

Enabling The Age of Immersive Education

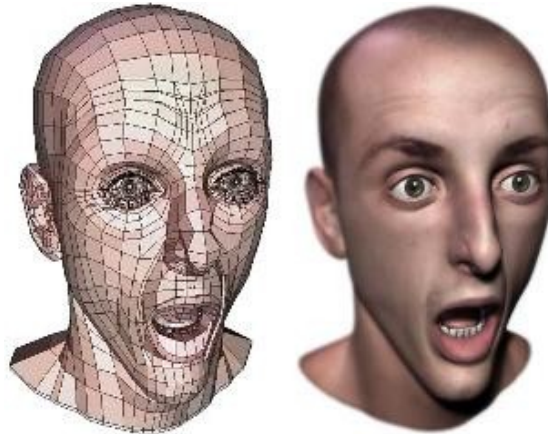
presented by

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Starting in 2004 students in the Woods College of Advancing Studies at Boston College have had the opportunity to participate in the development of a new form of distance learning that combines interactive Virtual Reality (VR) with collaborative online course environments and classrooms. Using commercial graphics applications and state-of-the-art 3D simulation and game technology, our students are among the first in the world to experience distance learning technology that enables "Immersive Education."

Constructing Immersive Education course content is inherently interdisciplinary and complex, yet it is possible today thanks to new and innovative technologies that until now were not readily available to the general public. Because of the range of skills required to develop Immersive Education courses they are built by teams of people that consist of designers, artists, modelers, animators, and software developers who together transform traditional course material into rich, interactive digital media experiences that can be deployed over broadband Internet connections or using delivery mechanisms such as CD-ROM and DVD. Such content may be coupled with Internet video conferencing and computerized remote control capabilities to achieve the highest degree of faculty-student interaction.

By teaching Boston College students these skills, and applying them to real-world course content, the Woods College of Advancing Studies is enabling a new era in distance learning that promises to engage and instruct at a level far beyond that of the typical online course. Immersive Education gives students a sense of "being there" even when attending class in person isn't possible, practical, or desirable, which in turn provides faculty and remote students with the ability to connect and communicate in a way that greatly enhances the distance learning experience.

Technologies, Outline, Screenshots

Following are a number of technologies presented during this lecture, along with the presentation outline itself and a few screenshots that show moments of this highly interactive event “frozen in time.”

TECHNOLOGIES and RELATED TOPICS:

- Virtual Reality Modeling Language (VRML), Extensible 3D (X3D), QuickTime Cubic VR (panoramic 3D)
- Unreal Tournament, Half-Life 2, Project Offset, Google Earth, Modulobe
- Maya, Poser, FaceGen Modeller, PhysX physics processor
- Virtual Reality (VR), Augmented Reality, Virtual Humans, Synthetic Environments
- VR addiction, VR Sickness, VR Schizophrenia
- 32-bit and 64-bit real-time rendering and simulation
- Hands-free computer interaction (EagleEyes, CameraMouse, Sony EyeToy, 3D Face Stations)
- Virtual Surgery (interactive 3D telesurgery and medical training)
- Media Grid (on-demand digital media delivery, storage, and processing services)
- Voice over IP (VoIP) and Internet audio conferencing
- Internet Video Conferencing (iChat, Yahoo Messenger, Skype)
- Virtual Network Computing (VNC) remote-control and screen-sharing software

PRESENTATION OUTLINE:

I. Introducing "Immersive Education"

- Distance Learning Yesterday, Today, and Tomorrow
- A New Dimension in Distance Learning: 2D vs. 3D
- Infusing High Tech with High Touch
- Levels of Immersion
- Scheduled vs. Time-shifted Learning
- Course Scalability

II. Developing and Delivering Immersive Education Courses

- Building From Scratch vs. From Existing Course Material
- Pressure Points: Freeing Faculty to Teach and Shape Courses
- Team-based Course Development: What it Takes, When it Fails
- Course Structure and Instruction: Traditional vs. Modular
- Delivering to Students: Assumptions, Challenges, Roadblocks
- Supporting Students Remotely: Peers, Assistants, Faculty
- The Media Grid: On-demand Digital Media Services

III. Demonstrations

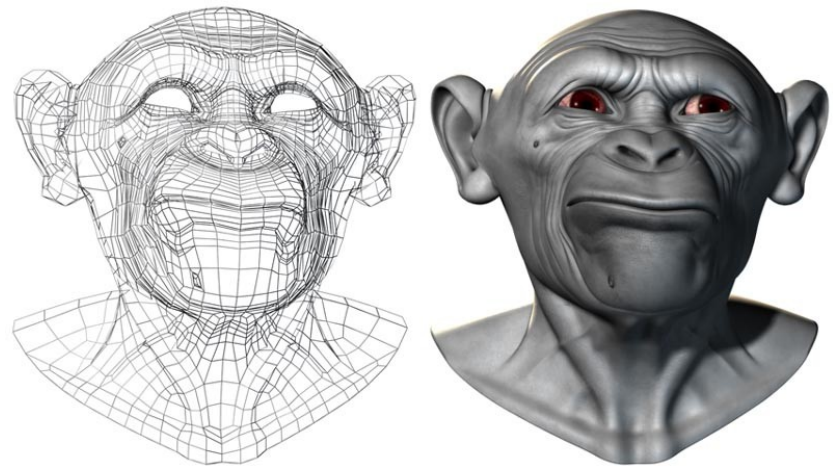
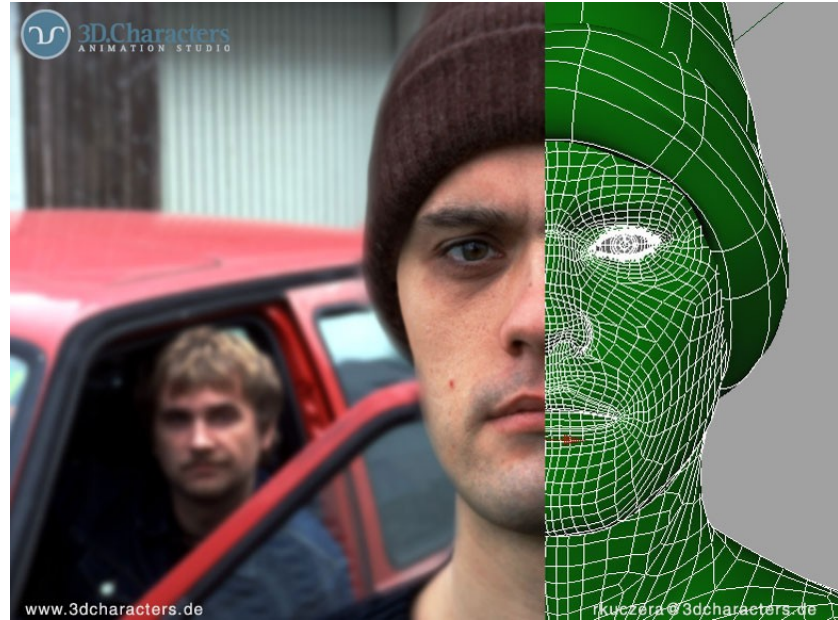
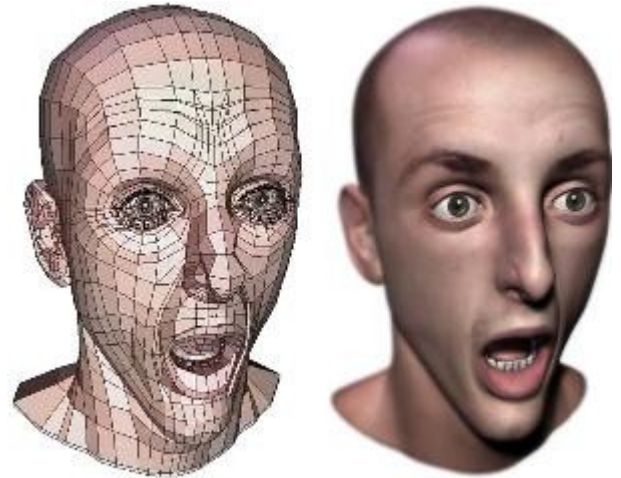
- Media on Demand (MoD)
- Face-to-Face, Shared Screens, and Remote Control
- 3D Boston Tea Party, 3D Scenes and Environments
- Web3D Chat (Doges Palace and Ancient Egypt)
- Interactive Physics (Fluid dynamics, Modulobe, Physics Playground)
- Telemedicine and Telesurgery
- Hands-Free: EagleEyes, CameraMouse, Sony EyeToy, Face Stations
- 2010: A Face Odyssey
- Augmented Reality

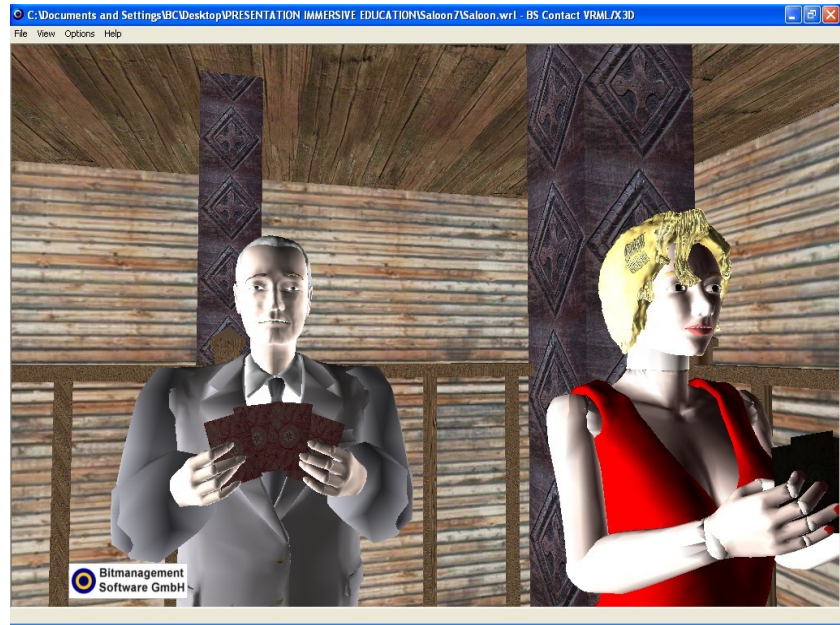
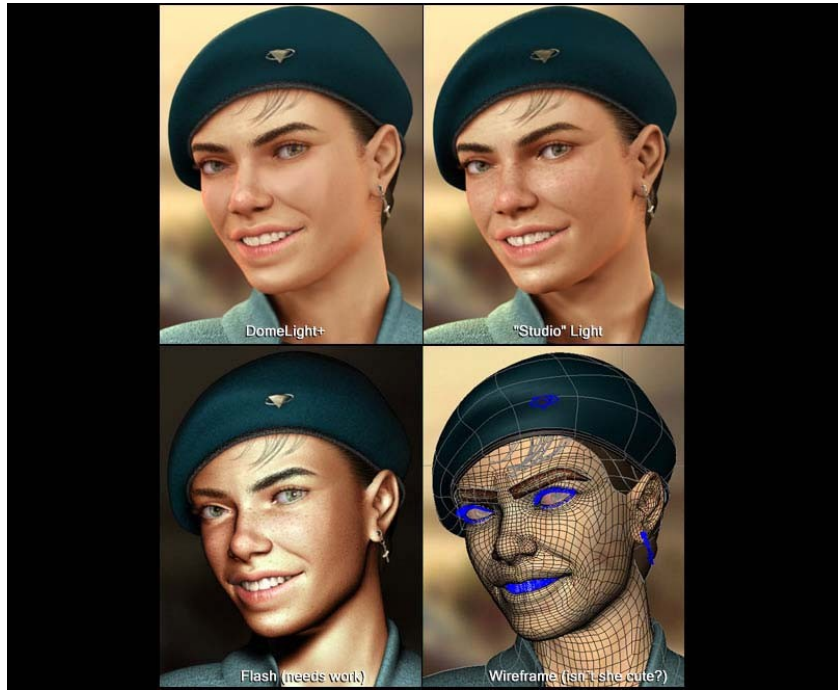
IV. Timelines to Tomorrow

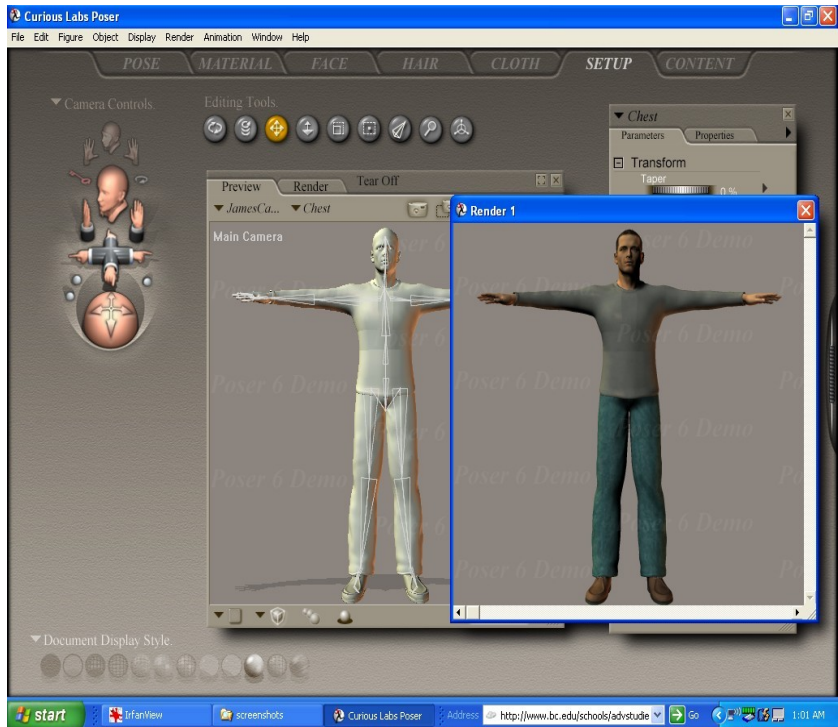
- Where we've been (1997 to 2002)
- Where we are (2002 to 2005)
- Where we're going (2005 to 2010)

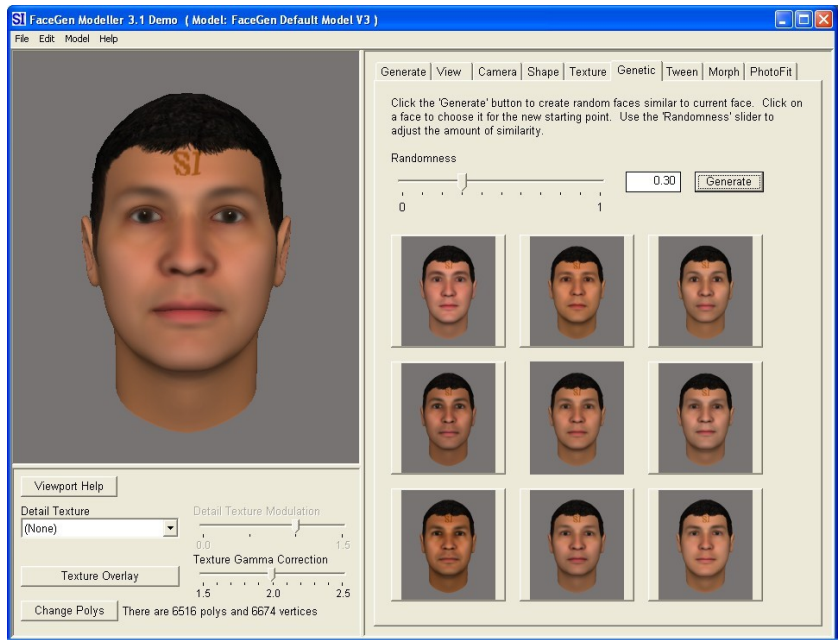
V. Q/A and Open Discussion

SCREENSHOTS:









TO LEARN MORE ABOUT IMMERSIVE EDUCATION AT BOSTON COLLEGE CONTACT:

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