

U of A researchers use virtual reality to find real solutions

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News Writer

Many people have become acquainted with virtual reality through video games, but researchers at the University of Alberta are using it to help them solve real-world problems.

The Advanced Man Machine Interface (AMMI) Laboratory on the U of A campus is pioneering virtual reality research. The lab has been in action since the turn of the millennium, and is used to resolve real-life issues by analyzing them in virtual reality.

"We are able to create real-life situations and go through them in real time," said Steven Eliuk, a research assistant in the Computing Science department. "Being able to visualize the problem makes it a lot easier."

The heart of the lab is a virtual reality room known as "The Cave." The Cave has three large projectors for walls and a magnetic tracker for recording movement in place of the fourth wall. Nearby is a movable arm, which revolves around and measures objects that are to appear in the cave. Also close at hand is a high-tech 270-gigaflop graphics computer.

While wearing 3-D glasses in the Cave, it's possible to explore the depths of a virtual ocean, occupy a human skull and observe the brain's activity, or even drift through our galaxy towards any star or planet. This laboratory provides researchers at the U of A with a rare opportunity, according to Eliuk.

"It's exciting to work here because it is pretty unique; there are not a lot of labs like this in Canada. This was one of the first ones originally, and we have really kick-ass computers; they don't hold anything back from us when it comes to equipment."



MIKE OTTO

GROUND CONTROL Travelling in "space" is but one application for "the Cave."

"We work a lot with the physics department and engineers trying to visualize their data and make it physically accurate so that they can see it on our projectors. We're not engineers here—we don't claim to be. We just have to make sense of their data so that they can go through it in virtual reality and use those visuals in their own research."

Eliuk is currently working on a simulation of our galaxy that makes use of data from NASA and the Hayden Planetarium. In this program, it's possible to visit 120 000 individual stars and observe each planet as they orbit around the sun in real time.

Eliuk uses the AMMI lab mainly for the study and simulation of solar flares, which have the ability to knock out entire power grids.

"The main benefit [of the AMMI Lab] is that we can find out exactly what equipment could be affected,

and we could figure out which equipment to deactivate or which satellites to turn off so that they'll be saved."

According to the AMMI team, the lab is also saving businesses substantial amounts of money by allowing them to see, in virtual reality, things that would be much more expensive and time-consuming to observe in real life. Eliuk explained that in one case, a problem with a particular type of truck's transmission was solved without having to sacrifice numerous engines in real-world trial and error processes.

Meanwhile, other people in the lab are developing a glove that could allow a surgeon to actually control the hand of another surgeon from all the way across the country.

"Coming here everyday, it's not like working," Eliuk added. "It's a lot of fun, and everyone's really passionate about what they're doing; we all believe in the usefulness of our work."

University lists students' safety as paramount

SECURITY • CONTINUED FROM PAGE 1

"It means that we do things in a way that [...] could pass scrutiny of these kinds of services on many campuses or other organizations," Clarke explained. "So it would be a standard that many people would recognize as being high-quality [...]. It means better services for the community and a safer place for students."

"I think safety as an issue is on the minds of students."

CHRIS LE
SU VP (STUDENT LIFE)

She added that a primary goal of the University is "always to have the safest community that we can possibly have; to make sure that students have got an environment that they feel secure in." Students' Union Vice-President (Student Life) Chris Le said he was unaware of either of the reviews, but applauded the University for being proactive in this area.

"I think safety as an issue is on the minds of students," Le stated. "It's good the University is recognizing areas of improvement."

Green initiatives take time—Dumouchel

RECYCLING • CONTINUED FROM PAGE 1

Despite not faring well in the *College Sustainability Report Card's* results, Dumouchel noted that the U of A is a recent winner of the 2007 Rs of Excellence Award from the Recycle Council of Alberta. Thomlison added the University is also working to keep reducing its waste contribution by evaluating the packaging it uses.

Dumouchel also pointed to recent composting initiatives that started up this summer.

"The biggest thing they found in the audit was a huge amount of our waste is food waste, so they recommended that we start food composting facilities on campus," he said.

Now, all the coffee grinds from Tim Hortons in CAB and all food waste from Lister food prep centres no longer go to the waste stream, and instead are sent to a compost facility. Thomlison said SUB is "the next building to go after."

"We just want to make sure that we're doing it right because organics is a little tougher," she explained, predicting that it could be up to another two years before organic containers are seen in public food-eating areas on campus.

But Dumouchel said the biggest problem facing recycling initiatives on campus is getting people to comply.

"Out of that [waste audit] report,

it showed that we had a lot of recyclables still not going to the recycle; that staffing here were still throwing paper in garbage instead of recycle," Dumouchel said.

In order to achieve a greener campus, Dumouchel and Thomlison both stressed the intricate role educating students and staff plays.

"I think if we can educate students while they are here at the school on how to live more sustainably, it'll be a great benefit for our province and our city as they go from our university to other places," Students' Union President Michael Janz said, noting the amount of consumer waste on campus as a serious problem.

"Our campus is a small city of 50 000 people during Monday to Friday, and we need to make sure that we make recycling as easy as possible."

But while FO continues to slowly work new green initiatives into its operating budget, Dumouchel stressed that the importance of not trying to rush overhauling things, adding that sustainability measures themselves need to be tackled in a sustainable way.

"Sometimes it might sound like we're going a little slow here," Dumouchel explained "But I'd rather go at this speed and make sure that every step we go is proper and that we don't take a step backwards."

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