Establishing a Virtual Community for Computer Science in New Mexico

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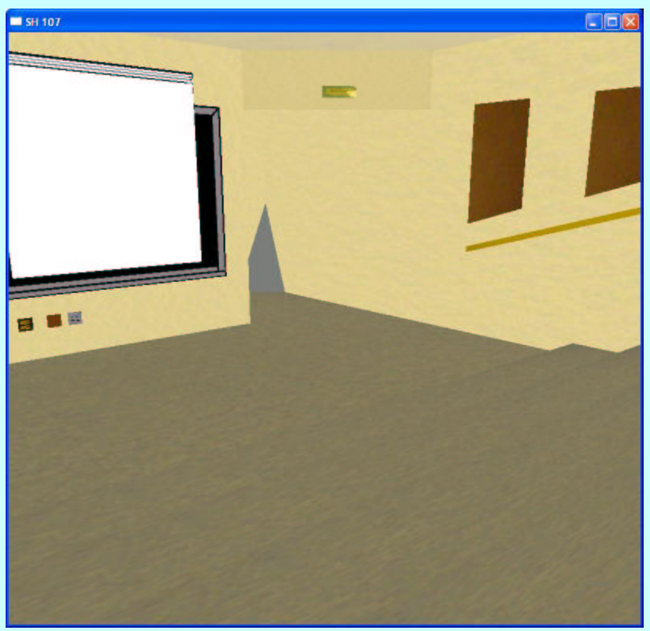
Motivation

Of 1.85 million people in New Mexico, only around 780,000 are adequately served by universities with 4 year computer science programs. The other 1.1 million people are scattered around the state in many smaller towns. Many or most potential computer scientists from this group have financial, social, family, or religious ties that make it hard for them to want to relocate for an extended period to study computer science in a university setting.

Collaborative Virtual Environments (CVEs)

We are developing a collaborative virtual environment for computer science education. The potential of CVE's to capture student interest has been shown by popular games. CVE's can run acceptably on inexpensive modem-based Internet connections. They offer more real-time interaction capabilities than popular web-based tools, at a much lower cost than popular videoconferencing technologies.

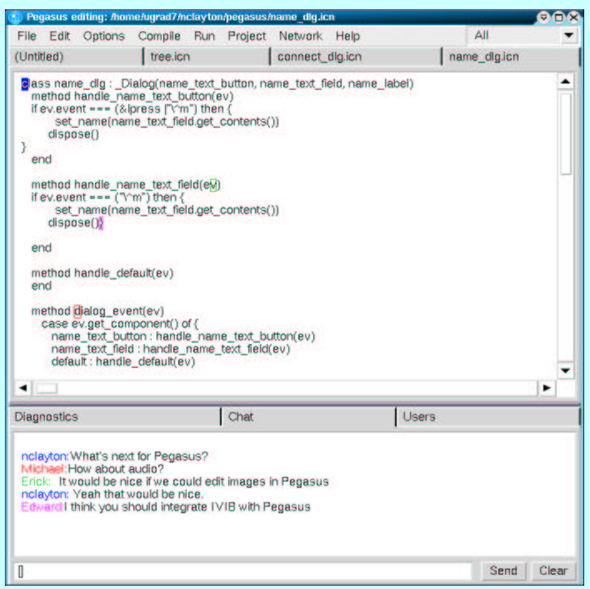
Our CVE is written in Unicon (http://unicon.org), a programming language in which a system like this is rapidly constructed and easily extended. Below is a scene from NMSU's Science Hall. School feels like a videogame. We believe the general approach will work in other academic disciplines and at other institutions.



Collaborative Computer Science Tools

We implemented a prototype collaborative programming environment called Pegasus to demonstrate the potential for real-time assistance from instructors or TA's for students with programming questions.

The finished product will include support for collaborative software engineering (UML) design work, as well as collaborative editing, compiling, executing, debugging, and testing activities. Collaboration starts with instructors being able to see students' screens, and includes the ability to text and voice chat sessions.



Program Components

- The New Mexico Virtual Computer Science Community is established by NSF ATE award # DUE-0402572
- Initial participants: NMSU, Northern New Mexico Community College, Crownpoint Institute of Technology, and NMSU Grants and Carlsbad campuses.
- 3+1 junior year CS courses offered at 2 year institutions via custom CS distance education software
- Lower division articulation gap courses via distance
- On-site help from NSMU CS graduate student campus liaisons