Training Across Realities: Conestoga’s Virtual and Augmented Reality Lab (VARLab)
Agenda

- Your Presenters
- Goals and Terms
- Where is the demand being generated?
- Realities of AR/VR @Conestoga
- The VARLAB
- Demo & Discussion
Your Presenters

• Justin St. Maurice, PhD.
  – Coordinator, Professor
  Bachelor of Applied Health Information Sciences

• Russell Foubert, MSc.
  – Professor, Software Engineering Technology, Applied Researcher
Goals

• Set the stage for why these technologies are so important for Polytechnic education
• Tell the story about the amazing student work that has led to the opening of VARLab
• Discuss the realities of moving quickly to set the stage for success in a college environment
Terms

• AR—Augmented Reality
  • Similar to drawing computer graphics to your eyeglasses – your actual reality is ‘augmented’
  • Pokemon Go! Is an example of an AR Game

• VR—Virtual Reality
  • Headsets around your eyesight encloses your experience
Terms

• MR – Mixed Reality
  • Microsoft’s branding of AR/VR solutions
  • Supported by hardware like HoloLens 2, Kinect
  • Powerful support from the Azure ‘Cloud’

• XR – Extended Reality
  • A quick way of referring to basically everything here 😊
The Polytechnic Advantage: a high-quality, job-focused education

• Strength in academic offerings
• Strength in industry connections
• Strength in applied research
Canada’s Changing Skill Requirements

AR/VR Solutions are providing immersive entertainment and productivity solutions.
Industry is expanding the use of AR/VR as a means to consume, interpret and share data acquired through:

- Digital Twinning
- Next Generation Business Intelligence
- Smart Spaces
In summary...

There is a growing demand for AR/VR solutions across all industries including:

- Trades and manufacturing
- Business and hospitality
- Healthcare and social services
- Research and education
“Realities” of AR/VR Development and Activity @Conestoga

• Curriculum Integration & Intentional Skill Development
• Innovation in Teaching & Delivery
• Funded Applied Research
• Research Partnerships
Curriculum Integration & Intentional Skill Development

- Working to meet Canada’s evolving skill requirements
- Ensuring our students have skills the jobs of the future
- Student engagement through coop, field placements, capstones, and course projects
Innovation in Teaching & Delivery

• Extension of existing Simulation Education and Applied Learning
• New content for degrees, continuing education, and corporate training
• Ability to offer impossible and impractical learning experiences
Funded Applied Research

- Solution building to address community needs and to address real world challenges
- Towards the development of a technology access center
Research Partnerships

- Unique opportunity to control of visual, auditory and emotional stimulus
- Able to contribute to research activities by removing logistical barriers
- Able to contribute to a new area of study
VARLab

- Started in May 2018, under support from the Centre for Smart Manufacturing and Digital Innovation
- Faculty members and students from different areas of the college engaged in cross-disciplinary projects and created several virtual reality training simulation prototypes
VARLab

• Goal: Engage in AR/VR development work using our students
  – Critical to development of HQP

• Goal: Support Capstone Applied Research and Funded Applied Research projects
VARLab Co-op Portfolio

• Restaurant Inspector Trainer
• Factory Safety Trainer
• VR Orientation
• MRI Procedure Simulator
• Forklift Safety Inspector
• Police Services Traffic Stop Safety Simulator
• Interactive Case Studies
VARLab Capstone Portfolio

- AR Remote Assistance for Cannabis Cultivation
- Observation Collection Assistant for ECE
- Resiliency/Tonal Analysis Trainer for ECE
- AR Policy and Procedure Trainer for ECE
- 360 Video Job Interview Coach
- AR Campus Tour for International Students*
- VR Procedure Trainer for Cannabis Cultivation*
Demonstration
Challenges

- Continuity of knowledge and skillset transfer from semester to semester
- Practical implications of existing hardware and software frameworks, and updates
- Socialization of VR/AR technology, access to technology, and space planning
Lessons Learned

• Partnerships and corporate partnership programs are available and very useful
• There is a tension between formal governance and ad-hoc planning, with pros and cons
Lessons Learned

• VR is challenging because it can literally be anything...

• Complex VR therefore requires interdisciplinary teams and approaches
  – (See next slide!)
Discussion
or
Questions and Answers?