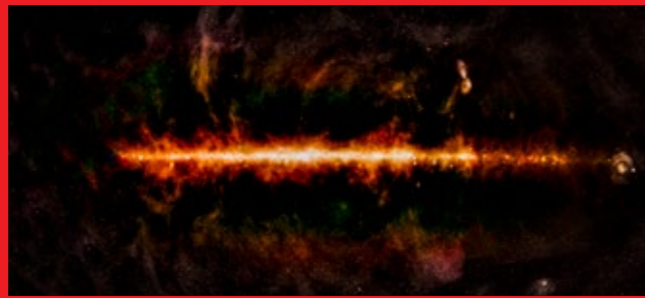




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Image Dr Natasha Hurley-Walker (ICRAR-Curtin) and the GLEAM team.



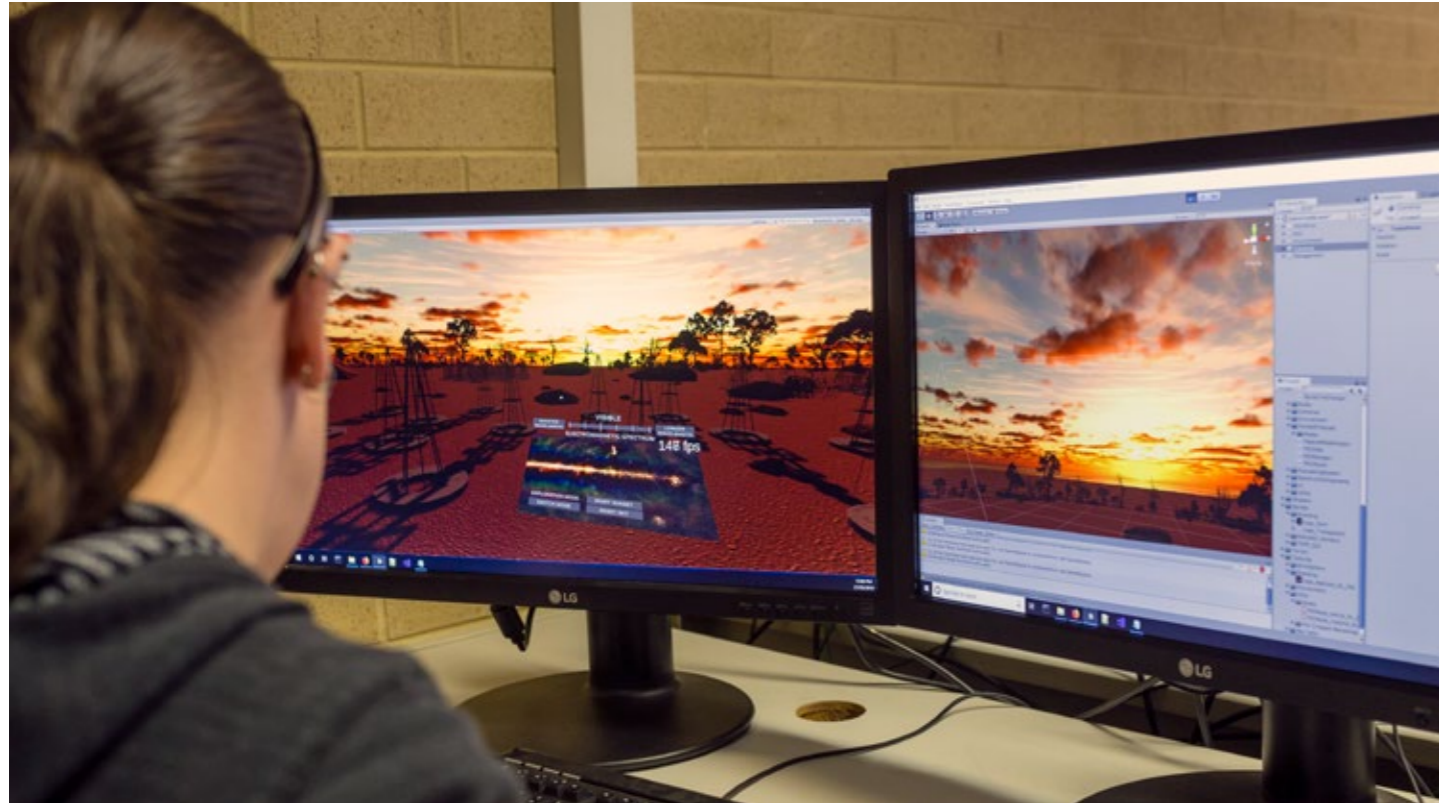
VIRTUAL REALITY

CASE STUDY



VIRTUAL REALITY

A virtual reality collaboration is delivering real-world outcomes for North Metropolitan TAFE (NMTAFE) students, ICRAR and the wider community. The partnership between the university and VET sector has resulted in an app showcasing Western Australia's pristine night sky, the State's expertise in radio astronomy and the WA SKA site.



Cover A budding astronaut experiencing Virtual Reality at the Perth Astrofest.

Above North Metro TAFE student Megan McLean working on the app.

NMTAFE student Megan McLean admits to being a little daunted when she first stepped into the world of radio astronomy. "There was a very steep learning curve in the beginning," she said. "It's a completely different area for me but it's been extremely interesting. It doesn't matter how long you work on it; you just keep learning more."

Megan, who is in her final semester of a Diploma of Software Development (ICT50715), is part of a team of students who worked with ICRAR to create a virtual reality app showcasing Western Australia's night sky. It's part of a NMTAFE program designed to give students real-world experience working on projects for real clients.

ICRAR cosmos consultant Gregory Rowbotham said he jumped at the opportunity to work with the students when contacted by NMTAFE. "It was just an absolute godsend," he said. "It's been great to work with people who can share the possibilities in virtual reality, and it's allowed us to expand the project from a basic idea to a polished product."

NMTAFE lecturer Travis Badge said the program teaches the students to work in cross-disciplinary teams, meet deadlines and interact with clients. "Most importantly, they produce a show reel they can walk out with that has real work for real clients," he said.

Badge said the students were a little scared at the start of the semester when they realised they had just a few weeks to build an early version of the app ready for Astrofest in March of 2019. But they threw themselves at the project, meeting the deadline for the beta version and setting about refining the app over the remainder of the semester.

Rowbotham said the final app, launched in July 2019, showcases the West Australian night sky, radio astronomy and the SKA telescope project. "We're showing off what the SKA might look like and giving people an on-the-ground feeling of being there at the Murchison Radio-astronomy Observatory," he said.

"This virtual version will be in the outback at night time, showing the visible Universe as



Left & Top Right Members of the public experiencing Virtual Reality at the Perth Astrofest.

Bottom Right North Metro TAFE student Dan Cherrin testing the app.

well as the sky as seen with 'radio eyes' and other wavelengths. You can switch between the wavelengths, see interesting objects and then query those objects and find out more about them. It's quite amazing."

The app has been designed for everyone, not just people who have access to virtual reality equipment. It requires only a smart phone and a Google Cardboard, which can be bought online for about \$20.

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Rowbotham sees the virtual reality app being downloaded by teachers in the classroom, for instance. "An average person can download the app and within two minutes have it up and running and experience the Murchison Radio-astronomy Observatory," he said.

And there's particular potential for ICRAR to use the app at outreach events. "It will be especially useful for communicating that WA is at the forefront of radio astronomy technology," Rowbotham said.

"We have these amazing dark-sky areas and excellent research using amazing telescopes like the Murchison Widefield Array. This app

is a very accessible way for people to discover that knowledge in a way that passes on the information through a unique experience. That's very important—what people remember is a great image and feeling like they're there." While the current version is only available for Android, Rowbotham hopes to see the project expanded to include iPhones.

Rowbotham said ICRAR had treated the NMTAFE students as if it was a paid project, and his reference for the students was "shockingly glowing". "They're really, really good," he said. "They've been unbelievably knowledgeable, hardworking and willing to go beyond the call of duty, going out of their way to make sure the product is utterly polished."

Megan, for her part, said the project was a great opportunity to apply her skills to a new area and build her portfolio. "It's been nothing but rewarding," she said.