

PEO STRI



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Immersive Training

- Haptic feedback for manipulating physics-based virtual objects and registering impacts
- Model natural motions in the virtual environment
- Model body movements such as turning, kneeling, waving, and locomotion
- Control of virtual humans and targets using natural language, motions and gestures
- Common engine and sensing mechanisms for intelligent tutors
- **Programs:** CCTT DSTS, CDT, EST, GFT, IEWTPT, UOTS

Medical Simulation

- Instrumented live “force on force” medical capabilities for Combat Medics
 - Treat and administer aid to patients during live training exercises
 - Realistic casualty assessment algorithms to replace existing MILES casualty cards
 - Virtual patient/mannequin simulators that accurately replicates human tissue
 - Virtual technology capability that helps wounded military reintegrate into society
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- **Programs:** MSTC, VA/VHA, OneTESS, I-MILES, HITS, UOTS, CTC-IS



Force on Force/Target Engagement Visualization Tool

- Live Force on Force Visualization
 - Support for both Force on Force and Force on Target engagement effects visualization
 - Train the ability to adjust fire
 - FO's see simulated mortar and artillery round impacts with appropriate depth perception
 - Mk-19, M203/320 gunners visualize simulated grenade impacts
- **Programs:** OneTESS, A-TESS, HITS, CTC-IS, small arms live fire



High Resolution Radar

- Radar processing and signature measurements for munitions, sub-munitions, and high altitude missile intercepts
 - Process large amounts of high resolution data
 - Capture and process highly detailed data on impact and dispersion
 - Determine final locations of all shrapnel to facilitate safe removal
 - Perform post mission 3D visualization for distribution and lethality assessment
- **Programs:** RRRP, MMTS, JUTC

Synthetic Natural Environment

- Persistent rapid updates to existing run-time terrain databases
 - Cost effective methods for blending and shading rendered images
 - Complex Natural Cave Systems
 - Common/reusable environmental models/features
 - L/V correlation: Enhance terrain correlation between high resolution live training and medium resolution virtual
- **Programs**: Special OPS mission rehearsal systems, CDT, VCTS,CCTT, VCTS, RVTT, RCTS, CEVT, SECORE, WARSIM, OneSAF

Physics Based Effects - SNE

- Common/Reusable Dynamic Physics based effects of battlefield activities:

- Progressive structure damage
- High fidelity building structural damage effects
- CBNRE effects
- Civil Engineering efforts
- Ammo/collisions
- Soil/water characteristics
- Weather and atmospheric effects
- Route clearance/IED defeat
- Construction equipment

• **Programs**: Special OPS mission rehearsal systems, CDT, VCTS,CCTT, VCTS, RVTT, RCTS, CEVT, SECORE, WARSIM, OneSAF

Modeling Enhancements

- LVC compatible acquisition and damage assessment
- High fidelity vehicle models
- Common and realistic virtual life form representations and behaviors
- Physics based dynamic thermal representation
- Enhanced modeling of civil engineering work to affect cooperation
- Communications modeling
- Weather and atmospheric simulation for real time training systems
- **Programs:** SE Core, CDT, DSTS, CCTT, AGTS, CEVT, VCTS, VBS2, RCTS, GFT , LVC-IA, OneSAF



LVC Embedded Training

- Host simulation and training software on tactical platform processors
- Access to operational platform data to support training
- Ensure separability of operational and training data
- Ensure safety of equipment and personnel during embedded LVC training events
- Ability to control mission time

- **Programs:** DRTS, CVTESS, OneSAF, (emerging embedded training requirements)



Real-Time Target Thermal Representation

- Highly accurate thermal representation on a live fire target silhouette
- Thermal generation capability that prevents silhouette damage
- Thermal images driven by SAF models to project multiple targets simultaneously and changes in posture of target
- Multi-spectral personnel targets for electro-optic sensor testing

• **Programs:** Live Fire Training Systems (TRACR, DRTS, IMTS)



Laser Enhancements for Test and Training

- Penetration of obscurants such as fog, dust and smoke
- Laser code that can transmit additional data to assist with pairing roll-off
- Lasers and detectors that can support legacy MILES codes and the next generation TESS

• **Programs:** I-MILES and A-TESS, Test & Training Initiative

GPS Denied Environments

- Time Space Position Information Instrumentation for GPS denied environments
 - Measure and time tag 3-D location of systems-under-test (SUT) in urban test event
 - Seamlessly track SUT or personnel as they maneuver inside and outside urban structures and vehicles
- Remote control of aerial and ground targets in GPS denied environments
 - Provide reliable TSPI to remote target control system for improved tracking and safe control of aerial and ground targets
- **Programs:** JUTC, UOTS

Way Ahead

- Technical sessions throughout the year
- Future searchable online database of ongoing capability gaps
- Capability gap discussions are always welcome



Acronym List

- AGTS: Advanced Gunnery Training System
- ATESS: Army Tactical Engagement Simulation System
- CBNRE: Chemical, Biological, Nuclear, Radiological, and/or Explosive
- CCTT: Close Combat Tactical Trainer
- CDT: Common Driver Trainer
- CEVT: Construction Equipment Virtual Trainers
- CTC-IS: Combat Training Center - Instrumentation System
- CVTESS: Combat Vehicle Tactical Engagement Simulation System
- DIS: Distributed Interactive Simulation
- DRTS: Digital Range Training System
- DSTS: Dismounted Soldier Training System
- EST: Engagement Skills Trainer
- GFT: Games For Training
- HITS: Homestation Instrumentation Training System
- IEWTPT: Intelligence Electronic Warfare Tactical Proficiency Trainer
- I-MILES: Improved Multiple Integrated Laser Engagement System
- I-MTS: Integrated Military Operations on Urban Terrain (MOUT) Training System
- JUTC: Joint Urban Test Capability
- LVC-IA: Live, Virtual, Constructive-Integrating Architecture
- MILES: Multiple Integrated Laser Engagement System
- MMTS: Mobile Multi-sensor Time-Space-Position Information (TSPI) System
- MSTC: Medical Simulation Training Center
- OneSAF: One Semi Automated Force
- OneTESS: One Tactical Engagement Simulation System
- RCTS: Route Clearance Training Services
- RRRP: Range Radar Replacement Program
- RVTT: Reconfigurable Vehicle Tactical Trainer
- SECORE: Synthetic Environment Core
- SWaP-C: Size, Weight, Power and Cost
- TRACR: Targetry Range Automated Control and Recording
- TSPI: Time-Space-Position Information
- UOTS: Urban Operations Training System
- VA: Veterans Administration
- VBS2: Virtual Battlespace 2
- VCTS: Virtual Clearance Training Suite
- WARSIM: Warfighters' Simulation