2025-26 HIVE Summer Internship Project

VR technologies and immersive content in virtual court hearings for legal practice and training

Primary Academic Supervisor
Dr. Michael Dizon

Project Background
Videoconferencing and video-link technologies have been used by courts for decades. These technologies are normally utilised to allow remote participants such as parties, witnesses and prisoners to attend court hearings in specific instances. However, during the COVID-19 pandemic with isolation and physical distancing requirements, courts expanded the rules on remote hearings and resorted to widely available internet-based technologies for online hearings where everyone was a virtual participant. With the end of the pandemic, courts retained the rules and practices for remote hearings and continued to permit certain participants to attend through online means. While the adoption of virtual hearings is a significant development especially in relation to the use of technology in court proceedings and legal practice, courts have yet to fully utilise the power and potential of virtual reality (VR) technologies and immersive content. In their current form, virtual hearings merely use online meeting platforms such as Microsoft Teams, Webex or Zoom to allow people to attend remotely. The view of online attendees is limited to the four corners of their computer screens and the video stream from the court normally has a single or limited viewing angle and does not show the whole court room or the people in attendance. Such limitations may affect the people's right to a public hearing including the right of an accused to be tried in person. In light of the limitations of how current technologies are being used for online hearings, this project will explore how VR can make participation in remote hearings truly virtual and immersive. VR technologies are known for their ability to enhance the sense of presence, experience, immersion, engagement and interactivity in various fields and contexts. Aside from legal practice, these characteristics of VR can also benefit legal education through the use of simulations of court hearings to train law students.

Project Description, Expected Outputs, Possible Stretch Goals

The central aim of this project is to explore the use of different VR technologies and immersive content in virtual court hearings and how to apply them in legal practice and training. The project involves three main goals. The first goal is for a student intern to examine different VR equipment and immersive video formats that allow a remote participant to attend a court hearing virtually. In terms of functionality, the VR systems tested must be able to live-stream, display and record immersive videos from a mock hearing. With regard to display, the student can look into various options such as a VR headset, video projection (ultra-widescreen, cylinder or dome), or a computer screen. The system should preferably use open source or commercial off-the-shelf products, services and platforms. The second goal is for the student to compare and evaluate the different VR technologies and immersive video formats and provide recommendations and guidelines on which ones are suitable and viable for virtual court hearings. Finally, the third goal is to use the most suitable VR system to produce a VR experience or simulation of a moot court to demonstrate its capabilities and benefits. The VR experience can be used to train Curtin law students.

This project will interest a student who wants hands-on experience testing and developing expertise in varied VR technologies (VR headsets, 360 and 180 degree cameras), immersive video formats (360, 180, panoramic, stereoscopic 3D), and video production (live-stream, projection and content creation).

Links to background reading and any relevant recent work in the field

- 3D VR Curtin University's Moot Court: https://www.youtube.com/watch?v=lSeWlZ2SLKk
- Russell Smith, Rebecca Savage and Catherine Emami, ‘Audiovisual link technologies in Australian criminal courts: Practical and legal considerations’: https://www.aic.gov.au/publications/rr/rr22
- Meredith Rossner and David Tait, ‘Virtual technology and the changing rituals courtroom justice’: https://core.ac.uk/download/pdf/604288539.pdf
- Emma Jones and others, ‘Using Virtual Reality to Enhance the Law School Curriculum’: https://www.taylorfrancis.com/chapters/edit/10.4324/9780429351082-3/using-virtual-reality-enhance-law-school-curriculum-emma-jones-francine-ryan-hugh-mcfaul-david-vince-lawrence-kizilkaya-jamie-daniels

What type of visualisation will the student develop or produce?
The student will produce VR experiences of virtual hearings using live-streamed and recorded videos of mock trials and moot courts. These can be viewed in a VR headset, computer screen, ultra-widescreen monitor, and cylinder or dome projection.

How will the visualisation contribute to your research outcomes?
The live and recorded VR experiences of virtual court hearings are integral to the research aims and outcomes of the project. In legal practice, these immersive experiences can make virtual court hearings more engaging and true to life for remote participants. For legal training, they can be used as simulations to teach law students on topics such as trial practice and court procedure. Students can benefit from the presence, experience and engagement that VR uniquely offers.

If the project is successful, where would you consider publishing the results?
With regard to the legal practice part of the project and the potential use of VR in virtual court hearings, the results can be the basis of an article to be published in a relevant law and technology journal like the International Journal of Law and Information Technology or ANU Journal of Law and Technology. In relation to legal training, the findings can be published in the Journal of Law and Education or Western Australian Law Teachers' Review (WALTR). There are opportunities as well to present the project outcomes in law, technology and/or education conferences.

Draft Project Timeline:

Week 1

Nov 10 - Full day HIVE induction
Nov 11 - Area and Project Induction with Primary supervisor
Develop project plan with HIVE and academic team
Literature and relevant project review

- Start research

Week 2

- Go over various VR equipment available at HIVE and from the academic team - Conduct research on how to use these VR technologies to live-stream, record and display immersive videos - Meet with HIVE and academic to discuss options - Start testing VR technologies and immersive video formats and writing observations and findings about their suitability and viability for virtual court hearings

Week 3

- Continue to test and evaluate VR technologies and immersive video formate - Continue to document findings - Meet with academic team

Week 4

- Continue to test and evaluate VR technologies and immersive video formate - Continue to document findings - Meet with academic team

Week 5

- Prepare initial written findings on which VR equipment and immersive video formats are suitable and viable - Meet with HIVE and academic team to present initial findings and receive feedback - Decide which specific VR equipment and video format to use for VR experience of moot court

Week 6

- Start producing recorded demonstrations of suitable VR technologies and immersive video formats - Test chosen VR equipment and video format to produce VR experience of moot court - Consult with HIVE and academic teams

Week 7

- Continue to produce recorded demonstrations of suitable VR technologies and immersive video formats - Pre-production for virtual moot

court (technical and content) - Start writing report - Consult with academic team

Week 8

- Production and recording of virtual moot court - Continue writing report and preparing for presentation - Meet and consult with HIVE and academic team during production

Week 9

Focus on report writing and presentation preparation

- Post-production of virtual moot court - Continue to work on report and presentation

Week 10

Focus on report writing and presentation preparation
30th Jan Final Presentation Showcase Day and final report due

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Student Experience and Supervision:

How often will you meet with the student over the 10-week period?

Regular meetings and consultations in the first three weeks (around two days a week) and then at least once a week thereafter. Available to meet and consult anytime throughout the 10 weeks.

Your work desk location and the location of student desk

The primary supervisor's office is in Building 407.231. The student will have access to a desk in Building 407.

Student Attributes:

Please indicate any preference for student's academic discipline or field of study

No preference in terms of academic discipline as long as the student has experience, knowledge and/or interest in VR, immersive or video live-streaming, recording and display

What competencies are required to start this project

Intermediate - 2D image and/or video software (e.g. Adobe Suite, Sony Vegas)

Intermediate - VR and video live-streaming, recording and display

Do you have any other student attributes you think are important to the project?

The student must be interested and have experience using VR or video software, services and platforms for immersive experiences and content.