



TLSS Symposium • May 15, 2017

Virtual and Augmented Reality in Higher Education

In the spirit of showcasing the work of University of Ottawa professors and instructional staff, the Teaching and Learning Support Service (TLSS) is proud to organize its third annual Symposium on teaching and learning coined “**Perspective**”.

This year’s theme will explore the overall values virtual and augmented reality bring to teaching, learning and research through an exploration of how we are currently using this immersive technology across a number of academic disciplines, both within the University of Ottawa and elsewhere.

Program of the Day

8:30 a.m. Welcome (breakfast) – Social Sciences Building, room 4007

9:00 a.m. Welcoming Remarks – Social Sciences Building, room 4007

Michel Laurier, Vice-President Academic, University of Ottawa

Aline Germain-Rutherford, Associate Vice-President, Teaching and Learning Support

Richard Pinet, Director of the Centre for e-Learning

9:15 a.m. First Series of Keynote Speakers

Use of VR in Research with People with Parkinson’s disease

Adam Sachs, Faculty of Medicine, University of Ottawa



Parkinson’s disease affects 10 million people worldwide. Although there is still no cure for Parkinson’s, Dr. Adam Sachs and his team hope to better understand and relieve the symptoms of the disease by using 3-D goggles and virtual reality. In a set of related experiments, they are attempting to use a virtual reality environment as a high-tech biofeedback device that could help patients learn to control their Parkinson’s symptoms. Two projects will be discussed, 1) Volitional modulation of pathological brain signals to modify parkinsonian symptom severity and, 2) Neurocognitive Controller.

Dementia and VR (In French)

Linda Garcia, Faculty of Health Sciences, University of Ottawa



Over 45 million people worldwide are currently living with dementia and this number will increase to over 130 million by the year 2050. Dementia is associated with a number of behavioural changes in people inflicted with this disease that can be an extreme source of stress to family members and healthcare providers alike. Existing training programs for caregivers do not adequately address the deep-seated anxiety they feel in providing such care. Virtual reality (VR) training modules provides a more interactive and realistic learning experience that better prepares them for real-life situations.

VR and AR Hardware: Current Contexts and Future Visions

Eugene Girard, Google



Eugene Girard is engineering manager for Google Chrome's VR and AR teams. He will discuss current and future hardware in the VR/AR space, and the ways in which web technology can create compelling cross-device experiences.



During the coffee break take the time to visit the demonstration room where you will be able to experiment with virtual and augmented reality.

10:55 a.m. **»»»» Coffee Break and Demonstration Room**

11:25 a.m. **Second Series of Keynote Speakers**

AR/VR in Art and Design Education

Nick Puckett, Digital Futures Program, OCAD University



As the technical barriers of AR and VR lower, artists and designers have begun to create experiments that examine the new potential interactions and opportunities these mediums afford. By taking a user centered, interdisciplinary approach, students investigate the possibilities of AR/VR as means to develop new relationships between people, places, and data. Case studies of both undergraduate and graduate student work will be presented that cover a wide range of applications such as, preservation of ancient temples in Shanxi Province through mixed reality tourism, new engagement methods with museum collections through social AR graffiti, and Generative storytelling through augmented card games.

Using Virtual Reality for Unachievable Tasks *in vivo*: A Clinical Study with Acrophobia Sufferers (In French)

Alain Hajjar, Laboratoire de Cyberpsychologie, Université du Québec en Outaouais



Alain Hajjar pushed the boundaries of virtual reality in order to create a potentially superior treatment for fear of heights. By applying the principles of exposure (the gold standard for specific phobias), he uses virtual reality to allow participants to face their phobia in a safe and controlled environment. The study aims to evaluate the advantages of a virtual reality treatment including an exposure task, possibly more anxiogenic for subjects with height phobia, which would be unfeasible in vivo.

12:30 p.m. Light Lunch and Demonstration Room – Social Sciences Building, room 4007

During the lunch hour, take the time to visit the demonstration room where you will be able to experiment with virtual and augmented reality.

1:40 p.m. Third Series of Keynote Speakers

What is High Fidelity and Where are we Heading

Phillip Rosedale, High Fidelity



Second Life founder and former CEO Phillip Rosedale founded High Fidelity in 2013, with partners Ryan Downe and Freidrica Heiberger. The company was formed to create a next-generation social virtual reality platform. High Fidelity provides a platform for users to create, deploy and explore virtual worlds and ways in which we can interact within them. The software is free and open source, and currently supports the Oculus Rift and the HTC Vive devices. Phillip Rosedale will showcase this incredible networked VR environment and speak to the educational potential such an immersive, collaborative and engaging environment it can foster.

Revolutionising Science Education with Virtual Reality

Michael Bodekaer, Labster



Virtual reality has the power to change almost every aspect of our lives- from shopping to gaming and socialising. It also holds the power to change the way we learn through accessible immersive experiences. This presentation will cover recent advances in the application of this technology in science education and the future direction of VR in teaching & learning. Labster is an advanced virtual lab simulator designed to support teaching of undergraduate science through blended learning. This session will cover the overall value Labster brings to science education and how it can be used. This presentation will also touch upon some of the findings published in research papers, and explore future research questions.

2:45 p.m. »»»» Coffee Break

3:00 p.m. Forth Series of Keynote Speakers

VR and Archeological Excavation in Egypt

Laurel Bestock, Joukowsky Institute for Archaeology and the Ancient World, Brown University



Brown University has 20 years of virtual reality research under its belt. Laurel Bestock is member of a group called Creative Technology Support, a kind exploratory sandbox initiative, is part of their Educational Technology unit at Brown University in Rhode Island. In 1997, their Center for Computation and Visualization (CCV) created a CAVE (Cave Automatic Virtual Environment) and more recently, installed a YURT (Yurt Ultimate Reality Theatre), a virtual reality immersive theater used by faculty in archeology, literature (poetry), geography/history, and visual art. The YURT Virtual Reality environment is not experienced by the individuals' wearing a headgear display, rather the Yurt provides a shared, multi-user VR experience. Laurel Bestock will talk about her research, and experience capturing one of her archeological sites using VR cameras, projecting them in the YURT and continuing her archeological investigation within the virtual environment.

The Promise of Mixed Reality in Anatomy Education

Bruce Wainman, Director of Education Program in Anatomy, McMaster University



We have previously demonstrated that when anatomy is learned from traditional 3D computer models (i.e., those projected on flat screens) or using pictures and diagrams of specimens, test scores are approximately 30% less than when the anatomy is learned from solid models when students are tested on cadavers. We have shown that these traditional, computer generated 3D images are perceived as 2D images due to our use of 2D-displays. Our current goal is to utilize technology that allow our learners to perceive these computer objects as true 3D models i.e., as solid objects. Recent developments in technology, like the Microsoft HoloLens, allow us to generate convincing, interactive, 3D models in real space. These mixed-reality anatomic objects have the potential to be as efficient as our solid models in learning anatomy and thus may replace the

traditional tools of anatomic teaching. This presentation will demonstrate anatomic specimens in all formats, including mixed reality applications in an interactive setting to emphasize the benefits and problems of each form of learning object

4:10 p.m. Concluding Remarks – Social Sciences Building, room 4007
Networking, Light Refreshments and Demonstration Room

To register, complete the online form
tlss.uOttawa.ca/site/symposium-en

For more information

Symposium “Perspective” – 2017,

Please contact the Teaching and Learning Support Service (TLSS)

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