

Virtual Humans and High Speed Networks

Center for Modeling and Simulation
Virtual Humans and Synthetic Societies Lab

Medical



Education



Defense / Law Enforcement



[video](#)

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Virtual Patient Initiative



- Medical school students are trained and assessed with standardized patients
- Standardized patients are inconsistent and not always available
- Virtual solution can create consistent but flexible standardized patient scenarios

The Emotive Virtual Reality Patients (EVP)



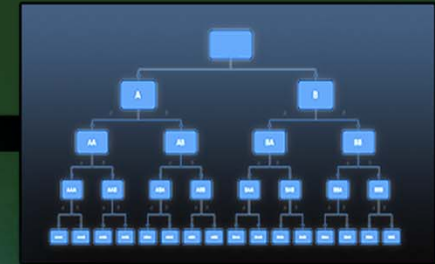
Natural conversations



Emotions



Non-verbal behavior



Complex stories



Customized patients



Culture

Evolution of EVP

- Development of natural language interface
- Open-ended interview scenario
- Migration to Microsoft HoloLens





US IGNITE High-Speed Network Initiative

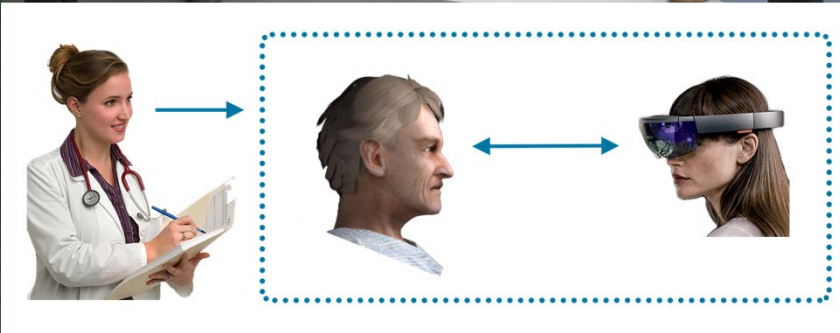
- US Ignite: National Science Foundation (NSF) affiliated nonprofit organization that helps to accelerate new wired and wireless networking advances
- Richardson Smart Gigabit Communities Application
- Development of advanced gigabit applications on high-speed networks
- Our proposal for the EVP System App won the Reverse Pitch challenge



EVP System App



- The EVP System will allow medical students to practice with virtual patients
- Real-time, remote review and assessment by subject matter experts through a HoloLens “Spectator View”
- SMEs/professors can remotely see the augmented reality simulation and the students in real-time



Utilization of “Smart Campus” Infrastructure



- The HoloLens Spectator View allows previewing, recording and sharing of the student’s holographic experience
- UT Dallas’ “Smart Campus” infrastructure resources can stream uncompressed video and audio to evaluators without delay
- Evaluators can measure student performance and offer real-time input/feedback
- As the video quality and volume increase, so does demand for network bandwidth, throughput, and flexibility

Future Opportunities

- Machine-learning analytics empowered by GENI would allow for algorithms for facial tracking, emotion and sentiment analysis, and pattern recognition
- Professor evaluators could create new scenarios on the fly for students
- Multidisciplinary teams would be able to train, practice, and be assessed by live and AI-based expert systems
- Complete migration of the EVP System onto the cloud

