



U.S. Army Research, Development and Engineering Command

# Simulation and Training Technology Center (STTC) Technologies and Opportunities



***TECHNOLOGY DRIVEN. WARFIGHTER FOCUSED.***

**Ivan M. Martinez**

**Associate Division Chief**

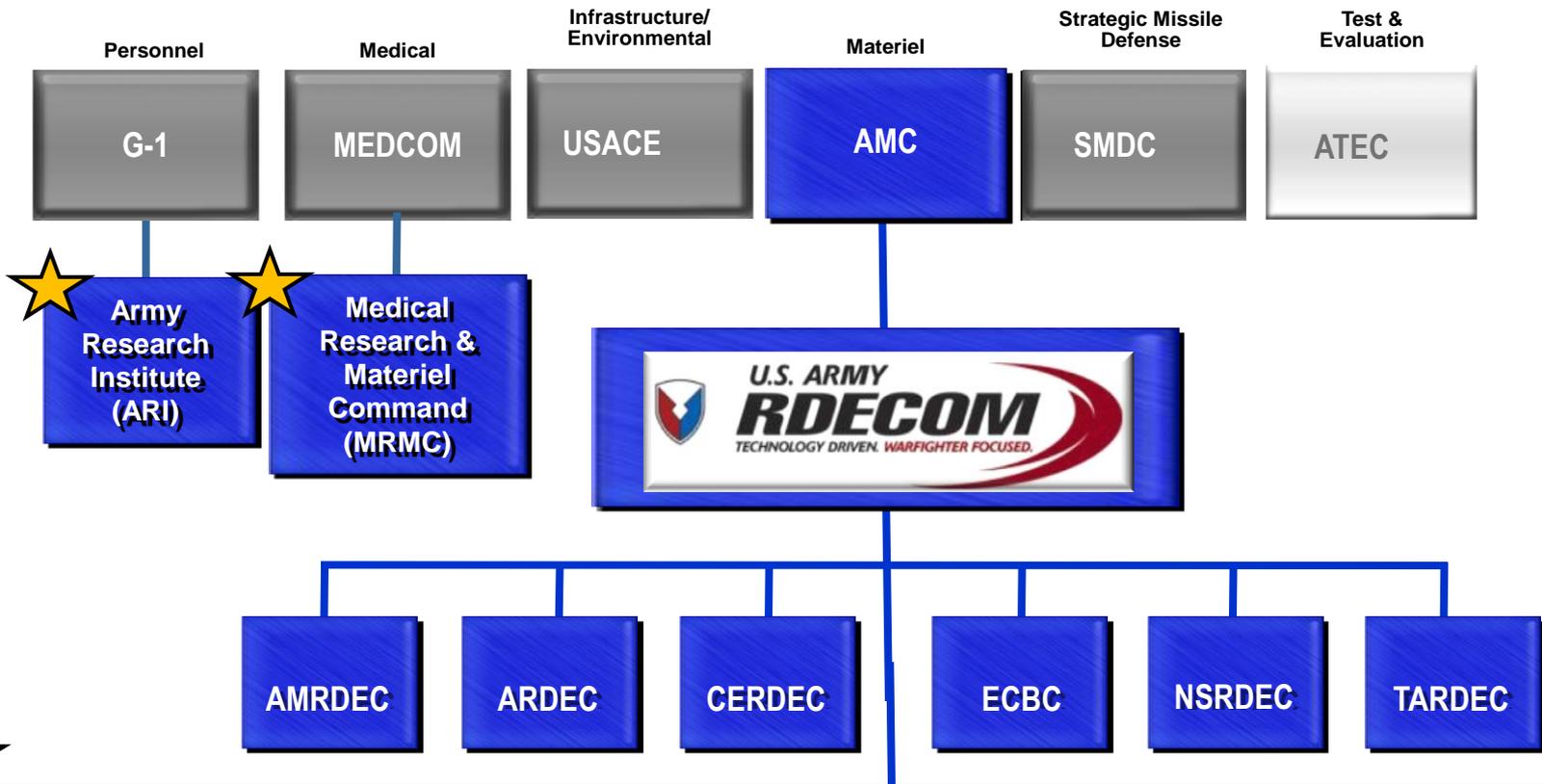
**Simulation and Training Technology Center (STTC)**

**Human Research and Engineering Directorate (HRED)**

**Army Research Laboratory (ARL)**

**13 June 2013**

# Army S&T Organizations



**ARL** Delivers underpinning Science, Technology and Analysis to the Army



**HRED**

*Human Research & Engineering Directorate*



**STTC**

*Simulation & Training Technology Center*



*Sim/Training S&T*



*SFC Paul Ray Smith Simulation & Training Technology Center*

**TECHNOLOGY DRIVEN. WARFIGHTER FOCUSED.**



## Mission

**Conduct Simulation & Training Technology Research and Development to Enhance Warfighter Effectiveness**

## Vision

**The Warfighter's Center of Innovation for Simulation & Training Technology, Research and Development**



- Execute S&T of Simulation and Training Technology
  - (6.1 / Basic Research – 6.3 / Advanced Technology Development)
- Provide Program Management for the Institute for Creative Technologies (ICT), an Army University Affiliated Research Center
- Synchronize / collaborate with academia, customers, industry and labs across the Army, other services and government, and international
- Coordinate and collaborate with key TRADOC Stakeholders
- Transition mature technology to PEOs, TRADOC, and Army units
- Support rapid fielding to the Warfighter as needed





**STTC Building**

- 100+ Government and Contractor Scientists and Engineers

**Tenant Organizations**

- Army Research Institute (ARI) Orlando
- Contracting Cell – Army Contracting Command (APG)

**Local Area**

- IST and other Team Orlando Facilities (e.g. Robotics Lab)

**Extended Area**

- ICT – Virtual Humans, Graphics, Immersive Technology Research

**APG**  
**ARL**




Army Contracting Command

Army Research Institute





**~38,000 square feet of reconfigurable laboratories and research areas including:**

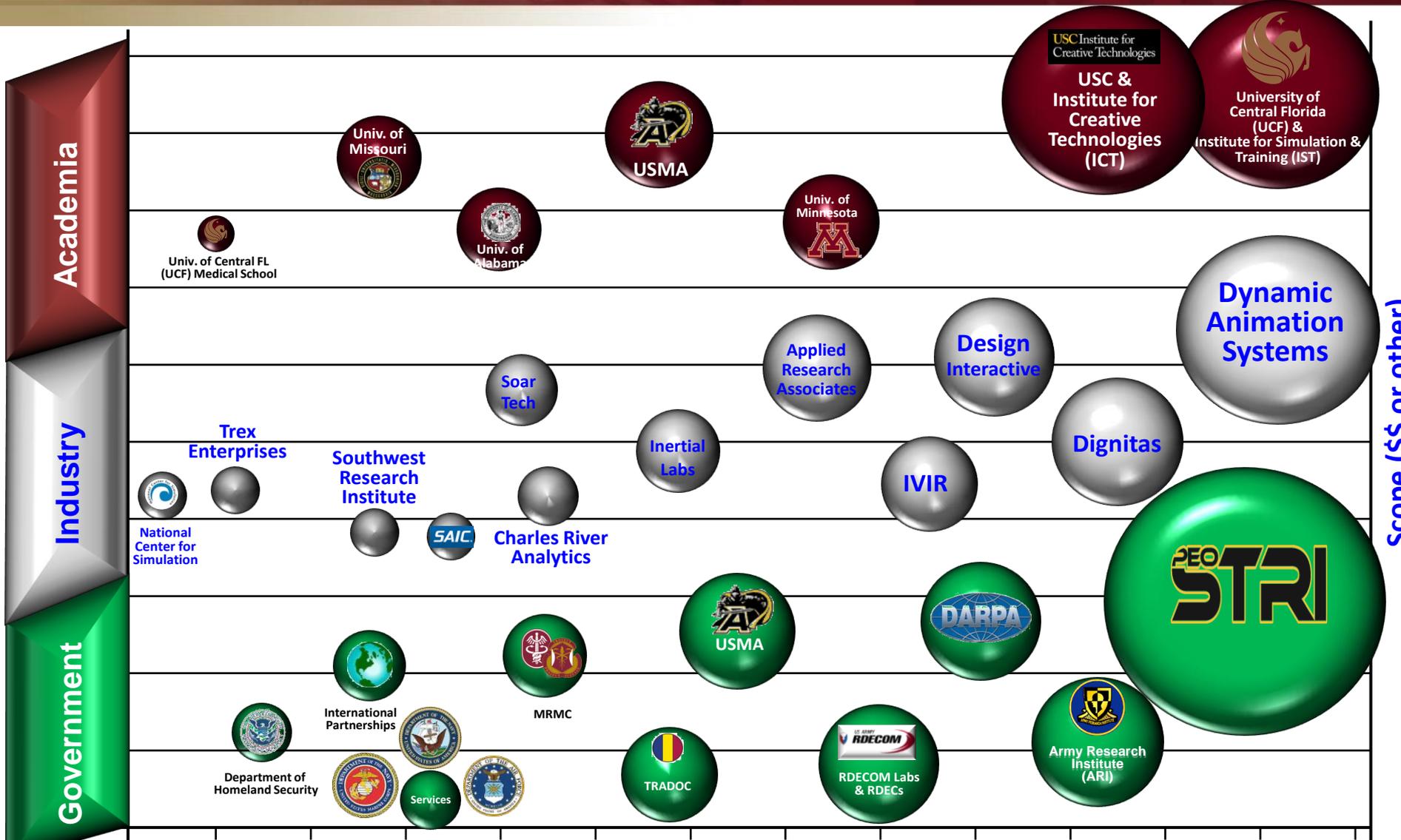
- Adaptive Tutoring Lab
- Virtual and Augmented Reality Lab
- Gaming Lab
- Laser Research Lab
- Medical Research
- Holographic Research Lab



**UCF Owned, Government Occupied  
Unique collaboration focused on research**







# of Actions or Engagements

Scope (\$\$ or other)

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Public Release – Distribution Unlimited

# S&T Requirements Challenges, Focus Areas, and Gaps

## Army Top Challenges



- Greater **force protection** (*Soldier, vehicle, base*) to ensure survivability across all operations.
- Ease **overburdened** Soldiers in Small Units.
- Timely **mission command & tactical intelligence** to provide situation awareness and communications in all environments
- Reduce logistic burden of **storing, transporting, distributing** and **retrograde** of materials
- Create **operational overmatch** (enhanced lethality and accuracy)
- Achieve operational **maneuverability** in all environments and at **high operational tempo**.
- Enable ability to **operate in CBNRE environment**
- Improve **early detection of TBI**
- Improve **operational energy**
- Improve **individual & team training**
- **Reduce lifecycle cost** of future Army capabilities

Linkage to Army,  
Acquisition, and  
User gaps and  
Requirements

## S&T Focus Areas



- Improved training realism via embedded training on operational equipment (WFO-9)
- Multi-domain (L-V-C-G) freethinking autonomous elements to augment OPFOR participants (WFO-1)
- Fully immersive environments (WFO-3)
- Any time, anywhere relevant training environments (WFO-2)
- Improve proficiency in Dismounted Soldier combat/non combat skills for faster, lower cost and improve retention (WFO-1)
- Medical Simulation
- More effective computer-based tutors/coaches (WFO-8)
- Improved home station training enabled through use of enhanced virtual humans as role players in virtual training environments (WFO-7)

## 2013 Collaboration Workshop Nominated Gaps



Fort Benning, Home of the MCoE

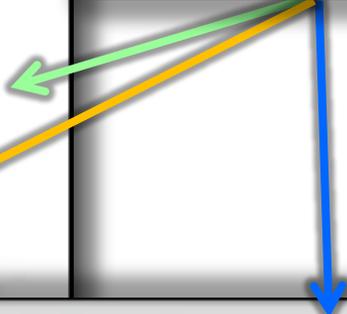
**DOTD**

**#1: Augmented Reality.** The future force requires an Augmented Reality (AR) capability in live and virtual future training environments.

**#2: Mature artificial intelligence.** The future force requires a mature artificial intelligence (AI) training capability that allows for inexpensive but robust simulations, OE and culturally realistic avatar (enemy, non-combatant, etc) interactions with "virtual humans," and tactically sound reaction of AI friendly forces.

**#3: Intelligent Tutoring.** The Force requires an intelligent tutoring capability that is robust enough to augmenting traditional instruction and meet the individual learning demands of the user.

Maneuver Center of Excellence - Team of Soldiers, Families, and Civilians from the Best Army in the World!



### Intelligent and Adaptive Technologies for Training

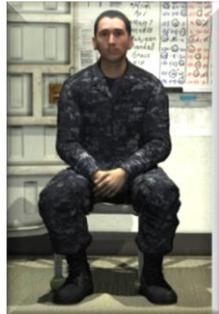
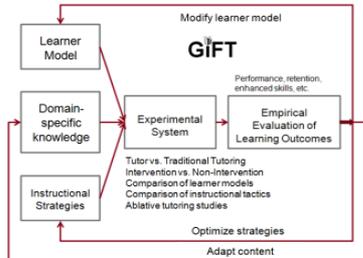
### Immersive Learning

### Synthetic Environments

- Readiness to Learn
- Modeling & Prediction
- Virtual Humans

- Authoring & Infrastructure
- Interface Technologies

- Dynamic/Interactive Effects
- Physics Based Models



### Training Application Environments

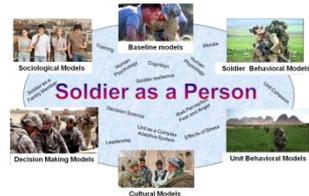
### Advanced Distributed Simulation

Dismounted Soldier

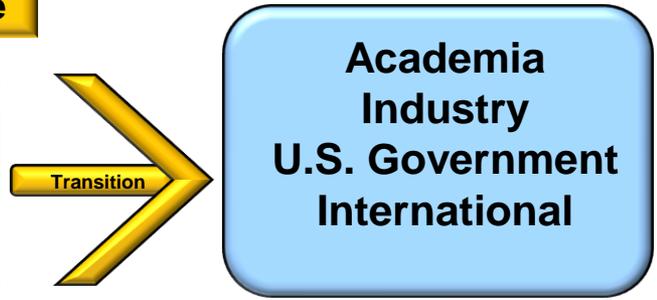
Live Training/Instrumentation

Medical Simulation

- Simulation Tools
- Soldier Centric Learning
- Joint and Coalition Training



## Research Community: Transition Information to Enhance Knowledge



## Acquisition Community: Transition to a Program of Record / Launch a Program of Record



Tactical Holograms      Dismounted Soldier      Game Based Learning      Medical Simulation      Virtual Humans



## Soldier Community: Demonstrate, Experiment, Provide to Soldiers



3-D Hologram IRAQ      EDGE Virtual World Ft Benning, MCOE      Human Robotics Interface Experiment, Fort Hood, Texas      ELITE Ft Benning, Georgia, MCOE



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- **\$135M, 5 year Multiple Award IDIQ**
  
- STTC Simulation and Training Engineering Services (STES) Indefinite Delivery / Indefinite Quantity (IDIQ) Contract
  - Total Small Business set-aside
  - North American Industry Classification System (NAICS)
    - 541712 Research and Development in the Physical, Engineering and Life Sciences
    - Size standard in number of employees: 500 employees



- **3 Technical Areas:**

- Advanced Simulation Research
- Medical Simulation Research
- Squad & Small Team Research (SSTR)
  - Synthetic Environments
  - Dismounted Training
  - Live Training

- The offeror(s) should only respond to the technical areas that they have interest in

- **Draft RFP: 4TH quarter Fiscal Year 2013** is the estimated date of release to Federal Business Opportunities





# STES IDIQ Information



**Questions regarding the STES IDIQ will not be taken during this session**

**Please visit the Federal Business Opportunities website for current documents and Industry Day presentation  
(Search Key: W911QX-13-R-STES)**

**DO NOT contact Contracting Officer Representatives of current active contracts with STTC to receive information regarding IDIQ process**

**Point of Contact:**

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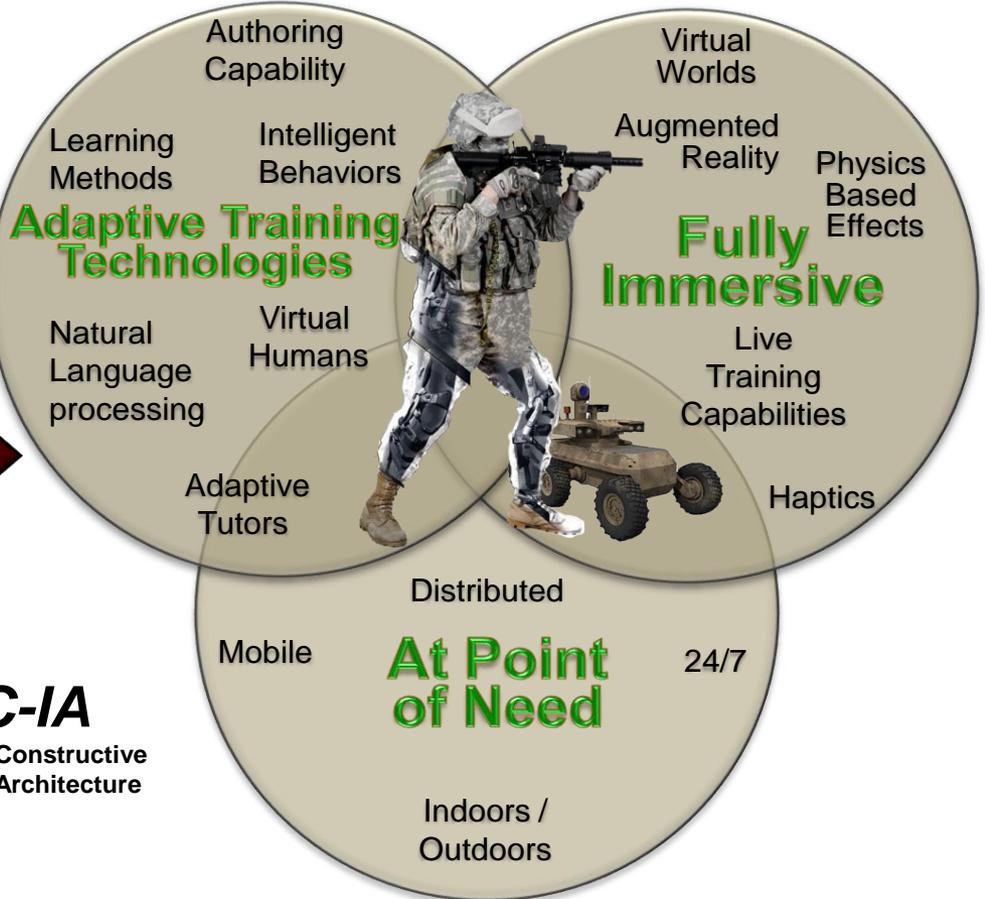
# Simulation and Training Technology Vision

## Today's Investment

## Future Capabilities



**ITE**  
Integrated Training Environment



**LVC-IA**  
Live Virtual Constructive Integrating Architecture

**Ubiquitous, Low Overhead, Individual, and Collective Training**

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