http://www.richmond.com/news/local/education/vcu-virtual-reality-lab-opens-to-awe-of-crowd/article_1c9e26e5-8749-527c-9be8-60d50ce1e8f9.html

VCU virtual reality lab opens to awe of crowd

By JUSTIN MATTINGLY Richmond Times-Dispatch   Sep 17, 2017

Using virtual reality technology at VCU on Friday, Joseph Nalluri and Charthuri Brahama played a game of catch with a robot.
JUSTIN MATTINGLY/Times-dispatch

As Kellan Childers moved his right hand to guide a robot, he could feel the impact as the robot virtually ran into objects, including fake nuclear waste.

A few minutes later, a group of Virginia Commonwealth University students, including Childers, showed a crowded room of other students and members of the university community how virtual bus driving tests could lead to more efficient gas use. Eyebrows raised and heads scratched in the room, intended for four to five people, but instead filled with close to 20.

Tours of the new VCU School of Engineering Department of Computer Science Modern Heuristics Research Group Virtual Reality Lab (MHRG VR Lab for short) left those in attendance for the opening Friday in awe of what the technology can do. For computer science professors and administrators at the school, they see an opportunity for students to learn needed skills and work directly with technology that's continuing to expand.

"This is where things are going in the 21st century," said Barbara Boyan, the dean of the School of Engineering. "Now we're going to actually have a laboratory that lets us develop these things and work with them as they grow."

The lab opening started with an introduction in an engineering classroom, but it was clear that everyone was more anxious to see and experiment with the new technology than more traditional grand opening celebrations with cake or a ribbon-cutting.

One of the features of the lab is a 3-D touch and feedback device, which allows the user to feel different things using a machine. Attendees were able to use the devices and company-provided software that let them feel bumpy, magnetic and molasses-like objects. They were also able to feel what catching a baseball is like by playing a game of catch with a robot.

The fact that virtual reality appeals to senses helps humanize software, said Milos Manic, a computer science professor at VCU.

"People react better to visualization. Something they can feel, something they can see," he said. "We can learn from the data and apply it to different areas."

During the demonstration in the lab, VCU students who were able to use some of the technology in advance of the opening showcased the motion capture devices. Those devices allow a robot to replicate the motions and actions of a human.

The technology is applicable across different fields, said Krys Cios, a professor and chair of the computer science department, from medicine to manufacturing to nuclear energy. Instead of a person having to go into a nuclear facility, for example, a human can train a robot to make the necessary maintenance while operating it from afar.

"Everybody's using computer science. We can't live without computers," Cios said. "This just creates more opportunities for students and gets them more prepared."

The School of the Arts at VCU has an augmented reality lab, which puts the user into a real-world environment using computer-generated enhancements. Virtual reality is a re-creation of a real-life setting.

Cios said the computer science department is working on a joint program with the School of the Arts to use the technology collaboratively.

VCU started construction on the lab this spring and finished earlier this month. The school is planning to use the lab not only for research and student experience but also to recruit prospective students.

"This will be our showcase lab," Cios said.

VCU will host an open house for high school students to tour the lab on Oct. 8.

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