave in space.

"That happened back in 1859," Fleury said. "It's called the Carrington Event. If one of those waves hits us today like it did in 1859, it's going to take out all of our electronics infrastructure. So we brought in the Army, which shared thoughts about preparing for EMP [electro-magnetic pulse] on the battlefield."

In another example, he described a more recent event that was focused on the COVID-19 outbreak and the generation of vaccine response options in record time.

"Events like those are the focus of Black Swan at I/ITSEC," he said. "We want to educate and find opportunities where modeling and simulation can help us work through these issues."

Acknowledging that COVID is still a news lead, Fleury noted a growing number of incidents surrounding ransomware and cryptocurrency.

"

I put ransomware out as the theme for this year, and everybody was very, very interested in hearing more about it. And, because ransomware is often associated with cryptocurrency, a lot of people hear about cryptocurrency but don't really know what it is. And a lot of people are afraid of ransomware but don't really know what it is."

"I put ransomware out as the theme for this year, and everybody was very, very interested in hearing more about it," he said. "And, because ransomware is often associated with cryptocurrency, a lot of people hear about cryptocurrency but don't really know what it is. And a lot of people are afraid of ransomware but don't really know what it is."

Against that background, Fleury and his team have assembled a panel of industry experts, including Alex Hoover from the Department of Homeland Security, Andy Sekela from the Federal Bureau of Investigation and Damon McCoy, Ph.D., from NYU.

"Alex Hoover is the Deputy Director of the DHS Cyber Division," Fleury said. "And he's going to give us a primer on exactly what ransomware is, what cryptocurrency is and why is it used in the ransomware attacks. Then Andy Sekela from the FBI is going to talk about it from a criminal standpoint. Obviously, asking for ransom is a criminal act. But ransomware essentially is a business. It's a very, very interesting situation. So we're also bringing in Damon McCoy from NYU, who has done modeling and simulation on how to track cryptocurrency payments. And he's going to educate us on how cryptocurrency payments work and how they can sometimes leave 'breadcrumbs' that aren't necessarily well known and public."

He said that during the event, the three speakers will each talk for about 20 minutes, leaving a half-hour for questions and answers with the audience.

"The Q&A session gets more interesting and more lively every year. As I said, the whole thing is a thought experiment, and it really starts getting the juices flowing from an educational standpoint," he said.

His hope for attendees is that they leave the event not only with an education on the subject matter but, more importantly, with ideas on how they might "expand the M&S footprint to investigate these outlier kinds of subject matters.

"And we need to come full circle and bring that thinking around to training the Warfighter," he continued. "Many of our Warfighters are up against cyber criminals every day. So perhaps we need to stand up a cyber range for the modeling and simulation side of things. Or perhaps our Warfighters are up against biological attacks. Well, a pandemic looks a lot like a biological attack. So many of these things get related and chained together. So I'm interested in exploring opportunities to expand the modeling and simulation footprint to cover these newer types of subjects."
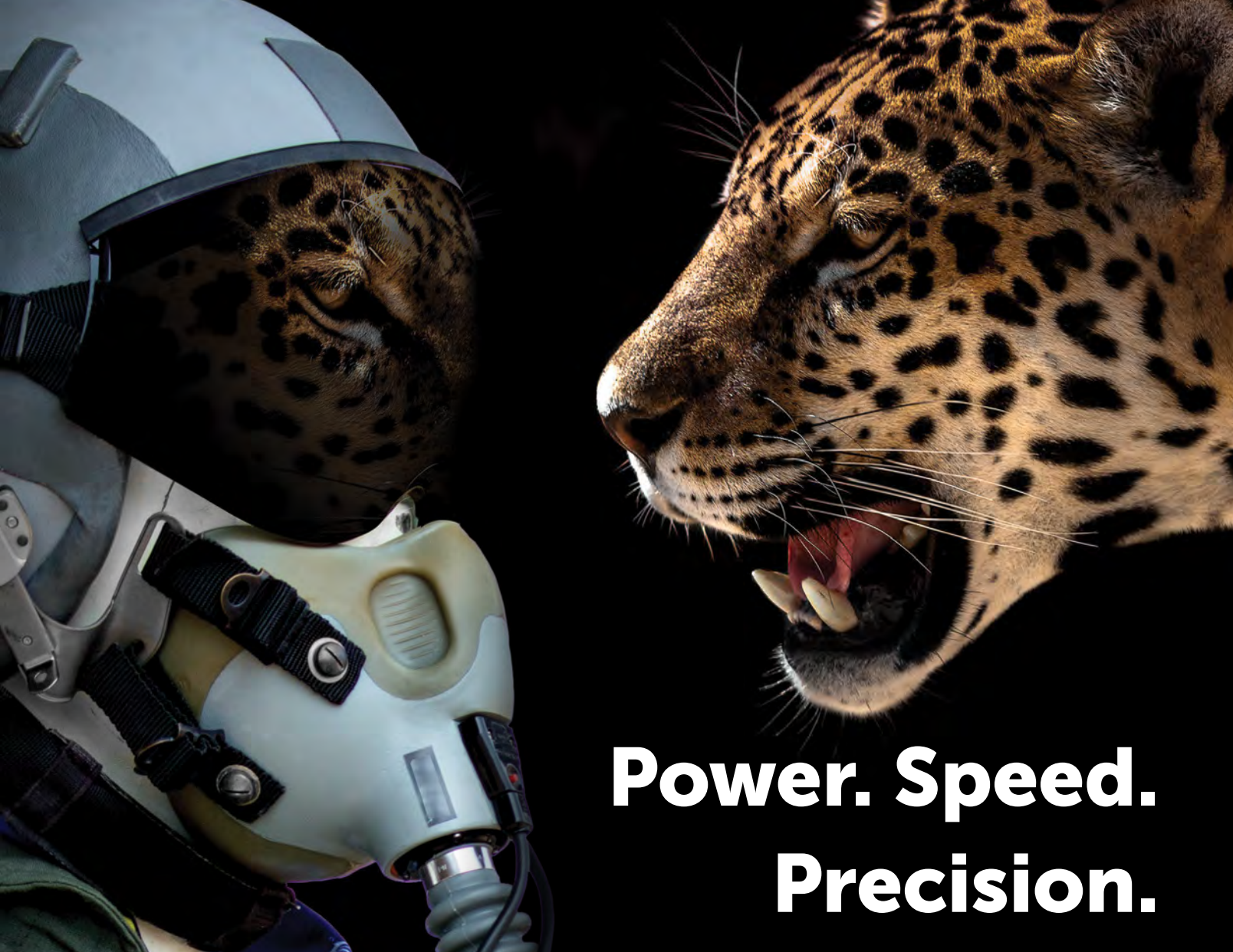
Power. Speed.
Precision.

Transform training into instincts

Extreme situations bring out your instincts. And your instincts are only as good as your training.

The new **Barco F400-HR projector** brings power, speed and precision to high-end training systems with native 4K resolution up to 240Hz processing speed, powered by the unique Barco Pulse electronics system. Designed specifically for the demands of the training and simulation customer, the F400-HR breathes the needed sense of realism into every simulation system.

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Delivering a common environment for multi-domain mission training

CAE's digital ecosystem and synthetic environments support planning, analysis and training for the multi-domain environment.

Preparing for a great power competition requires a secure, on-demand multi-domain environment to enable effective training and mission rehearsal for the joint force. CAE's Common All-Domain Environment for Test and Training (CADETT) offers an integrated, cybersecure environment employing correlated visuals, threats, and environmental conditions to enable tactical and operational level training for the military user.

As the requirement for secure, networked synthetic training environments become more critical, CAE CADETT delivers the capabilities to prepare for multi-domain operations.

Visit our booth (#1734) during I/ITSEC in Orlando, Florida from November 29 – December 3, 2021 for our Common All-Domain Environment for Test and Training (CADETT) demonstration.

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milsim@cae.com   **cae.com/defense-security**