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# OU Researchers Develop Dynamic 3-D Images

***By Dane Beavers, Daily Staff Writer***

Integration into a completely three-dimensional world may soon begin at OU.

Researchers at OU's Norman and Tulsa campuses have successfully rendered full-color, three-dimensional, 360-degree volumetric images, completing Phase I of their research under a sponsored research agreement with 3DIcon Corp.

The technology they are developing — Swept Volume Display — uses a rotating cylinder which sweeps around and emits 3-D images on a display, said Monte Tull, overseer of SVD development for 3DIcon at OU.

He said they hope to use it to launch into other versions of the display for different applications, such as military simulations, retail displays and medical imaging.

"It will revolutionize the world," said Martin Keating, chairman and CEO of 3DIcon. "The way we communicate will be totally changed. If we live in a 3-D world, why don't we communicate that way?"

Keating said most of the 3-D technology in place today only allows people to see 120 degrees around objects.

"This kind of concept has never been pursued before," he said. "We're pushing for true 360 degrees — eventually free space where you don't have any constraints."

3DIcon Corp. was created in 1995. It went public in 2003. Keating, a graduate from the OU College of Law, said when he first brought up the concept of a 3-D display, he wanted to make it a collaborative effort between Oklahoma State University, the University of Tulsa and OU.

He said OU was the only university that had the ability to get the project started as soon as he wanted.

In about 18 months of research and development, OU's research team has taken 3DIcon's vision from the concept phase into a fully functioning prototype.

"In the first 18 months, we were trying to prove something like, 'If you flap your arms hard enough, you'll be able to fly,'" said Vivek Bhaman, president and chief operating officer of 3DIcon. "That was the kind of technical thing we were trying to prove."

Tull, a professor in the College of Engineering, said the SVD technology will challenge many ideas and allow diverse technologies to be created from the original concept.

"I think this creation of these devices is an enabling technology that allows for so much follow-up to occur," he said. "It will turn into something so much larger than any of us can imagine."

Tull said Phase II of the research will focus on improving picture resolution, directionality and adding opacity to the objects, which creates a more solid appearance and lessens the transparency.

Along with the SVD technology, researchers at both campuses are developing other projects for 3DIcon.

James Sluss, director of the school of electrical and computer engineering, said Gerrard Newman, senior research scientist, and Martina Dreyer, research scientist, are working on another type of 3-D display that uses static volume instead of the SVD technology that uses movement.

Newman said he and Dreyer are designing a material that, when shot with lasers, activates lights that will be able to etch out an image, similar to the resolution of a television screen — but in 3-D.

“We’re really taking advantage of the fact that technology is changing so fast — that things that were impossible now become possible,” Newman said.

Hakki Refai, research scientist at OU-Tulsa, is working on the optics and light control aspects of the 3-D displays.

Keating said he thinks the future is bright for 3-D displays and he could easily see the elimination of something valuable to most people today.

“I can see the elimination of all PCs, BlackBerrys — everything we use today for communication,” he said. “And you carry something the size of a BlackBerry and you can bring the world to wherever you are in 3-D.”

Keating said his ultimate goal for his 3-D project is accessibility.

“I want free space 3-D accessible to everyone in the world: Where you can size up a game, you can size up appearance,” he said. “Teachers can go all over the world to impoverished areas, and doctors can go where they can’t go today, and everyone can communicate in 3-D.”