

Stroke patients soon may have fun, high-tech tool: Virtual program may aid in therapy

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Eileen Smith, a professor at the University of Central Florida, is helping develop a virtual environment that will help stroke victims increase their range of motion. Credit: Jerry Klein

The University of Central Florida will immerse stroke survivors in a virtual world full of flying insects to help expand their range of movement.

Researchers in UCF's Media Convergence Lab (MCL) are teaming up with the California-based Virtual Reality Medical Center (VRMC) to create the program and software that can track patients' progress.

VRMC obtained a contract last year from the National Science Foundation to develop the virtual program, and the company teamed up

with the UCF researchers for preliminary work. The research team since has landed a \$199,000 contract to create a fully functional virtual game.

Although the game could change slightly, the design will require patients to put on goggles while sitting at a table. A few bugs would fly around nearby. The patients' mission is to smash all of the virtual insects. Each time they succeed, they would earn a point. As patients improve their range of motion, more bugs would appear at greater distances, forcing patients to work harder and increase their range of motion. Think of a 21st-century version of the childhood game "Whack-a-Mole."

"It has to be fun so patients will actually do their physical therapy exercises," said Eileen Smith, associate director of UCF's Media Convergence Lab at the Institute of Simulation and Training.

"One of the sad things about stroke is that it is very isolating," she said. "If we can make the game fun for everyone, maybe grandchildren will jump in while grandma is doing her exercises. Then it won't just be a physical therapy session; it will be family time. It will help patients re-engage."

Smith is collaborating with the project's lead researcher, Charles Hughes, director of the Media Convergence Lab and a professor in UCF's School of Electrical Engineering and Computer Science. During their preliminary work, they found that UCF could produce a viable and reproducible program with software to track patients' progress.

Funding for the second phase also will include \$99,000 from the Florida High Tech Corridor.

"We're ecstatic," Smith said. "It's our lab's first phase II contract, and it is exactly the kind of thing we want. It goes with our lab's philosophy. We don't want to create cool widgets. We want to create things people

can actually use to better their lives."

Smith and her team are working with a doctor and a physical therapist along with VRMC to create the prototype. UCF will deliver it to VRMC by the end of 2009 and provide a license to VRMC to enable commercialization.

VRMC plans to introduce the program to physical therapy clinics. Eventually, Mark Wiederhold, VRMC's president, said the company would market the product as a take-home program that patients could run on their computers or hand-held devices.

Wiederhold is a physician who has authored more than 200 journal articles. He said he partnered with UCF because it is a leader in simulation technology.

"UCF is in a leadership position in this area of research," Wiederhold said. "They are a very important team member on this project. UCF has a collaborating spirit. . . They get it."

That's part of the reason Wiederhold will be opening a new office in Lake Nona's Medical City. VRMC, which already has an office in Orlando, then will be close to UCF's new College of Medicine, with which Wiederhold is collaborating on other projects.

Source: University of Central Florida

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