

BC XR LAB

2020/2021 REPORT & 2020/21 BUDGET



Budi Mulyo & Dr. Paul Jackson, George Floyd Virtual Wall - AltSpaceVR

XRLAB@BELLEVUECOLLEGE.EDU

CONTENTS

PAGE 2

Section	Page
01, Cover Page	01
02. Contents	02
03. Executive Summary	03
04. XRLab/CompSci Collaboration	04-05
05. Classrooms Without Walls	06-07
06. XR Lab Events	08
07. XR Academic Networks	09
08. VR Student Club	10
09. Adapting to COVID-19	11

Detailed budget available on attached document.

EXECUTIVE SUMMARY

This past year has created unprecedented challenges for Bellevue College and the XR Lab. COVID-19 resulted in the closure of the College. All on-campus activities and regularly scheduled classes were canceled for over a year. The impact of COVID-19 on the Lab was dramatic. James Riggall was unable to travel from Australia to work with the Lab and co-teach the CMST 116 Virtual Reality course, and the facility has been closed for on-campus visitations.

In spite of these challenges the XR Lab has been continuing to function and will complete its third fully operational year with the College. A few of the highlights of the year since our last report include:

- Black History Month Event with Dr. Paul Jackson
- Classroom Without Walls faculty projects
- XR Lab and Capstone Team Projects collaboration (Computer Science & Ultrasound Lab)
- Communication Studies VR Cohort with Dr. Li Liu
- First Bellevue College class delivered in fully immersive VR
- Professional Development Day & NW eLearning Conference presentations
- Virtual Reality Student Club
- Initiated virtual visiting scholar program - Degratia Daniels (Spring 2021)



The XR Lab accomplished one of its primary goals for this year in a collaboration bringing student teams in the Computer Science Department into projects involving the Ultrasound Department along with mentoring and technical support from VR developer Paolo Tosolini of Tosolini Productions.

I. The Matterport environmental scan project involves creating 3D photogrammetry data of the Bellevue College Library and XR Lab Space using the Matterport scanning system. This data will be used for further project developments.

Faculty Lead: Pete Ophoven (Computer Science - ISIT490)

Industry Mentor: Paolo Tosolini

Student Lead: Emily Vue

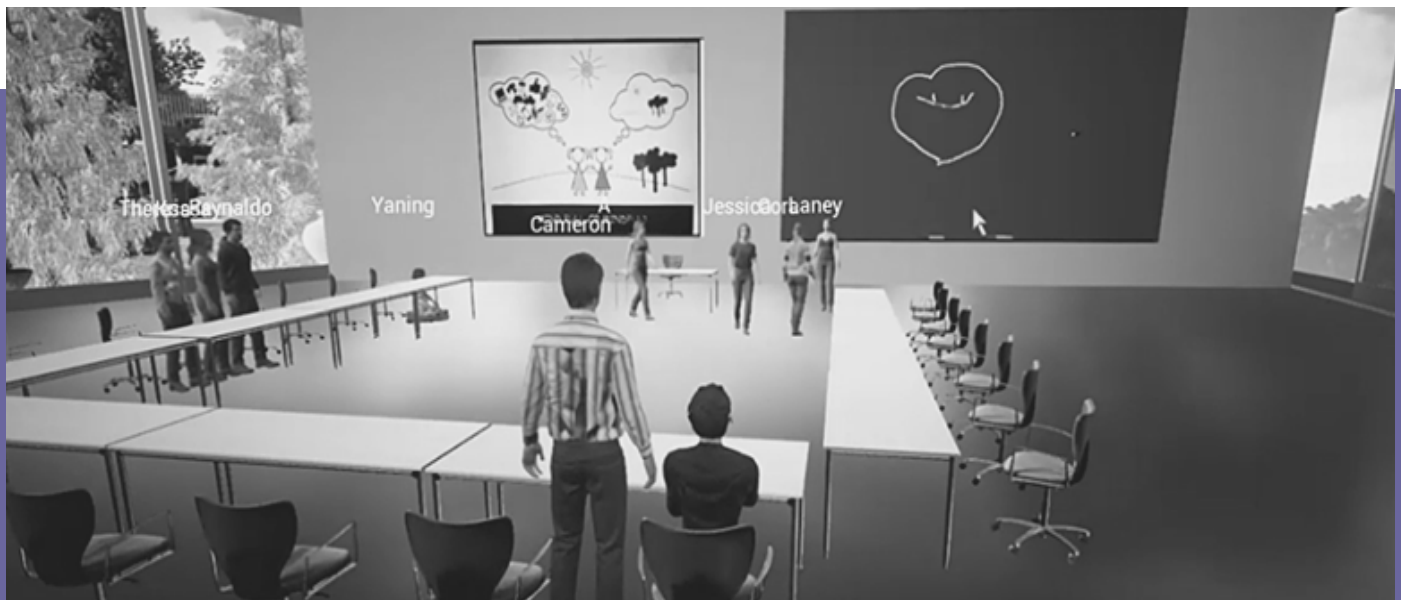
- **Example 1:** Bellevue College Library scan.
<https://my.matterport.com/show/?m=4rAkNH2TsRE>
- **Example 2:** Bellevue College XR Lab scan.
<https://my.matterport.com/show/?m=EhVjDonfkZw>

II. The Ultrasound 3D Visualization Project involves building a VR visualization tool for teaching human anatomy. Students are focusing on the human heart.

Faculty Lead: Pete Ophoven (Computer Science)

BC Ultrasound Lab Director & Client: David Goodwin

XR Lab Student Lead: David Wikstrom

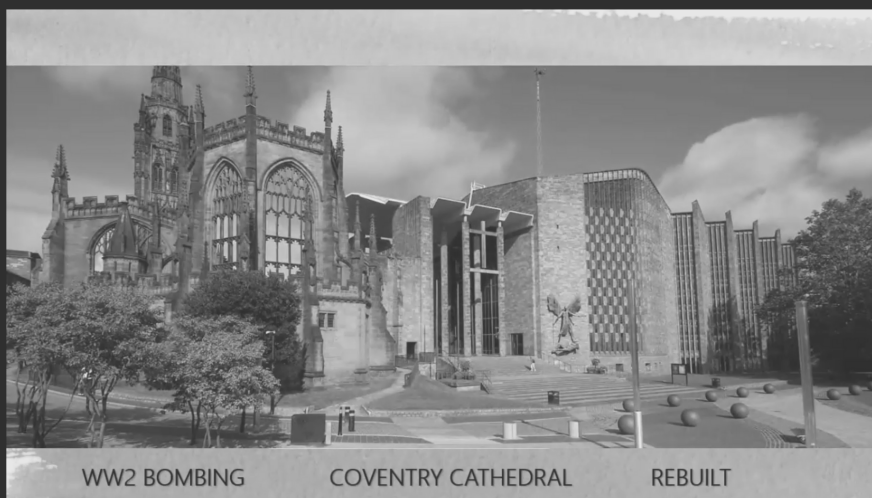


The XR Lab has been working with faculty and community activists in creating XR related projects for teaching and learning. These projects were showcased during Black History Month events by Dr. Paul Jackson, and Professional Development Day by Wei Geiger, Paul Jackson, and John Bishop. Classroom Without Walls is an ongoing Initiative that promotes the use of VR for teaching in multiple disciplines including history, intercultural communication, health sciences, language, and equity issues.

Wei Geiger: Chinese Language - Zen Garden Virtual Classroom

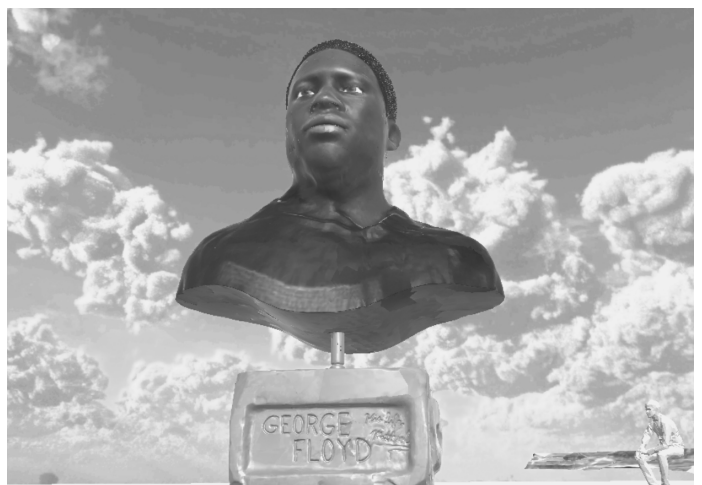


John Bishop: Winston Churchill History - Tombolo



One of the core objectives for the XR Lab is introducing Bellevue College faculty and students to a range of virtual reality presentation tools that can be used for online presentations and classes. One area of exploration has been the integration of spatialized displays with live presentations. As examples, the two presentation below involve 1) a Black History tour by Dr. Paul Jackson as well as 2) a series of Scandinavian travelogues created by Communication Studies instructor Dr. Li Liu.

Dr. Paul Jackson: Tour of the George Floyd Wall in AltSpaceVR



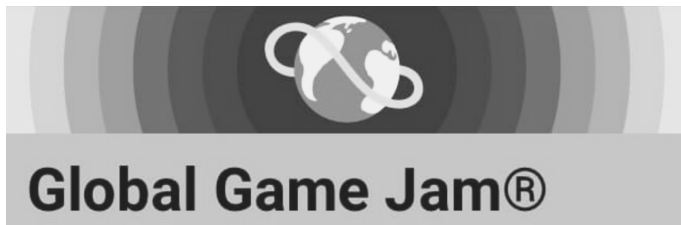
Dr. Li Liu: Intercultural Communication: Finland - Google Earth



During the challenging 2020-2021 pandemic school year, the XR Lab has constantly sought out strategies for keeping the facility active. Our aim is to identify ways in which we can find a "home away from home" beyond the XR Lab campus space. Surprisingly, the coronavirus has reinforced the importance of developing virtual teaching, collaboration, and home-based work spaces. These augment our on-campus presence, leading to new pathways of development.

We have developed methods for integrating instructor-driven virtual reality headset experiences into live and pre-recorded Zoom and Teams sessions, and have participated in a variety of public virtual events. These include a GameJam, Black History Month Virtual Seattle tour, a VR presentation for Professional Development Day, and presentations for the eLearn 2021 Conference as well as the Evergreen Council on Problem Gambling.

BC Global GameJam



Black History Month - Seattle



Bellevue College Professional Development Day



Events: First Immersive Virtual Class

PAGE 8

One of the highlight XR Lab events this year was the delivery of the first immersive virtual reality class experience. This is actually the first time that a whole group of students was able to participate with an instructor from remote locations using an immersive virtual reality headset. Approximately 20 faculty and students participated.

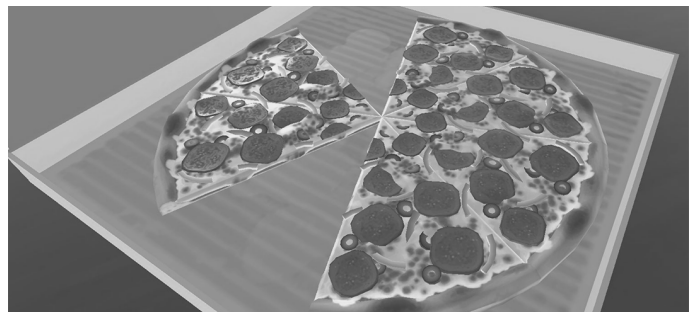
The event took place in a multi-user virtual environment called RecRoom. XR Lab student employees David Wikstrom and Leslie Citrisky planned the event with Computer Science faculty member Pete Ophoven. The occasion was the mid Capstone Team Project review, where three student groups set up their presentations at different locations within the virtual environment. The groups were able to present their projects, and take questions from the audience.

A table of virtual soft drinks and pizza was provided for everyone.

Team Concho's Churros



Free Virtual Pizza!



Comp Sci Instructor Pete Ophoven provides an orientation



As the XR Lab developed over the past few years, contacts have been made with other colleges and universities that are exploring the use of virtual reality technologies for teaching and learning. These connections have both been local to the Northwest region, but also extend across the US and Canada.

Institutions include the University of Washington (Seattle, Tacoma, Bothell), Central Washington University, Portland Community College, Everett Community College, University of Houston Clear-Lake, Duke University, and Yale University.

The XR Lab has participated in events hosted by academic groups such as the Champions in Higher Education for XR (CHEX), Educators in VR, the Virtual World Society, the XR University of Michigan 2021 Summit, and San Jose State University based librarian's group VCARA. These organizations and their events provide an essential way to keep up-to-date in the quickly changing mixed reality technology environment in higher education.

CHEX Meeting in Virbela VR



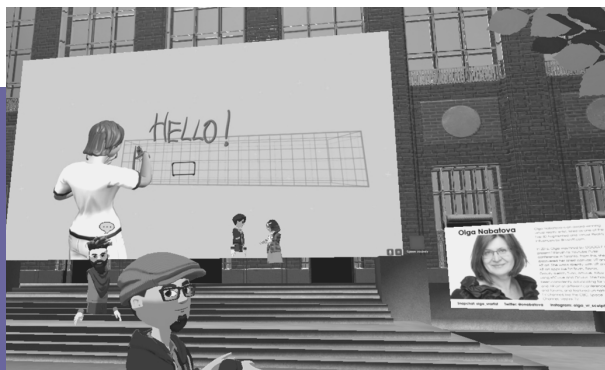
Educators in VR in ENGAGE



VCARA Librarians AltSpace



XR 2021 - Univ of Michigan



An important foundation of the XR Lab is the importance of student initiative and engagement with running the facility. Active participation on the part of students either as part-time hires or work-study employees is vital to the Lab's success. We're always on the lookout for highly motivated students who 1) have a passion for virtual reality technologies, and 2) proactively participate in the day-to-day operations of the facility. We've had great success so far using this formula for new team recruits.

One of the primary responsibilities of our student team members running is the organization and activities of the Virtual Reality Student Club on campus. They promote the club's events, and host weekly gatherings. Surprisingly, the pandemic did not affect the enthusiasm participation of the VR club's participants. Leslie Citrisky (President) and David Wikstrom (Vice-President) made innovative use of Discord, a free chat application that supports text messaging, streaming video, and shared applications to set multiuser game environments for VR. They also helped host a well attended virtual Game Jam event along with Bellevue College students from RISE.

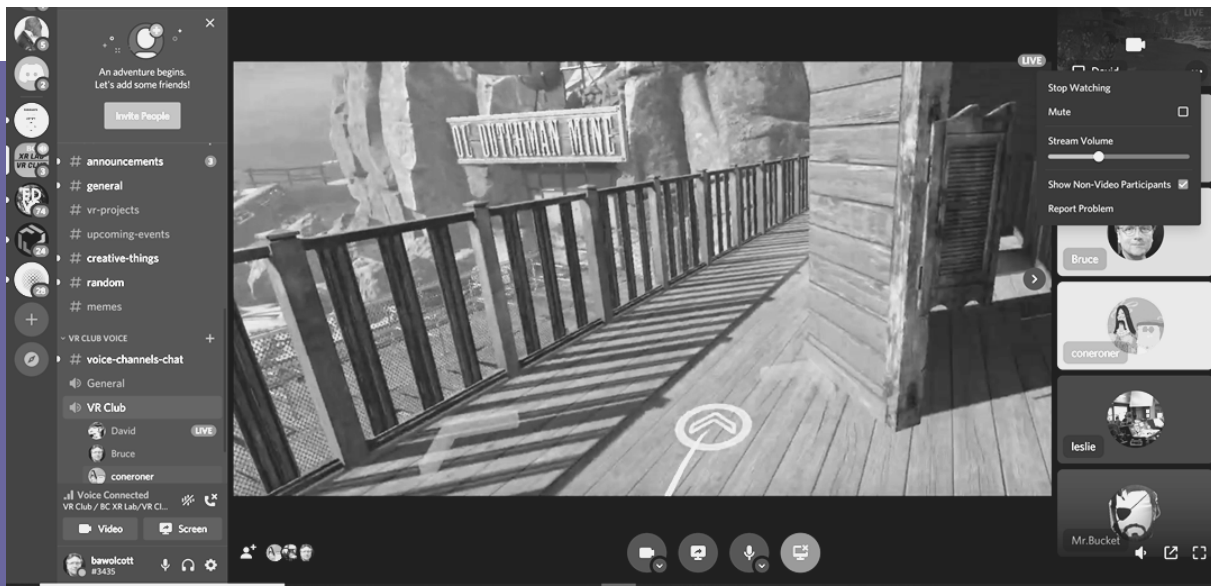
Leslie Citrisky: President



David Wikstrom: Vice President



Arizona Sunshine Multi-User VR Game Experience: VR Club



ADAPTING TO COVID-19

As with the rest of Bellevue College, the XR Lab has made its own adjustments to the realities of COVID-19. The biggest change for the Lab was the fact that faculty and students could no longer visit the streaming classroom or studio spaces. This was a big change from pre-pandemic academic quarters of Fall 2020 and Winter 2021 where over 3500 visitors both on and off campus participated in Lab hosted events.

In response, the XR Lab Team remained active by exploring the use of the Discord messaging app for its meetings as well as VR Student Club events.

Student and faculty collaborations took place via Zoom, Microsoft Teams, as well as within shared immersive virtual reality spaces like RecRoom, VRChat, Engage, and AltSpaceVR

During normal operations, the Lab brings in groups of faculty and students for learning experiences using virtual reality headsets. For classes, headsets are cleaned after every individual use with sanitary wipes, but this cleaning procedure is inadequate for the COVID-19 virus.

After researching COVID sanitation procedures used by other university virtual reality labs we developed a quarantine process which involves using protective gear, Lysol cleaning wipes, and a UVC light sanitation device called the CleanBox. After treatment the headset is placed into plastic bags in quarantine for 5 days.

The XR Lab checks out individual headsets to students for projects at home. When returned, headsets are cleaned and placed in quarantine.



2021/2022 BUDGET

The XR Lab at Bellevue College was launched in 2017. Since that time, the college has provided financial support which enabled our critical first years of operations including some capital works as well as equipment and software purchases. Since that time the XR Lab team administered these funds well and achieved all of the outcomes for the first four years of the project within budget and in alignment with our intended project schedule.

Despite the fact that COVID-19 required that the XR Lab shut down its on-campus activities, the XR team remained active and adapted well to the limits of quarantine. Due to this setback, the XR Lab did not spend all of its allocated budget, most notably due to the absence of James Riggall's participation and related expenses.

We anticipate that we will be returning to our on-campus operations starting in Fall, 2021. In the coming year, we'll be focusing on further developing capacity in staff and student workers, increasing our industry outreach efforts and extending XR Lab services across the campus through student and faculty outreach programs.

To continue building momentum around the lab and its activities, we are requesting a budgeted amount for the 2021/22 financial year (see attached document). This will enable us to rebuild our on-campus presence and continue doing everything that we've done in the past years, as well as expand our capacity for outreach by rebuilding our team staff (particularly departing student workers).

Included in this budget, we are looking to hire a part-time manager to complete necessary XR Lab administrative tasks.

Detailed budget available on attached document.

