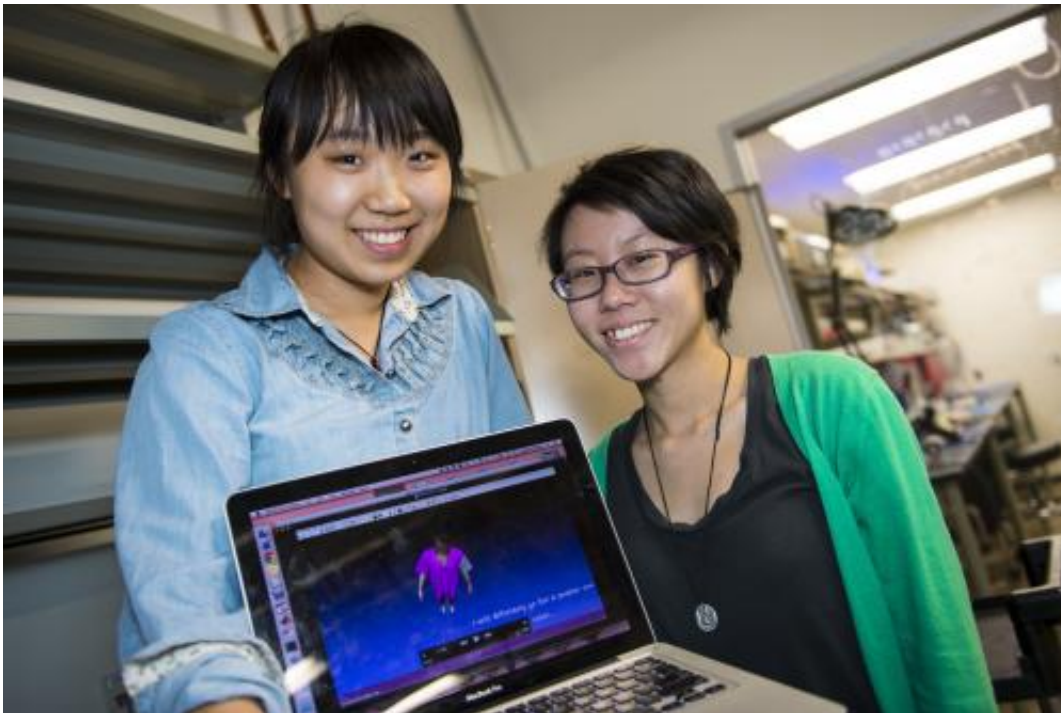# Engineering students invent virtual fitting room for online shoppers (w/ video)

April 22 2014, by David Ruth

Rice University engineering students Cecilia Zhang, left, and Lam Yuk Wong, have created a virtual fitting room for online shoppers. Their program, which uses Microsoft's Kinect motion-capture device, turns users into virtual mannequins to make online garment fitting more accurate. Credit: Jeff Fitlow/Rice University

(Phys.org) —One blessing of the Internet: shopping conveniently online for clothes. One curse of the Internet: shopping conveniently online for clothes.

"Nothing fits," said Lam Yuk Wong, a senior in electrical and computer engineering at Rice University. "Everybody says this. They order [clothes](link) and they don't fit. People get very unhappy."

Wong and her design partner, Xuaner "Cecilia" Zhang, are Team White Mirror, creators of what they call a "virtual fitting room." Their goal is simple and consumer-friendly: to assure online clothing shoppers a perfect fit and a perfect look with every purchase.

Both women are from China, Wong from Hong Kong, Zhang from Beijing. Both order most of their clothing online. They got the idea from their own experience as consumers and from listening to the complaints of friends and relatives.

"They say, 'The color is wrong' or 'I got the right size but it does not fit right.' We want to make it like you're in the store trying on the clothes," Zhang said.

Using a Kinect, the motion-sensing input device developed by Microsoft for use with its Xbox 360 [video game player](link), Zhang scans Wong and turns her image into, in effect, a virtual mannequin, preserving Wong's dimensions, and even her skin and hair color.

"We put the clothes on the shopper's 3-D body models and show how they look when they are dressed. The existing virtual fitting rooms don't use customized body models that look like the shoppers. It takes a long time to display the fully dressed models, and they don't look realistic," Wong said.

With the software developed by the students, shoppers are able to see realistic details, even wrinkles in the garments. They can rotate the model to see how the garment fits from all sides. Thus far, Wong and Zhang have adapted the software to show dresses and shirts, and they are

working on shorts.

Their paper, "Virtual Fitting: Real-Time Garment Simulation," will be presented at the 27th annual conference of Computer Animation and Social Agents to be held May 26-28 at the University of Houston. The team received further validation when it won the $5,000 Willy Revolution Award at Rice's annual Design Showcase April 17.

Asked if she thought men as well as women might be interested in using their virtual fitting room, Wong said, "I think their wives will care about this, so it will also be important to the men."

Provided by Rice University