

# Simulation-based Training

## EXPERTISE

IAI's tools and technologies in agent-based simulation and eLearning enable the development of distributed training systems integrating SCORM instruction with simulation-based training. Using IAI's Cybele agent-based infrastructure, complex underlying representations may be created and customized for specific training scenarios. IAI has highly experienced technical staff (with advanced degrees in psychology, educational technology, artificial intelligence cognitive science, computer science and engineering) that enables it to ably support its partners in creating effective simulation-based training systems.

## APPLICATIONS

### Cultural Awareness Training

The Cultural Learning Environment for Alertness and Radar (CLEAR) uses an Interactive Pedagogical Drama (IPD) to train soldiers to be "culturally alert" rather than being "culturally blind". The story line is based on the formation and transmission of opinion and its effects on persons in the community. It includes a model for specific Arab cultures with "building blocks" that create 2<sup>nd</sup> and 3<sup>rd</sup> order consequences of immediate cross-cultural interactions. CLEAR's framework is built on Cybele®, IAI's intelligent agent architecture.



### HLA Simulation with SCORM

Simulation-based Intelligent Training and Assessment (SITA) is a plug-and-play architecture designed to work with any SCORM 2004-compliant Learning Management System (LMS) and HLA compliant simulation. LEED provides a generalized architecture for leveraging HLA-compliant simulations for SCORM-compliant on-line instruction. Trainees can practice a skill or demonstrate their performance level using the HLA simulation.

## Narrative-driven Training

Funded by the Army Research Institute, Leadership Education through Evolutionary Development (LEED) provides an immersive, interactive learning experience. It is implemented using Cybele-Pro --- IAI's multi-agent framework product. LEED helps train leaders in the cognitive skills needed to understand the intent of a mission, identify and adapt changes, manage priorities and use appropriate interventions. The system employs a crowd encounter simulation using realistic 3-D environments to provide variable, complex leadership experiences. Trainees make leadership decisions that are evaluated inline for virtual coaching with After Action Reviews to enhance the learning experience.



## Advanced Team Training

As part of Battle Command Advanced Team Training, IAI built emulations of four Army Battle Command Systems (ABCS) for situational awareness. This team training targets a three-person battle staff working together in a Mounted Battle Command On the Move (MBCOTM). A vignette editor enables SME's to specify conditions and events for which teams should practice upcoming missions. BCATT has been acquired by 22 National Guard Units.

## Visualization Training

Visualization Training for Complex Equipment Maintainers (VISTRAS) helps technicians apply visualization techniques to understand the intent and rationale of the IETMS. Technicians "mentally animate" equipment and its functionalities during maintenance. As a result, they anticipate the effects a single maintenance activity may have on other parts of the equipment. Findings were used from the work environment of F-18 technicians and applied to effective visualization training to construct an IETMS-centered work simulation. The simulation was augmented with tasks that led trainees to mentally animate the equipment.