2025-26 HIVE Summer Internship Project

Immersive Nature: Exploring Health, Wellbeing, and Care for Nature Through 3D Education

Primary Academic Supervisor
Prof. Rachel Sheffield

Project Background
What if you could step into a towering karri forest, a Pilbara gorge, or stand beneath a Kimberley boab without leaving Perth and without the environmental impact of travel?
Environmental education faces an ongoing challenge. Direct contact with nature enhances wellbeing, ecological awareness, and stewardship, yet many people, especially those in urban settings, have limited opportunities to access such experiences. Digital distractions compound this disconnection, highlighting the urgent need for approaches that reconnect people with the natural world.
Research shows that immersive digital technologies can replicate many of the benefits of direct nature contact. Virtual and multi-sensory environments reduce stress, improve mood, and foster positive environmental attitudes, particularly when visual content is combined with sound, movement, and interactivity. Immersive simulations are, therefore, a valuable complement to traditional environmental education and wellbeing initiatives.
This project builds on that evidence by developing immersive experiences that capture the diverse landscapes of Western Australia. By transporting participants into 360-degree environments, the project aims to evoke a sense of presence, empathy, and care for nature, while also offering a sustainable, low-carbon alternative to traditional outdoor excursions. This reduces the carbon footprint and environmental impacts associated with travel to sensitive ecosystems, enabling exploration of unique environments without damage.
The internship will deliver the first stage of this vision by creating pilot outputs that showcase contrasting natural settings near Perth. These prototypes will serve as proof-of-concept experiences for educators, students, NGOs, and community groups at the World Environmental Education Congress in Perth in 2026. They will also lay the foundation for

future research by the supervisory team, including surveys, biometric measures, and co-designed Indigenous perspectives.

Project Description, Expected Outputs, Possible Stretch Goals

This internship will produce two immersive 360° video experiences, each approximately six minutes in length, filmed in contrasting natural settings close to the Perth metropolitan area. The selected locations will showcase diverse aesthetics and varying degrees of natural immersion, offering a range of experiences that foster ecological connection.

Expected outputs include:

- Two 6-minute 360° immersive videos, filmed on location and edited into high-quality prototypes.
- Layered natural soundscapes to reinforce presence and engagement.
- Animated or surface overlays identifying flora and fauna, using scientific names as a baseline.
- Potential inclusion of Indigenous names and perspectives, subject to future community co-design and approval.
- Documentation of the technical and creative workflow to support replication and scaling.

Supervising team contribution (parallel to the internship):

- Development of pre- and post-experience surveys to evaluate mood, presence, and ecological attitudes. These tools will be prepared and piloted by the supervisory team, ensuring the intern's focus remains on content creation.

Stage 2 goals (beyond the internship remit, with the option for the student to participate if desired):

- Additional immersive scenes in regional ecological settings.
- Inclusion of Indigenous voices and cultural narratives through consultation and consent.
- Integration of biometric measures (e.g., heart rate, blood pressure) to complement survey findings.
- Partnerships with schools, NGOs, or agencies such as Tourism WA to broaden reach and impact.

This structure ensures the internship delivers clear, achievable outputs within the 10 weeks, while establishing a foundation for future research, community collaboration, and sector-facing engagement.

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

1. Hartig, T., Mitchell, R., de Vries, S., & Frumkin, H. (2014). Nature and health. Annual Review of Public Health, 35, 207–228. https://doi.org/10.1146/annurev-publhealth-032013-182443
2. Browning, M. H. E. M., et al. (2020). An actual natural setting improves mood better than its virtual counterpart: A meta-analysis. Frontiers in Psychology, 11, 2200. https://doi.org/10.3389/fpsyg.2020.02200
3. Wen, Y., Shen, X., & Shen, Y. (2024). Improving immersive experiences in virtual natural settings. PLOS ONE, 19(4), e0297986. https://doi.org/10.1371/journal.pone.0297986

What type of visualisation will the student develop or produce?

This project requires immersive delivery to achieve its aim of reconnecting people with natural environments. The Dome and panoramic display allow groups to share large-scale experiences, critical for testing collective engagement and educational applications. VR headsets provide individual immersion, supporting research into presence, wellbeing, and ecological awareness. These displays are essential for demonstrating the versatility and impact of the outputs.

How will the visualisation contribute to your research outcomes?

The visualisations will provide pilot-ready content to examine how immersive digital nature influences wellbeing, ecological awareness, and pro-environmental attitudes. They also allow exploration of unique Australian environments without the carbon footprint or ecological damage of travel, offering a sustainable, low-impact alternative. Outcomes will support survey and biometric studies, peer-reviewed publications, and scalable tools for schools, NGOs, and community engagement.

If the project is successful, where would you consider publishing the results?

Journal of Environmental Psychology (Elsevier).Scope: Human interactions with natural and built environments, including restorative effects of nature and digital/virtual simulations.

International Journal of Environmental Research and Public Health (IJERPH, MDPI).Scope: Multidisciplinary, covers health outcomes linked to natural environments, urban greening, and emerging digital interventions.
Frontiers in Virtual Reality – Human-Centred Computing Section. Scope: Research on VR and immersive digital technologies, particularly in health, wellbeing, and environmental contexts.

Conferences

World Environmental Education Congress (WEEC) 2028. Focus: Environmental education, sustainability, and innovative technologies for wellbeing.
International Conference on Human-Computer Interaction (HCII). Focus: VR/AR, digital health, and human factors.

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

Setup & Planning • Meet team, confirm goals, select sites, draft schedule. Learning: Project planning, teamwork, role definition.

Week 2

Storyboarding •Draft narratives, create storyboards, plan sensory features. Learning: Visual storytelling, multimedia design.

Week 3

Pre-Production. Visit sites, finalise shot list, prepare equipment, draft safety plan. Learning: Location scouting, pre-production planning.

Week 4

Field Capture 1. Support filming at Site 1 (e.g., Karri forest), record sounds, document shots. Learning: Practical 360° filming, fieldwork experience.

Week 5

Field Capture 2.Support filming at Site 2, record immersive audio. Learning: Filming in varied environments, sound capture.

Week 6

Data Processing. Transfer and label files, rough cuts, clean audio. Learning: File management, beginner editing skills

Week 7

Editing Drafts videos, refine pacing, seek feedback. Learning: Editing for immersive media, colour grading basics.

Week 8

Sound Design. Balance sound layers, sync audio with visuals. Learning: Sound design, multisensory enhancement.

Week 9
Focus on report writing and presentation preparation

Review & Refinement test in VR, refine based on feedback. Learning: Evaluation, iteration, user-centred design.

Week 10
Focus on report writing and presentation preparation
30th Jan Final Presentation Showcase Day and final report due

Finalisation & Delivery. Export final videos, prepare documentation, present screening. Learning: Finalising digital products, academic presentation.

Student Experience and Supervision:

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

We will meet with the student 2 times per week over the 10 weeks.

Your work desk location and the location of student desk

All desks in Building 501 are open plan. We have a computer that the student can use and a desk space; however, the student may need specific software installed.

Student Attributes:

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

Prior experience in film production would be an advantage, but the project is designed so that an engaged and motivated student can learn the required skills along the way

What competencies are required to start this project

Intermediate - 2D image and/or video software (e.g. Adobe Suite, Sony Vegas)
Beginner - 3D modelling software (e.g. Blender, 3ds Max)

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

All can be developed but

1) Basic film/media knowledge – e.g., camera use, framing, or editing basics.

2) Digital literacy – confidence in handling files, software, and online platforms.

3) Creativity and storytelling – the ability to think about how to structure a narrative.

4) Teamwork and communication – comfortable collaborating and taking guidance.

5) Organisational skills – keeping track of schedules, files, and tasks.