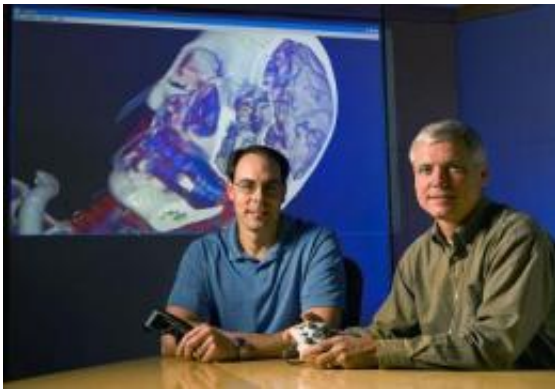


Iowa State engineers develop 3-D software to give doctors, students a view inside the body

November 11 2009



Iowa State University engineers Eliot Winer, left, and James Oliver have developed technology that converts 2-D medical scans into detailed 3-D images that can be used to plan a surgery or teach a lesson in anatomy. They worked with Thom Lobe, a pediatric surgeon based at Blank Children's Hospital in Des Moines, to establish a company, BodyViz.com, to market and sell the technology. Credit: Photo by Bob Elbert/Iowa State University.

James Oliver picked up an Xbox game controller, looked up to a video screen and used the device's buttons and joystick to fly through a patient's chest cavity for an up-close look at the bottom of the heart.

And there was a sight [doctors](#) had never seen before: an accurate, 3-D view inside a patient's body accessible with a personal computer. A view doctors can shift, adjust, turn, zoom and replay at will. [Software](#) that uses real patient data from CT and MRI scans. Software doctors can use

to plan a surgery or a round of radiation therapy. Software that can be used to teach physiology and anatomy. Software that puts virtual reality technology developed at Iowa State University to work helping doctors and patients, teachers and students. Software that's now being sold by an Ames startup company, BodyViz.com.

Two-dimensional imaging technologies have been used in medicine for a long time, said Eliot Winer, an Iowa State associate professor of mechanical engineering and an associate director of Iowa State's [Virtual Reality](#) Applications Center. But those flat images aren't easily read and understood by anybody but specialists.

"If I'm a surgeon or an oncologist or a primary care physician, I deal with patients in 3-D," Winer said.

And so Winer and Oliver, an Iowa State professor of mechanical engineering and director of the university's CyberInnovation Institute, began to develop technology that converts the flat images of medical scans into 3-D images that are easy to see, manipulate and understand. Thom Lobe, a [pediatric surgeon](#) based at Blank Children's Hospital in Des Moines, helped the engineers design a tool doctors could use.

A 2007 grant of \$109,533 from the Grow Iowa Values Fund, a state economic development program, helped the three develop that technology into a commercial software product. The result is BodyViz.com, a startup company founded by the three and based at Iowa State's CyberInnovation Institute. The company is now marketing the software as "Simple. Visual. 3D."

The company recently won the \$25,000 top prize in the fourth annual John Pappajohn Iowa Business Plan Competition. Earlier this year, the company was named Outstanding Startup Company of the Year as part of the Technology Association of Iowa's Prometheus Awards.

The company and its 13 employees have also been busy earning the required approvals from the Food and Drug Administration, developing a Web site and beginning to make sales, said Curt Carlson, the company's president and chief executive officer.

"This is a fantastic technology," Carlson said. "More and more doctors are going down this path."

Oliver, Winer and Carlson like to quote a doctor who told a reporter that when preparing for complex procedures, "2-D is guessing and 3-D is knowing."

"3-D visualization is used all the time," Winer said. "But for the medical field it's a paradigm shift. And once doctors understand the basics of our software, they don't understand how they lived without it."

And, Carlson said, the software is a big hit in school biology classes.

"It's fantastic to see the kids' eyes light up when they see this," he said. "They're completely engaged when they see inside a body with this technology."

Source: Iowa State University ([news](#) : [web](#))

Citation: Iowa State engineers develop 3-D software to give doctors, students a view inside the body (2009, November 11) retrieved 9 April 2024 from <https://phys.org/news/2009-11-iowa-state-d-software-doctors.html>

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