Public Release

Rising Issues in Human Systems: From the Bench to the Battlefield

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U.S. ARMY RDECOM

ARL S&T Campaigns

Extramural Basic Research

Human Sciences

Information Sciences

Sciences for Lethality & Protection

Sciences for Maneuver

Computational Sciences

Materials Research

Assessment and Analysis

Human Sciences

Basic research, applied research, and technology development focused on gaining a fundamental understanding of Warfighter and small unit performance enhancement, training aids, and man-machine integration.

- **HUMAN BEHAVIOR**
- **HUMAN CAPABILITY ENHANCEMENT**
- **HUMAN-SYSTEM INTEGRATION**

DISCOVER

Neurotechnologies for Improved Human-Autonomy Integration

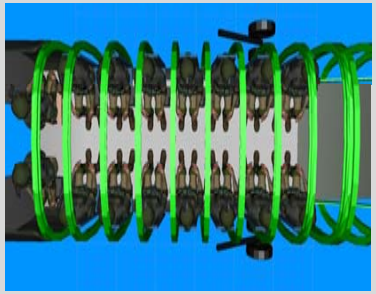
Technology for 3-D Scanning – USC-ICT

INNOVATE

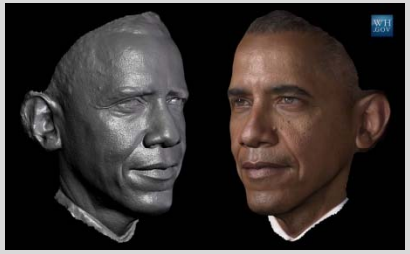
Quantifying Network Performance of Commanders & Collaborative Teams

Measures of Interacting Physical and Cognitive Burden

TRANSITION



Human Systems Integration Modeling Tools

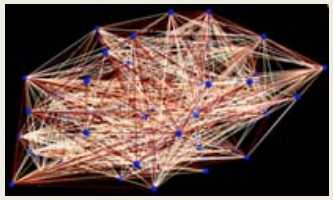


Technology for 3-D Scanning – USC-ICT

Human Behavior

Individual Differences

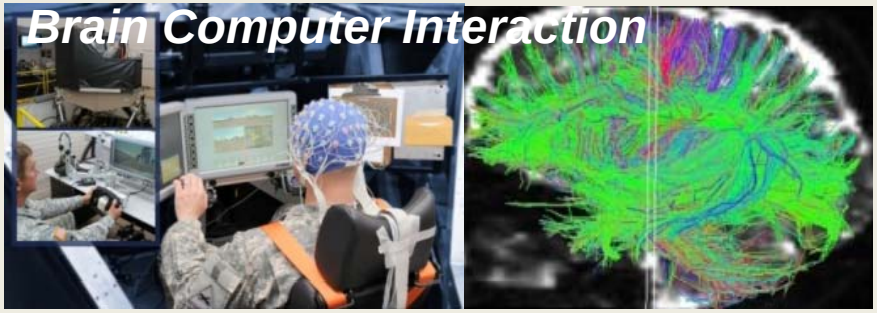
- Individual Behavior
- Models & Methods



Brain Structure & Function Networks

Real World Behavior

- Human Performance
- Realism in Simulation
- Enhanced Interpretation



Socio-Technical Systems

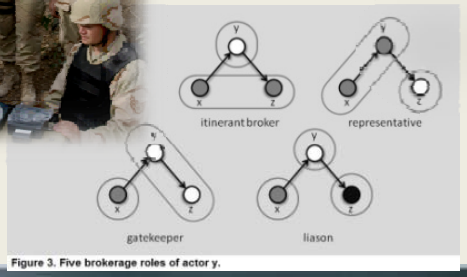


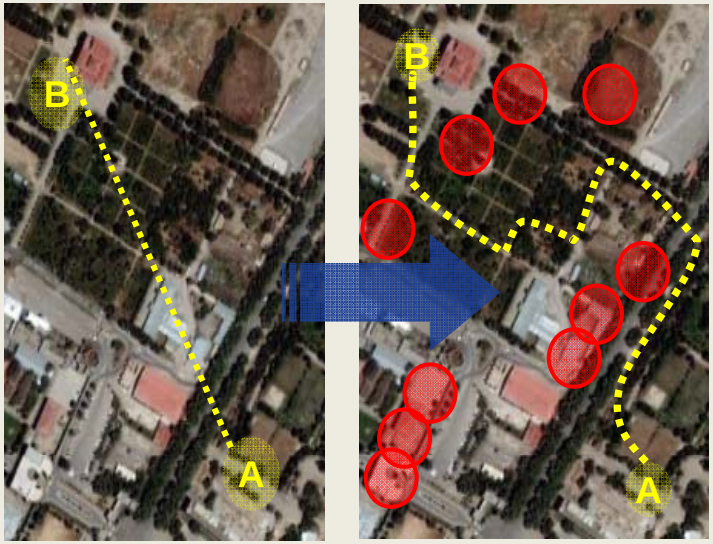
Figure 3. Five brokerage roles of actor y.

Training Systems

Human Capability Enhancement

Augmentation

- Perception
- Cognitive/Affective
- Physical



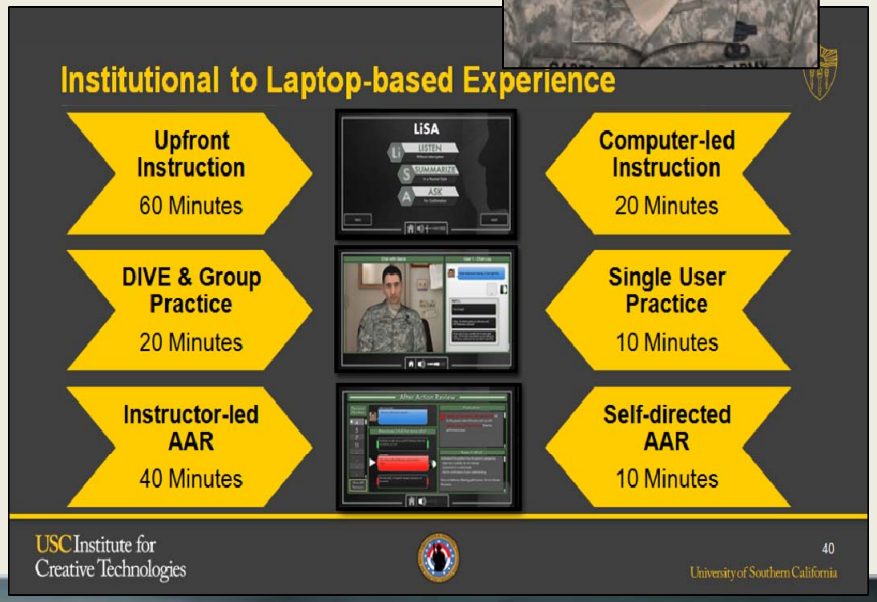
Human Capability Enhancement

Training

- Effectiveness and Learning Methods
- Simulation and Training Technology

Generalized Intelligent Framework for Tutoring (GIFT)

Emergent Leader Immersive Training Environment (ELITE)



Immersive Simulation for Dismounted Soldiers

Human-System Integration

Integration Technologies

- Interface Technologies
- Closed-Loop Behavior

Naturalistic Interfaces

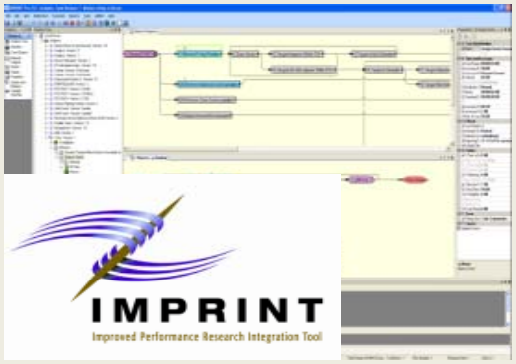
Humans in Systems

- Human-Agent Teams
- Socio-Technical Systems
- Network Science

Shared Cognition

Teaming

Modeling & Analysis Tools

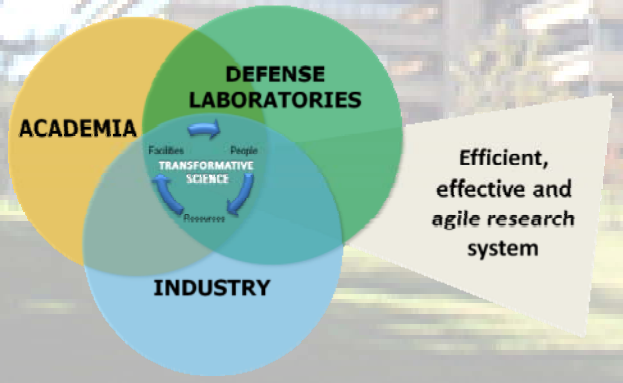


Army Research Laboratory Open Campus Initiative

Piloting a New Laboratory Business Model

ATTRACT AND RETAIN BEST & BRIGHTEST	OPEN CAMPUSES	SHARED MODERN FACILITIES	INNOVATION PRACTICES
Create flexibility and agility to make workforce changes to keep pace with rapidly evolving technologies and national security requirements	Onsite collaboration with academia and industry through layered security process; ARL as anchor within community	Enable greater sharing of specialized facilities between agencies, private sector partners, and experiment with new models for modernizing labs	Implement strategies and policies that support exploitation of science and transition to small business and entrepreneurs

- ✓ Human Sciences
- ✓ Information Sciences
- ✓ Sciences for Lethality and Protection
- ✓ Sciences for Maneuver
- ✓ Computational Sciences
- ✓ Materials Research
- ✓ Assessment and Analysis
- ✓ Extramural Basic Research



Efficient, effective and *agile research* system

"We will need new technology over the next 10 years to make a leaner and more capable Army."

GEN Raymond T. Odierno
38th Chief of Staff, Army

Responding to the National Security Challenges of the 21st Century