Software engineering students on the 'cutting edge' of immersive virtual reality

December 12 2014, by Andrew Baulcomb

A young gamer is mesmerized by an Oculus Rift prototype headset. Students in Robert Teather's Digital Culture for Software Engineers class spent the fall term designing their own immersive virtual reality games, using some of the best hardware and software in the world. The students will showcase their work in ITB on Friday, Dec. 19. Credit: Skydeas, Wikimedia Commons

Back in 1987, Robert Teather received his very first Nintendo

Entertainment System.

Like many children of the era, he was immediately hooked on gaming after spending a single afternoon with the likes of Mario, Link and Donkey Kong.

That very same 8-bit console is still providing countless hours of joy and frustration in Teather's current living room. But these days, he's on to bigger and better things in McMaster's Department of Computing and Software.

"When it comes to studying immersive virtual reality technology, McMaster students really are on the cutting edge," said Teather, a postdoctoral fellow who spent the fall term helping a class of 22 students develop the next wave of gaming innovations.

"We're working with some of the best technology in the world right here on campus."

Teather's class, Digital Culture for Software Engineers, challenged students to create a brand new game that showcases the benefits of immersive virtual reality technology.

The "immersive" side is no exaggeration. Unlike traditional video games that offer a clear divide between player and screen, the next leap forward in gaming will see players quite literally immersed in a digital universe. Whether it's a hockey rink, concert hall or haunted mansion, players see, hear and sense everything that surrounds them.

Utilizing high-tech hardware such as Oculus Rift DK2 head-mounted displays, Razer Hydra 3D game controllers and Leap Motion devices, Teather's students designed a series of original titles using a Unity 3D game engine that push the limits of conventional gaming.

One game places the user in the shoes of a Jedi Knight, tasked with deflecting lasers and lightsaber advances. Another puts the user behind a digital drum kit. Another still offers a "horror simulator," where the user is haunted by an unseen presence while lost in a dark and dizzying virtual world.

In terms of the latter, it was imperative that students not use any traditional "jump-scare" techniques that surprise users with sudden jolts and loud sounds. In immersive virtual reality games, much of the excitement comes from capitalizing on a fear of the unknown.

After all, the scariest monsters are often those which we cannot see.

"These games really close the divide between reality and imagination," explained Teather. "But there are still limits to what we can expect a player to endure, especially when they're playing in such a realistic environment."

In addition to the hands-on aspect of the class, students also studied virtual reality theory (including immersion, hardware and interactivity) and various issues related to educational, persuasive and exercise games.

Provided by McMaster University

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