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Featured Scholar:
 Robert Dickerson



2004 - 2005 University Scholar

Mentor: Benjamin Lok

College of Engineering

Interested in computer graphics since his freshman year of high school, Robert Dickerson imagined himself pursuing a career as a digital animator, creating animation used in movies such as *Shrek* or *Toy Story*. "Then I found out that science needs people in graphics too," says the 22-year-old computer engineering senior. As a University Scholar, he has created a virtual patient for medical students to use to practice their interviewing and diagnosis skills.

"What we are trying to do is mimic a standardized patient—actors who pretend they have a disease and allow medical students to practice," Dickerson says. Through the development of a digital animated avatar, students can now look face to face with a life-sized patient named DIANA, a 19-year-old Caucasian virtual female who is able to make eye contact, describe and indicate her illness, and answer questions about her symptoms.

Working with mentor Benjamin Lok, an assistant professor in the Department of Computer and Information Sciences and Engineering, Dickerson has been responsible for designing DIANA's speech recognition and synthesis and working with a medical student to write a script of the possible 900 questions a physician asks a patient during a 10-minute interview. When pre-scripted to respond as a patient suffering from appendicitis, DIANA holds her side and complains of severe stomach pain. She answers questions like "Have you eaten anything different?" and "Can you rate your pain on a scale of 1 to 10?"

Accompanying DIANA is VIC (Virtual Interactive Character), an African-American attending physician that can be enabled to step into DIANA's examining room and serve as an instructor to the student. Using web cameras to monitor the student's position, VIC can tell whether the student properly greets DIANA and makes adequate eye contact. He also prompts the student for his or her diagnosis and evaluates performance.

The entire animation system is easily stored on a regular compact disc and can be pulled up on any desktop computer, though it is suggested that the system be projected to life-size onto a projection screen. The Medical College of Georgia has acquired the program, and plans to begin using it next year. A patent is in the works, and the research team is in the process of adding new features that would allow for monitoring body language, eye-gaze and gestures.

Dickerson won a Best Paper Award at the annual University Scholars Program reception on April 8 for his quantitative article, "Evaluating a Script-Based Approach for Simulating Patient-Doctor Interaction." He has presented his work at two conferences—a Modeling and Simulation Conference held in New Orleans in January and at VR 2005 in Germany in March. Though he has already completed one year in the University Scholars Program, he has been given the rare opportunity to continue with the program another year as a 2005-2006 scholar. Dickerson will graduate from UF in spring 2006 and plans to attend graduate school and follow in his mentor's footsteps.

"I hope to pursue a PhD program in computer science and become a professor," he says. "One day I hope to become a mentor to students like myself."

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