



RDECOM



TECHNOLOGY DRIVEN. WARFIGHTER FOCUSED.

STTC and ICT Game-Based
Technologies Research

30 April 2008

Mr. John Hart
Creative Learning Technologies
PM, ICT
US Army RDECOM STTC

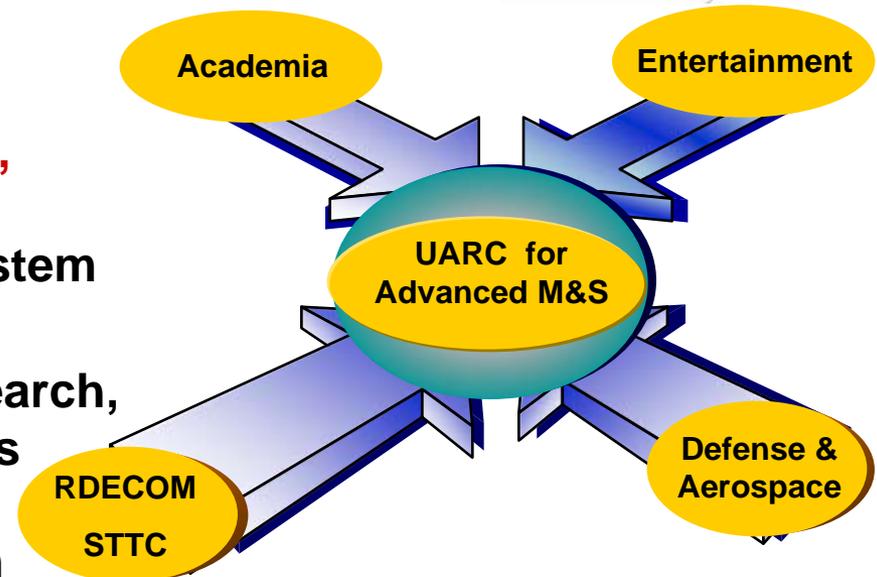


Provide an overview of the research efforts being conducted by the STTC and ICT that are utilizing games and game-based technologies

- One of 10 organizations w/in RDECOM
- Located in the SFC Paul Ray Smith Center in Orlando, FL
- Mission – to enhance Soldier readiness through R & D of applied simulation technologies for learning, training, testing, & mission rehearsal
- Research Focus Areas using games and game-based technologies –
 - Creative Learning Technologies
 - Medical Simulations
 - Synthetic Natural Environments
 - Distributed, Virtual, Immersive Simulation
 - Customer-funded Research



- ICT is a DoD approved, University Affiliated Research Center (UARC) for advanced M&S research
- Unique partnership between the Army, the entertainment industry, and world class researchers at USC
- Goal is to improve learning through the **research and development of new tools, technologies, and methods** and the creation of an Experiential Learning System
 - Leverages superior academic research, modeling, & simulation capabilities
 - Enlists resources and talents from the entertainment industry



- **Basic Research (e.g., audio immersion; graphics and animation; story representation, direction and management; and enhanced Virtual Humans)**
- **Applied Research (e.g., Artificial Intelligence; Integrating Architecture; Mixed Reality; and Scalable Visualization)**
- **Prototype Applications and Systems (e.g., Commercial Platform Training Aids; the Bi-lateral Negotiation Simulation (*BiLAT*); *UrbanSIM*; and the Distribution Management Cognitive Training Initiative (*DMCTI*))**
- **Outreach and Knowledge Transfer Workshops**



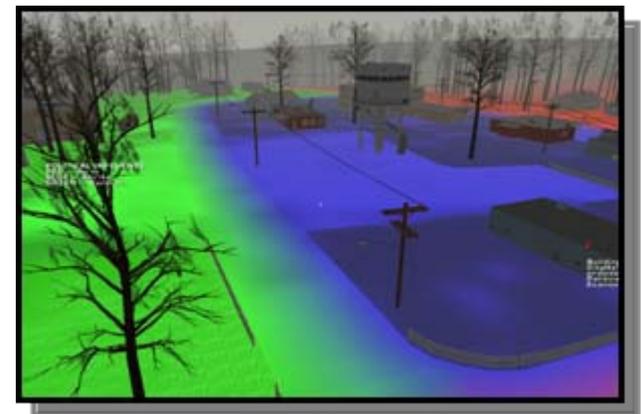


- **Learning With Adaptive Simulation and Training, Army Technology Objective (LAST ATO) is a 4-year (FY05-08), multi-agency research effort**
- **LAST ATO partners include RDECOM STTC, ARI, ARL-HRED, ICT, and several TRADOC organizations/stakeholders (e.g., TDADD, TCM-Virtual, and the CGSC School for Command Preparation)**
- **Key ATO research goals:**
 - **To develop new tools, methods, and metrics enabling training developers to rapidly create and/or modify COE-relevant scenarios in enhanced, virtual training simulations**
 - **Develop the tools and methods for integrating key representative cultural behaviors and effects in virtual simulations**
 - **Demonstrate effectiveness of tools & methods in enhanced game-based prototypes (e.g., *BiLAT* and *UrbanSIM*)**

- First “Spin-Out” deliverable from the LAST ATO
- Game engine-based, cognitive training tool used for developing skills in how to plan for and conduct bi-lateral meetings and/or negotiations in different cultural settings
- Ver 2.0 contains five complete negotiation scenarios, each with multiple meeting engagements
- Commercial Game Engine (UT ver 2.5)
- In use at School of Command Prep, CGSC, Ft. Leavenworth
- Experimentation at Ft. Drum, Ft. Hood, Ft. Riley



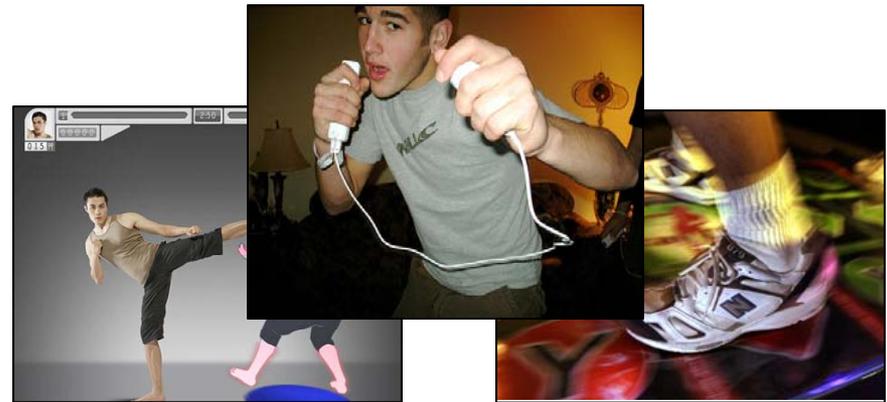
- **UrbanSIM** will be the second “Spin Out” deliverable from LAST ATO
- Game engine-based simulation, providing a “Macro-view” of the broad social and cultural behaviors/effects existing in densely populated environments
- Focused on situational understanding, specifically:
 - “Systems of networks” in urban environments
 - **Social**
 - **Cultural**
 - **Economic**
 - **Religious**
 - **Political**
 - **Infrastructure**
 - Helping leaders make better decisions in complex, contemporary environments
- Three key research thrust areas under project –
 - Culturally-Affected Behaviors (CAB)
 - Cultural Environment Annotation (CEA)
 - Densely Populated Urban Environments (DPUE)



Motor Rehab Research



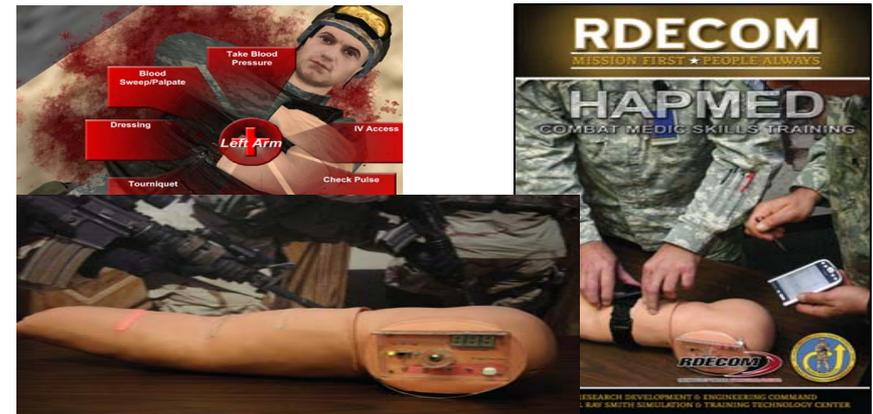
Exer-gaming



Virtual Reality PTSD



TC3/HapMed



TECHNOLOGY DRIVEN. WARFIGHTER FOCUSED.

- Research effort to develop a set of processes and tools for the rapid **conversion, manipulation, optimization, and enhancement** of military terrain databases for use with the latest commercial game technology
- Employing off-the-shelf tools, the MTGP aims to significantly reduce the time and cost associated with recreating these geo-typical environments for the virtual domain
- Technical demonstration showed ability to present the semi-automated translation of West Point terrain data along with simple agent behaviors in the Gamebryo game engine
- Pipeline reduced time-to-completion from 30 man-days to 7 man-days
- Next step – conduct additional testing and evaluations w/ scenarios provided by TRISA (TRADOC Intelligence Systems Agency)



- Research effort focused on enhancing the technologies, processes, and training strategies for applying a distributed, game-based, role-playing simulation over a Wide Area Network
- First distributed experiment scheduled for Jun 08
- Will include Coalition Soldiers from the US and UK under The Technical Cooperation Program (TTCP)
- Partners will include STTC, ARI, AFRL-Mesa, and Soldiers from UK and 10th Mtn Div
- Prototype environment will support training for a number of tasks to include –
 - Common ground operations: counter-IED, checkpoints, building searches, etc.
 - Coalition operations: coordination and communication between allied forces



- **Game engine-based, cognitive training tool to assist US Army logistical planners develop:**
 - **Better understanding of the Army Distribution Management Process**
 - **Better understanding of BCS3 focusing on how to exploit system capabilities to improve analysis, planning, and decision making**
- **Jointly funded by PdM BCS3 and STTC**
- **Training focused on improving Soldier's ability to understand/utilize BCS3 data and data from other logistics/C2 systems in order to analyze, plan, and make better decisions**
- **Built on a solid instructional framework incorporating lessons learned from previous research efforts**
- **On track to transition Ver 1.0 to PdM BCS3 in May 08**



- **Every Soldier a Sensor Simulation (ES3) w/ BCT trainees at Ft. Jackson**
- **Infantry Officer Basic Course – Rapid Decision Trainer (IOBC-RDT) w/ IOBC students at Ft. Benning**
- **Tactical Combat Casualty Care Simulation (TC3) w/ combat medics at Ft. Sam Houston**
- **BiLAT w/ officers attending the Bde/Bn Cdrs' Pre-Command Course at Ft. Leavenworth**
- **Additional BiLAT experiments at Ft. Drum, Ft. Campbell, and Ft. Hood**
- **DMCTI experiments conducted at Ft. Lee and Ft. Eustis**
- **MMOG experiments conducted at Ft. Riley and Ft. Dix**

Lessons learned will effect how we design, develop, and use games in the future



- **Define how the game fits into the overall instructional framework for the training**
- **Define the specific learning objectives for the training exercise**
- **Define how the game activities support the overall learning objectives**
- **Identify how performance and feedback will be accomplished during game play and following completion of an exercise**
- **Assess the relative experience of the trainees in using games**
 - **Instruction time for learning the game**
 - **Trainees have different experience levels with games**
- **Assess the experience level of the instructors or trainers in using games for training**