



Red Hill Construction Sandbox Project by David Clark and Danny Ruse Made with Unity

TAFE Queensland partners with Unity Academic Alliance to prepare students for in-demand careers

Interactive AR and VR projects drive student enthusiasm and job-hunting success.



The challenge

To empower students with practical AR/VR skills for high-demand jobs

Unity solutions in use

AR Vuforia, Unity EditorXR, Pixyz, Interact, Unity MARS, Unity Reflect, Unity Asset Store, XR Interaction Toolkit

Students

~20 per session

Location

Coomera, Australia

How does a vocational training institution not only prepare students for rewarding and lucrative careers creating virtual, augmented, and mixed reality (AR/VR/MR) applications, but also build excitement and community for emerging interactive technologies? Technical and Further Education (TAFE) Queensland offers a range of courses in games and interactive design, preparing students throughout Oceania to be game developers, concept artists, 3D modelers, multimedia designers, and more.

Preparing students for the workforce

TAFE's Bachelor of Games and Interactive Design degree program, offered in partnership with the University of Canberra, covers all aspects of video game and interactive digital media from concept to production, as well as creative projects that help local industry develop prototypes for interactive applications. As a primary tool for learning AR/VR, TAFE Queensland chose the Unity real-time 3D (RT3D) development platform, and to access valuable courseware, professional certifications, and discounted licenses, they joined the [Unity Academic Alliance](#) (UAA).

Preparing for filming in the Black Box Theatre at Coomera Campus for Protech Think Safe AR Work Integrated Learning Project



"Our students like using Unity because they are able to pick it up very quickly."

– Hans Telford, Associate Lecturer, TAFE Queensland

The results

- Created a job mentorship program to give students experience building interactive AR/VR projects
- Educators regularly participate in the Unity Editor and related events
- Received funding to hold a QuickStart2VR event teaching high school students to create a game in two days
- Well-received on-campus and online Digitrek21 events to introduce the community to mixed reality, its range of applications, and its benefits for business and personal use
- Increased involvement and a range of support from businesses to provide a better student experience and graduate outcomes
- Creation of a new short course in Reality Capture, Visualization, and Mixed Reality



Damian Murphy from Red Hill Innovations and TAFE students presenting the use of their mixed reality construction model at DIGITREK 21

Local support for a global program

Ann Stevens and Hans Telford are associate lecturers at the TAFE Queensland Coomera campus, one of 50 locations in Queensland that comprise the state’s largest, most experienced training provider. Five years ago, they started using Unity at the Coomera campus, following the lead by the senior lecturers from TAFE Brisbane (Southbank campus) who considered Unity as their primary game development solution, including for VR teaching. Telford says, “Our students like using Unity because they are able to pick it up very quickly.” And Stevens adds, “The variety of plugins and frameworks

available – such as Bolt, Interact, Pixyz, Reflect, MARS, and Forma – enable prototypes to be completed quickly for agile development.”

Another reason Ann mentions is Unity’s comparatively local presence, with an office in Melbourne and a number of in-country developer and user groups with thousands of members. “It was important to us that Unity’s support and networking opportunities came from an Australia-based team.” Unity’s biggest global developer showcase, Unite, was held in Melbourne in 2016.



Calvin Hingle demonstrating how to use the gamified crane in the mixed reality construction model

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– Ann Stevens, Associate Lecturer, TAFE Queensland

Tutorials and frameworks for lesson plans

“Our primary motivation is to prepare students for career options in future job markets, and jobs using emerging technologies such as AR/VR are growing as the architecture, engineering, and construction (AEC) fields rapidly adopt these technologies,” says Stevens. Both Telford and Stevens use Unity (among other software) to teach an introductory game design course for students entering TAFE Queensland programs and also as part of their Work Integrated Learning projects.

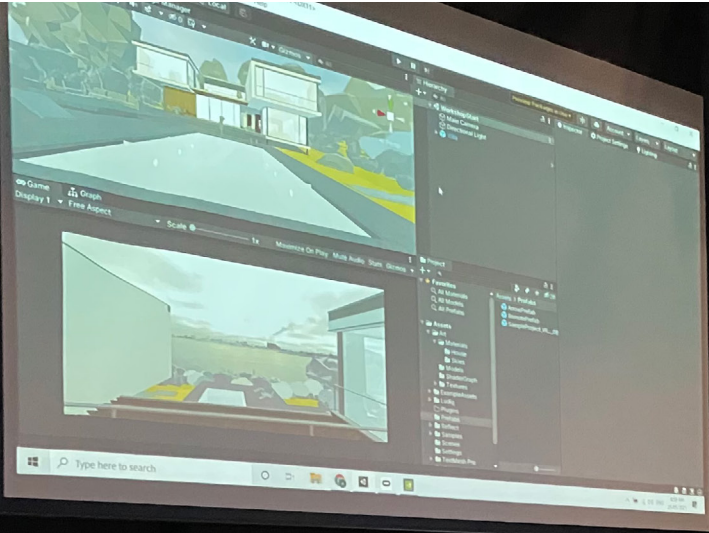
Typically, the structure of a class is derived from Unity Learn tutorials covering the basics, then they have students familiarize themselves with the documentation for various plugins, and finally, they recommend that students apply what they learned in industry R&D projects to improve their digital processes. In terms of workflow, a student outlines a rudimentary app or game design,

“Students are excited about innovating practical solutions for businesses like ours, and their work with Unity shows that the local TAFE is very much industry-current.”

– Damian Murphy, Director, Red Hill Innovations

DIGITREK 21 Unity XR Interaction Toolkit Workshop presented by Adam Single in the Black Box Theatre





“Personalized support from TAFE’s UAA evangelist has been a big asset.”

– Karen Graham,
Work Integrated Learning Officer,
TAFE Queensland



Adam Single – Unity Field Engineer and Instructor

creates some assets, and adds additional resources from the [Unity Asset Store](#). The educators then walk the student through publishing the app to its intended platform. Students are also encouraged to take on Unity Certifications and relevant courseware.

The class format works well, and TAFE Queensland used it to create a QuickStart2VR event in 2018. This was a

two-day challenge for high school students to develop a VR game using Unity. They expanded this to a Digitrek event in 2021 for high schools, teachers, and the wider community. This event featured two Unity workshops on mixed reality, the XR Interaction Toolkit for VR/AR, and industry case studies, and was sponsored by Study Gold Coast and TAFE’s industry partners.



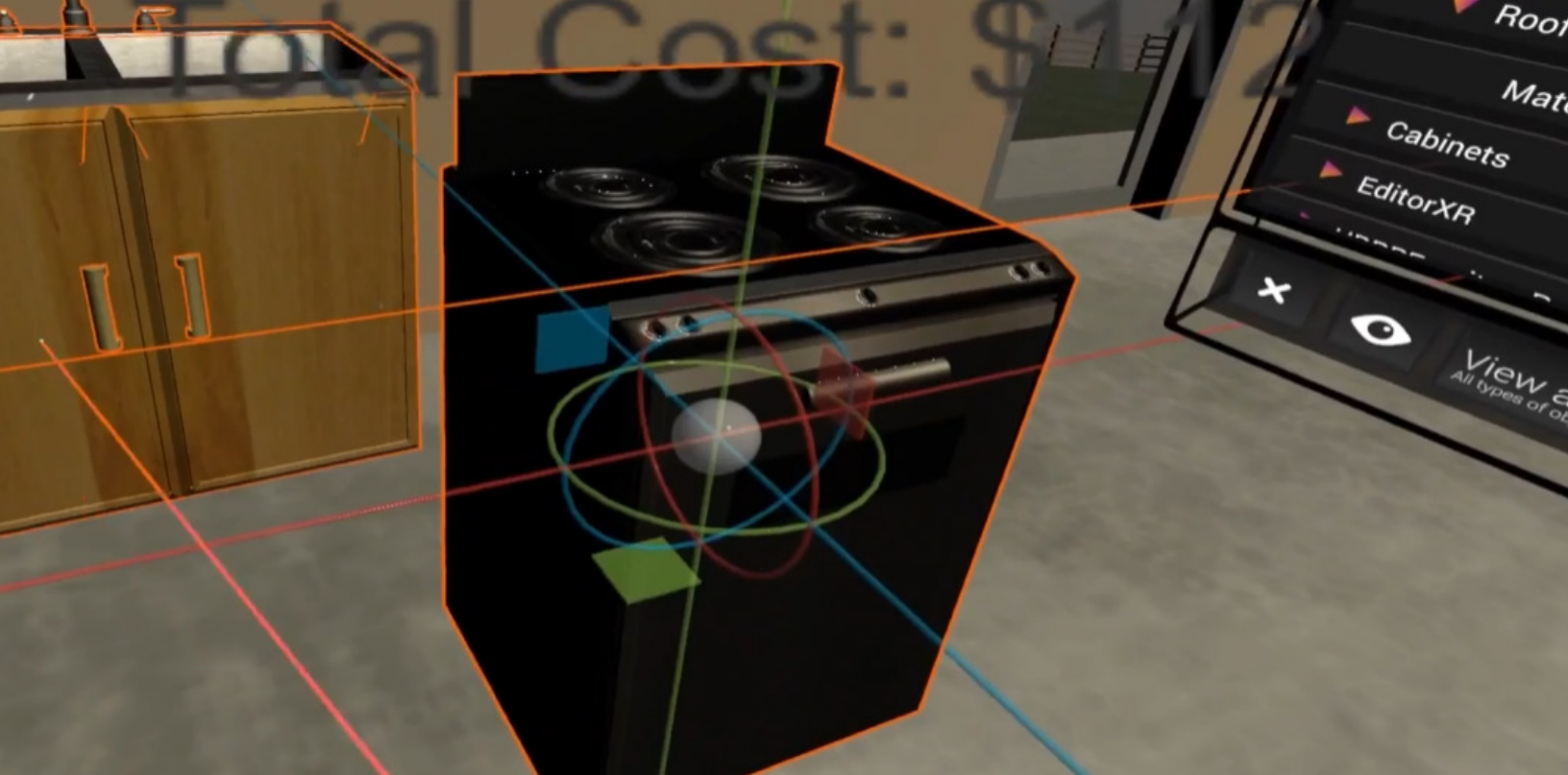
Final presentation of various Unity VR experiments for the Job Mentorship Program at Holovision 3D

Innovating practical apps for local businesses

To help create demand for their AR/VR developer students, TAFE Queensland encourages local businesses to see the benefit of using Unity and hiring Unity-savvy graduates to provide innovative digital solutions to enhance their processes such as in decision-making, training, and risk mitigation. Holovision 3D joined TAFE Queensland to create an eight-week job mentorship program to give students and graduates Unity experience building interactive AR/VR projects related to the company's laser scanning for survey and design capabilities.

“We are very excited about our involvement in the Job Ready Mentorship program with TAFE which involves experimenting with Unity XR for AEC. We are looking forward to our future collaboration providing content in XR for laser scanning training.”

– Vitor Bottazzi, R&D Manager/Robotics Engineer, Holovision

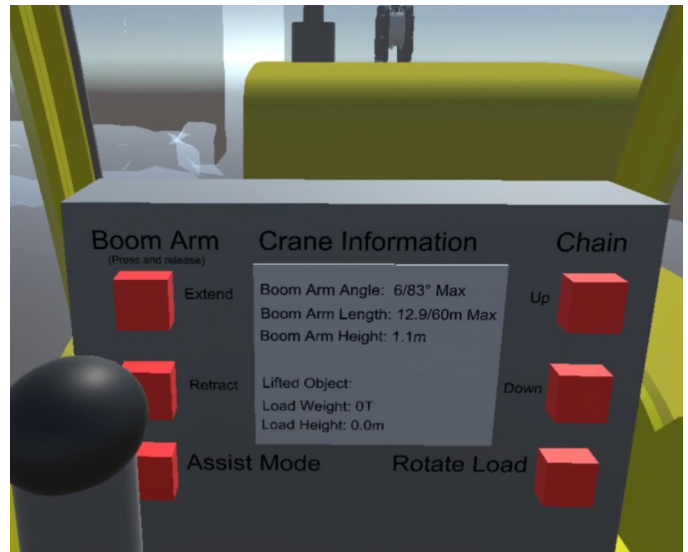


A custom home-building VR prototype for Red Hill Innovations made in Unity EditorXR

Another industry-partnered program, Work Integrated Learning, managed by Karen Graham, used [Unity EditorXR](#) and [Unity Reflect](#) to build a prototype for a consumer-friendly VR app for custom home-building from kits. Students even added a pricing feature, to the delight of engineering consultancy Red Hill Innovations.

EditorXR lets developers see things from the user's perspective while working within the Unity Editor. Students used Reflect to convert Autodesk building information models (BIM) into real-time 3D assets. "Students are excited about innovating practical solutions for businesses like ours, and their work with Unity shows that the local TAFE is very much industry-current," says Damian Murphy, director at Red Hill Innovations.

The success of this experiment led to working on the prototype of the "multi-reality construction model," managed by Red Hill Innovations for one of their clients. "This integrates the concept design into the site point cloud along with the design models. We then 'gamified' specific construction activities and planning processes to really understand the site risks and design impact, and to engage with stakeholders," says Murphy on the benefits of using mixed reality.



Gamified crane operator training made in Unity

In another real-world project, students created AR training modules for Protech, an Australia-wide workforce solutions provider. CIO Matthew Eames says, "Using Unity, the TAFE students helped us with a really engaging and entertaining mobile app that promotes workplace health and safety habits. That's not so easy!"

Personalized UAA support

The core mission of UAA is to help post-secondary institutions like TAFE Queensland innovate and stay relevant by starting and expanding RT3D and AR/VR programs that prepare students for high-demand jobs. To do this, UAA offers curricular frameworks composed of stackable, competency-based modules, certifications and professional development, and a cost-effective discount program.

“Personalized support from TAFE’s UAA evangelist has been a big asset,” says Graham. “There’s a lot of help on the Unity site and in Unity forums, but sometimes you’re in a unique situation and it helps to talk to someone who can really help you in real time.” UAA has been able to put TAFE Queensland in touch with other UAA members and Unity users, and the Unity developer and Unite events have proved highly educational. Stevens adds, “The events I’ve attended through UAA have shown me all kinds of applications developed with Unity. I’ve learned a lot, and the speakers are amazing.”

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– Ann Stevens, Associate Lecturer, TAFE Queensland



Brendan Jakubenko, Vitor Bottazzi, Danny Ruse, Calvin Hingle and Ann Stevens showing the reality capture completed by Holovision 3D and imported into Unity

Enthusiastic students and businesses

TAFE Queensland students have impressed local businesses with their enthusiasm and AR/VR skills, and student assessment pieces and projects are valuable components for their growing portfolios. The businesses have, in turn, provided the students with valuable opportunities to gain mentorships, use their equipment and facilities, and present their prototypes to their project's stakeholders.

As TAFE Queensland gets underway with its Unity Short Courses and Certification programs, they've invited Unity to run workshops on campus. Stevens concludes, "UAA has been a great partner in beefing up TAFE Queensland's interactive curriculum. I think many other campuses in Australia will look at how we work with Unity and local industry, and consider joining UAA as well."

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– Karen Graham, Work Integrated Learning Officer, TAFE Queensland

Karen Dickinson, General Manager of TAFE Queensland Gold Coast Region, joining TAFE students in testing the VR facial tracker





Ann Stevens, Corey Schmid, and Mathew Eames
at the Think Safe AR Work Integrated Learning Project Presentation

Join the Unity Academic Alliance

Accelerate your interactive design and development programs with real-time 3D, VR, and AR technology. And, give your students an edge in the job market by preparing them for the expansive fields of interactive media, technology, and innovation.

[Learn more](#)



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