Virtual reality: Hybrid Virtual Environment 3-D comes to the cinema

November 3 2016

Professor Tomás Dorta compared the virtual reality experience with two different systems: the one with VR headsets versus one with an immersive projection system using a concave-spherical screen, developed by his research team and called Hybrid Virtual Environment 3D (Hyve-3D). He immersed 20 subjects whom preferred the virtual reality without headsets, because they could interact with other viewers and share their impressions in real time.

On May 19, Paris's first virtual reality (VR) theatre opened its doors. It promises viewers an unparalleled experience using VR headsets and headphones that propel them into a virtual world for 40-minute shows. Yet the designer Tomás Dorta, a professor at the University of Montreal, does not believe in it. "Viewers wearing individual headsets are isolated from others, which is contrary to the collective experience we are looking for when we go to the movies," he explained.

With two doctoral students, Sana Boudhraâ and Davide Pierini, he wanted to measure the virtual reality experience and compared VR headsets with an immersive projection system using a concave-spherical screen, developed by his research team and called Hybrid Virtual Environment 3D (Hyve-3D). He immersed 20 subjects of various ages in both types of virtual environments and noted their reactions and behaviour. "Ultimately, the people much preferred the virtual reality without headsets, because they could interact with other viewers and share their impressions in real time. They appreciated the social aspect of the experience," said the researcher, who published his findings in the

ACM Digital Library on October 28, the same day he presented his study at the 28e Conférence francophone sur l'interaction homme-machine, held in Fribourg, Switzerland.

While viewers using VR headsets must continuously look around to explore the scene, which often hinders the storytelling and the cinema experience, Hyve-3D viewers miss none of the action and have the same immersive feeling. Moreover, VR headsets restrict users to an individual experience, in which a big part of the non-verbal communication (i.e., facial expressions, gestures, and postures) is precluded, notes the article's abstract.

Le Monde disappointed

The study's conclusions are consistent with those of the newspaper Le Monde's "Chronique des révolutions numériques," whose authors visited the City of Light's virtual reality theatre on May 19. "The experience met expectations and the films lived up to technology's promise," said the article. "But the reality of VR can sometimes be unsettling for the viewer: contact with a column near the seat, screens that fog up in the heat of the action, or a sudden itchy eye, can quickly ruin the show."

Dorta believes that fans of horror or action films would be much better served by a theatre equipped with a system such as Hyve-3D. He himself worked on a prototype that can be seen at the Hybridlab design research laboratory in the J.-Armand-Bombardier Pavilion, near Polytechnique Montréal. "It seems the market is going crazy for virtual reality," he said. "In my opinion, VR headsets are not the way to go."

His device is not limited to the entertainment industry. Using a computer tablet interface, professors and their students can literally walk into the projects they are working on. Matching words with action, he guided our Forum reporter through the halls of UdeM's Faculty of Environmental

Design, which he had previously modelled in 3D. "Architects and engineers could present their projects in the same way to their clients. Imagine entering the home or office you want to build. You could zoom into the bathroom, walk down the stairs, and go into every room," all the while drawing in 3D.

A feature of his system even allows you to position the furniture. You can see your house being built right before your eyes... as if you were there.

Provided by University of Montreal