

## Medical Education & Research Institute aids in development of simulation device

By Toby Sells

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ImmersiveTouch's surgery simulator looks and feels like a next-generation video game, but its inventors say it has far more serious implications for medical training and surgery.

The Memphis-based Medical Education & Research Institute has been a sort of research incubator over the last year for the Chicago-based company's Sensimmer virtual reality simulator.

While the MERI does not own a piece of the company, the many doctors and surgeons who filter through the training center have offered their medical expertise to help develop the product.

"We are engineers. We are not physicians," said Cristian Luciano, Sensimmer's co-inventor and ImmersiveTouch vice president. "The needs that are coming from the physicians and surgeons drive the (product development) efforts as we produce solutions for them."

At the heart of the Sensimmer simulator is the crossroads of realistic visual and tactile responses to the user.

Sensimmer's users wear special glasses to see real-time and 3-D images of a real patient's body, taken from either a CT scan or MRI, on a viewing screen. Below the screen are a pen-shaped stylus and a customized Wii remote that are used as a number of surgical tools.

Push the stylus (used as a needle in a recent simulation) to the skin of the virtual patient and the skin gives slightly. Push a little harder and a user can feel the skin break and the pressure of the muscle tissue around the needle as it slides down before stopping when it hits bone. As Luciano put it, "what you see is what you touch."

"Our initial usage has been for (medical) residents to be able to practice procedures before they actually go and do it on a cadaver," said Diana Kelly, MERI's manager of institutional development.

The device has been widely used for training, but a few physicians use it to practice surgeries on real patients using their MRI or CT scan data, Luciano said, and said he

hoped that use will be part of the product's future.

The Sensimmer was developed at the University of Illinois at Chicago by Luciano and ImmersiveTouch CEO P. Pat Banerjee, both professors at the university. In development for seven years, the product has been on the market for three and is now in its second generation, based partly on feedback gleaned from those at the MERI.

"They have the basic software down and what we're trying to do is help them with the field part ... to make it one step better so (surgeons) are better prepared by the time they're actually on the patient," said Elizabeth Ostric, MERI executive director.

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