



Pentagon Meets Hollywood

Bringing emotions, story and character to a
training simulator near you

Jonathan Gatch

University of Southern California

Information Sciences Institute

Institute for Creative Technologies

University Affiliated Research Center

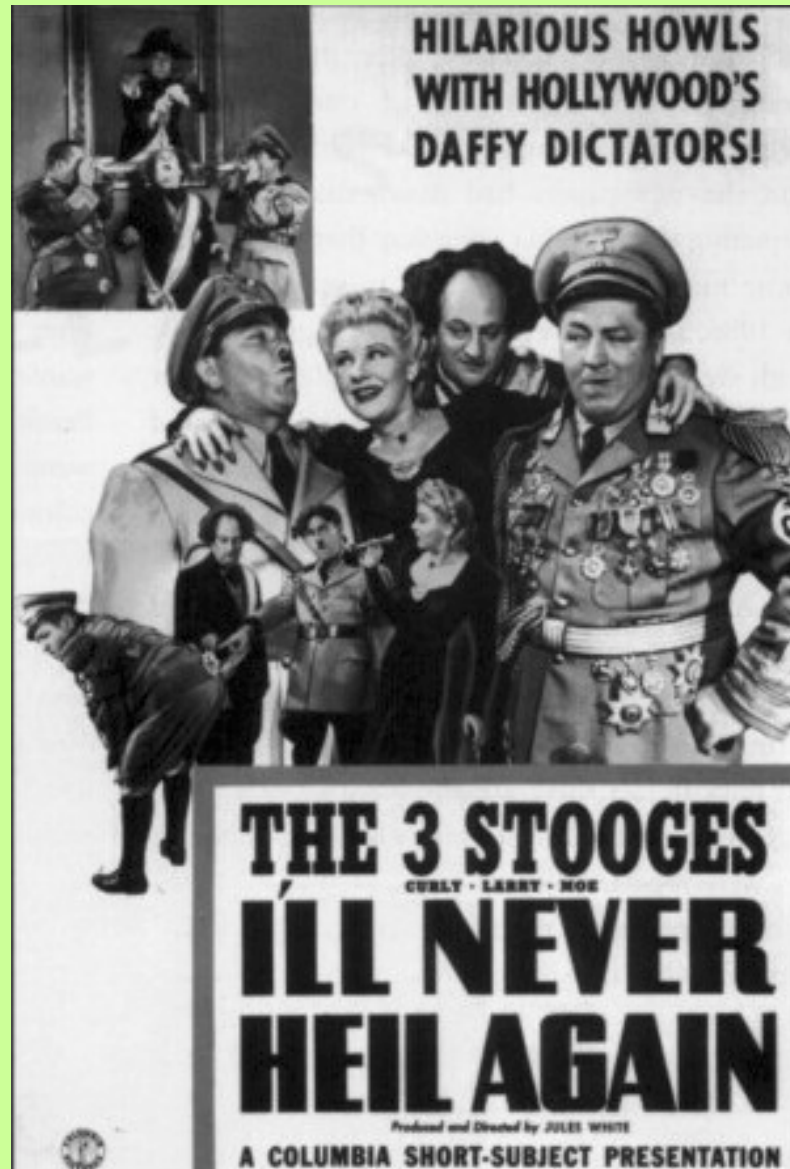
Advance the state of immersive training simulation

*"Nexus between Hollywood, Game Communities and Military
Simulation"*

"Think outside the box"



Pentagon Meets Hollywood

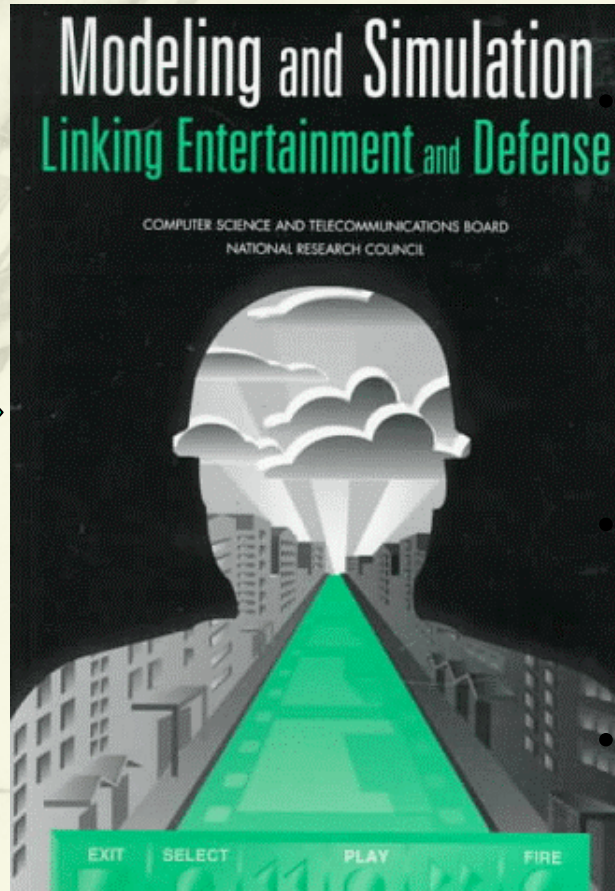


NRC Study

Anita Jones
Defense
Research



Bran
Ferren,
Disney
Engineering



Find common interest

- Immersion
- Networked Simulation
- Standards
- Story and Character
- Authoring tools

Obstacles

- Cultural barriers
- Information barriers

Research Agenda

Story-Drive Engine

- Integrate Story and Character into Training
- Augment ICAF training exercises
 - Role-playing for future policy advisors
 - Introduce character bibles
 - Introduce film clips
 - Explore computational infrastructure
- Paramount Digital Entertainment
 - Alex Singer
- USC Information Sciences Institute
 - Paul Rosenbom



Creation of UARC

- Michael Andrews

- Deputy Assistant Secretary of the Army for Research and Technology



Games better than Army Simulators!

Marines Corps use D O O M for training

Track entertainment technology

Tap imagination of entertainment industry

Story and character

Vision of the future

Create University Affiliated Research Center

Help bridge "culture gap" between military and Hollywood

Institute of Creative Technologies

- Dick Lindheim , Executive Director
 - Former Executive VP Paramount TV
- Bill Swartout, Director of Technology
 - Former Director USC / ISI Intelligent Systems Division
- Jim Korris, Creative Director
 - Head of USC Entertainment Technology Center
- Budget
 - \$45 Million for first 5 years (subsequently increased)
 - Basic research funding

USC Assets

- Information Sciences Institute (ISI)
 - AI, Networking
- Integrated Media Systems Center (IMSC)
 - Immersive Audio and Video, Haptics
- School of Cinema-Television
 - Animation, Entertainment Tech Center
- Annenberg School for Communication
 - Evaluation

Entertainment/Gaming Partnerships

- SONY Imageworks
- LucasArts/LucasLearning
- Twerks
- Paramount Digital Entertainment

Ultimate Goal of the ICT

USC

H O L O D E C K



Hobdecks for Training

- **Immersion**
 - Full sensory, emotional and intellectual immersion
- **Story**
 - Engrossing guide towards useful experience
- **Character**
 - Human form, speech, emotions, culture, personality
 - Adaptive, collaborative and knowledgeable
- **Direction**
 - Keep the experience “on track”
- **Setup**
 - High-level authoring, use digital “back lots”

Basic Research Projects

Intelligent Agents

- Support task-oriented collaboration between humans and agents in VR environments

Create agents that can:

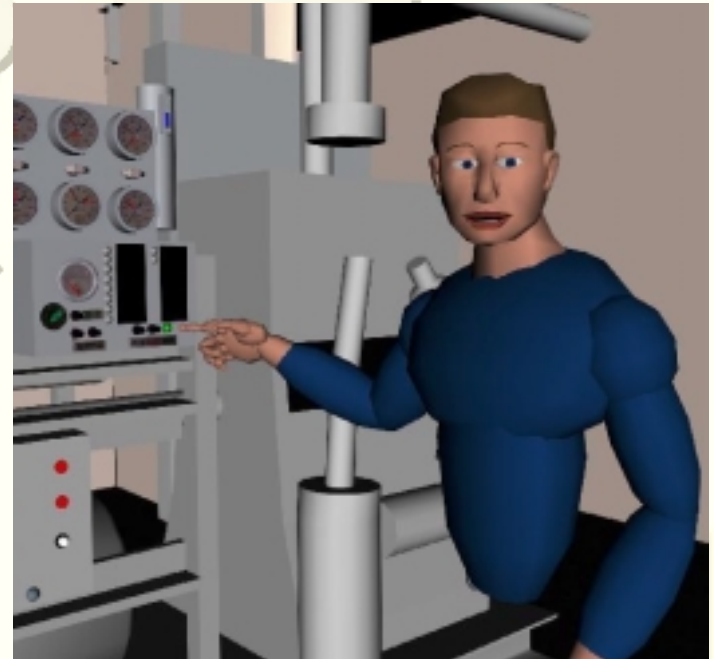
Work as a team

Explain their decision making

Exhibit verbal and non-verbal communication

Act as an advisor, coach

- Jeff R. **ickel** USC / ISI



Emotion and Stress

- Model in pact of emotion and stress on
 - Decision making (e.g. cognitive errors)
 - Gesture, expression, body language
 - Perception, focus of attention
- Personality / individual differences
- Jonathan Gratch
- Randy Hill
- Stacy Marsella

USC / SI



Natural Language

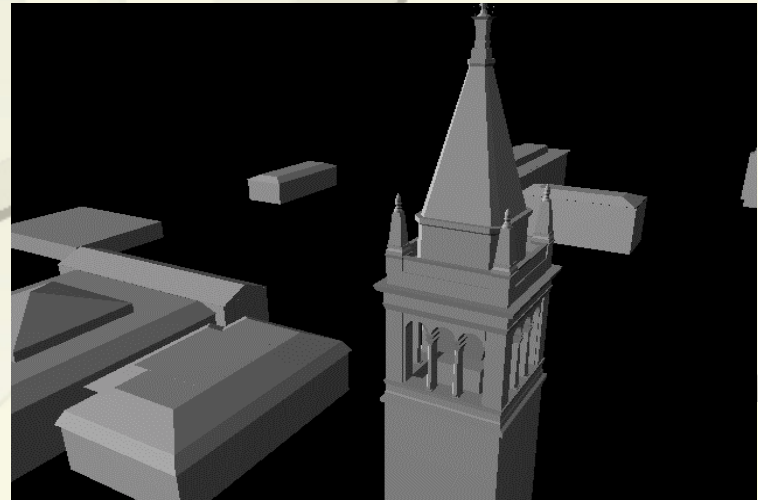
- Speech Recognition
- Dialog and speech generation
- Chatbots
- Kevin Knight
- Ed Hovy

USC / SI



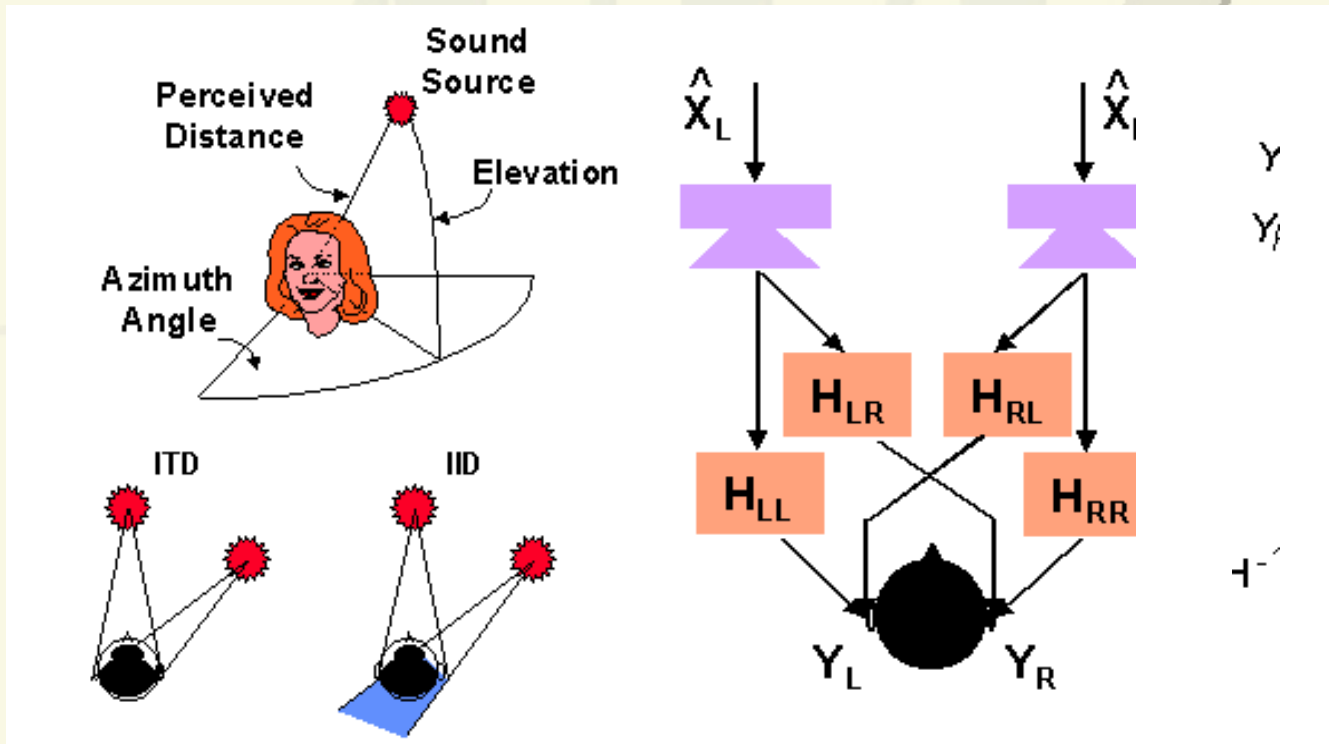
Graphics

- High-resolution virtual environments
- Rapid model construction
- Paul Debevec University of California Berkeley



Immersive Sound

Chris Kyriakakis USC Integrated Media Systems Center





Applications Projects
for 2000



USC

Mission Rehearsal

- Immersive VR for training rehearsal
- AI agents
 - Locals
 - Friendly & hostile forces
 - Mission team members
 - Director & Coach
- Character bibles

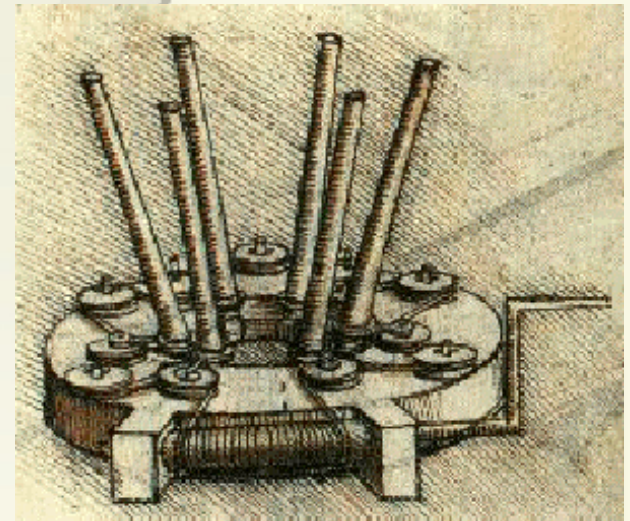
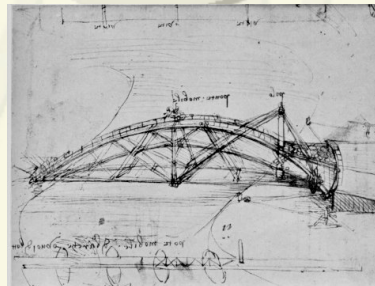


Future Combat Systems (FCS) Project

- Pre-visualization tool
 - Science meets "Hollywood"
 - Interdisciplinary
 - Involve John Miles and director



screenwriter



Vision Video

- Development project
 - Vision of Army's role 2010 - 2020
 - Conceptualization of World Situation
 - Army's methods and capabilities
 - Training technology as implemented by ICT