

Scientist creates 3-D scanner iPhone app (w/ video)

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Grant Schindler, research scientist at Georgia Tech's College of Computing created Trimensional, an app that uses the iPhone 4, iPad 2 or most recent iPod Touch to take 3-D scans of faces or other objects. Photo: Rob Felt/Georgia Tech

(PhysOrg.com) -- Leave it to an iPhone app developer to turn a tool that cost hundreds of dollars a year ago into something that can be done with a 99-cent app. Grant Schindler, research scientist in Georgia Tech's College of Computing, created Trimensional, the first app that allows users with an iPhone 4, iPad 2 or recent iPod Touch to take 3-D scans of

faces or other objects and share them by e-mail. Now in the latest update, users can also e-mail animated videos of their 3-D models. For a few dollars more, artists and designers can even export their creation to CAD programs or 3-D applications, such as Maya.

Trimensional works by using the iPhone's screen to shine four different lighting patterns on the subject while also using the device's front-facing camera to snap photos. It produces a full 3-D model that you can zoom into, pan around and view from any angle.

"You can just have fun with it, or if you work with 3-D models, you can use it professionally," said Schindler, a research scientist in Tech's School of Interactive Computing in the College of Computing.

The program uses a technique that was originally designed in the 1980s, but required an expensive set up of lights, a still model and a lot of time. But now, Trimensional has automated this process. The program works by taking every pixel and asking the same question using four different lighting conditions.

"If I take a scan of my face, the app asks 'what does the image look like if I shine the light from the left side, what does it look like from the right side,' and so on. There's one three-dimensional answer per pixel, and combining all those answers results in the full 3-D model," said Schindler.

In the first version of the app, which was released in January, users could send still images of their scans via e-mail. This update allows the app to stitch different views of a model together into a movie or an animated gif and e-mail.



How It Works

The new pro upgrade for Trimensional (available as an in-app purchase) will also send a file that you can use any 3-D program to open, so artists and other 3-D professionals or hobbyists can now use this \$5 app to perform a task that used to require hundreds of dollars worth of equipment.

“There are professional, \$40,000 3-D scanners out there; this won’t perform like those do, but for anything under \$100, this is your best bet,” added Schindler.

Trimensional began as a program for a desktop computer in 2008, using the screen to light the subject.

“I thought surely someone had done this before, so I looked and no one

had done it that way. It was amazing to really see it working,” he said.



3-D Scan

Later, Schindler entered it into the Georgia Tech Research & Innovation Conference. He didn't win, but being in the conference put him in touch with Tech's business incubator, the Advanced Technology Development Center. "ATDC provided invaluable advice that helped turn Trimensional from an idea into a real product," said Schindler. When the [iPhone](#) 4 came out with the front-facing camera, he thought, it's finally time to build an app.

In the future, he imagines people being able to do more with 3-D models.

“Once we get scanners in everyone’s hands, you should be able to use these images for any use you can think of, replicating physical objects by sending your scans to a 3-D printer, or creating a perfect digital substitute to take your video calls when you’re not looking your best,” said Schindler. “Or you could put it on your World of Warcraft character, or use it in other games.”

Schindler is now working on a version for the Android operating system. In addition, he’s developing a chess game he created into an app. Do we really need another chess game [app](#)? Yes, we do, because this one, called Evolutionary War, has evolving pieces.

Provided by Georgia Institute of Technology

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