

Visualisation, Simulation, and Immersive Design

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Postgraduate Student Guide
-
unsw.to/vsid



UNSW
SYDNEY

Visualisation of the root and branch network of Morton Bay fig trees.
Credit: Andrew Yip, Network VI, 2019.

Become an Industry 4.0 leader.

Position yourself to meet the needs of rapidly transforming industries. Be equipped with the creative skills and technologies that connect the physical and digital world.

Visualisation, simulation and immersive platforms are driving a transition towards more agile and adaptable work practices with a profound impact on workforce creativity and productivity.

Utilising immersive technologies such as virtual, augmented and mixed reality (VR, AR, MR), organisations are finding new ways to solve complex problems in many industries including:

- Advanced manufacturing and industry 4.0
- Advertising
- Architecture, and social and urban planning
- Art, design and animation
- Business and finance
- Defence and national security
- Education
- Emergency and first response
- Engineering
- Immersive entertainment and gaming
- Medicine, healthcare and sports training
- Museology
- Robotics
- Sustainability and environmental modelling

Flexible virtual and mixed reality environments that are safe, cost-effective and realistic, are providing solutions to workforce challenges through innovative training and improved decision-making.

The need for graduates skilled in visualisation, simulation and immersive design who can respond to the evolving demands of industries such as these is clear. UNSW is the only Australian university offering an all-encompassing package of study options and degrees, all proudly co-created with industry and global experts.

> Hear what industry is saying.

Scan the QR codes in this guide and hear from experts who are leading the implementation of visualisation, simulation and immersive design in their industry.



A/Prof Simon McIntyre

Associate Dean Education
Scientia Education Fellow
UNSW Art & Design



UNSW Master of Visualisation, Simulation, and Immersive Design students visiting TOLL's Aeromedical Crewing Excellence (ACE) Training Centre in Bankstown, NSW. Credit: Maya Baska.

Not having any experience in Design or with these technologies, I have been thrown in the deep end and I'm finding the course challenging, rewarding and exciting. My career goal is to emerge as a leader in applying emerging technologies to enrich the education and training experiences across a range of industries.

Peta Estens
Current student,
Master of Visualisation,
Simulation, and Immersive Design

The right courses for industry. The right courses for you.

The capability to understand and meet the growing demand and convergence of immersive practices will set you apart in your industry. Through these unique programs, you'll connect with a new generation of simulation and visualisation professionals and join a group of future-ready individuals.

Our courses and programs give you the flexibility to shape your study around your needs. We offer three study options that allow you to choose a bespoke learning pathway to get the skills, knowledge and qualifications you need when you need them.

Short Courses
1 - 5 days

Quickly learn the latest technologies and skills.

Graduate Certificate
0.7 years

Become a graduate specialised in immersive design principles.

Masters
1.7 years

Advance your specialisation with a masters degree.

How are our programs delivered?

We design our programs to accommodate the needs of busy professionals from a wide range of backgrounds. Our part-time and full-time study options will help you to benefit from innovative low-residency learning experiences.

Studying online often requires balancing many professional and personal commitments. To give you the flexibility to study at the times which work best for you, we offer our core courses as a mix of online with two or three intensive face-to-face meetups each term.

In-person learning usually takes place on weekends at the UNSW Art & Design campus or from our industry partner facilities.

Diversify your learning by choosing fully online or on-campus elective courses from a range of UNSW faculties. Through all modes of learning, you'll have full access to our campus facilities throughout each term.

Expand your opportunities. Become an expert in the field.

Our transdisciplinary programs offer a unique human-centred and design-driven approach to using simulation, visualisation and immersive environments.

You'll adopt thinking that is creative and critical, through firsthand experiences with technologies, real case studies and insights from global leaders developing immersion solutions to tackle real-world problems.

A focus on human perception and experience will enable you to analyse how, why, when and where to effectively utilise immersive platforms and live environments including virtual, augmented and mixed realities (VR, AR, MR).



Hear how simulation skills are critical to the future of healthcare.

Having a holistic understanding of the technologies helps with career movement. We struggle trying to find people to be able to work with us. We have clinicians who have lots of clinical skills but they don't have the education or the design skills that are required to do simulation.

We need graduates from this sort of program, it will give them a foundation to use the generic skills that they will learn within their daily practice.

Stephanie O'Regan

Nurse Manager and Simulation Educator
Sydney Clinical Skills and Simulation Centre

➤ **Master of Visualisation, Simulation, and Immersive Design**

Duration: 1.7 years | Course code: 9322

This transdisciplinary postgraduate degree takes a human-centric, design-led approach to analytical and philosophical understandings of immersive practices. You'll be empowered as a leader and driver of workforce change through extensive coursework, industry case studies and a capstone experience.

Learn more at unsw.to/mvsid

➤ **Graduate Certificate in Visualisation, Simulation, and Immersive Design**

Duration: 0.7 years | Course code: 7322

This postgraduate qualification will equip you with an advanced understanding of the way emerging visual and immersive practice is changing the present and shaping the future.

You will experience an integrated and industry-focused approach to learn the skills needed for emerging practices and technologies.

Learn more at unsw.to/gcvsid

➤ **Short Courses**

Duration: Typically 1-5 days

Our micro-credentialed short courses enable you to quickly learn the latest technologies, skill sets and competencies to meet the growing need for immersive practices. You'll engage with world-leading, industry-focused teaching and research that bridges disciplinary gaps.

Short courses can be face-to-face or online and are held throughout the year. Micro-credentials are badged by UNSW and industry partners, and are recognised as prior learning for credit toward the Graduate Certificate and Master of Visualisation, Simulation, and Immersive Design.

Get more information and see our upcoming short courses at shortcourses.artdesign.unsw.edu.au

Program Structure

The Graduate Certificate and Masters are divided into core, elective and capstone courses.

Core courses are undertaken by all students. They help you understand how, why, when and where to use immersive technologies and platforms, with a focus on the context of your own industry or work.

Elective courses allow you to personalise your study. You can build on existing skills or explore new areas of interest by choosing from courses offered across UNSW.

The **Capstone experience** is a unique opportunity completed by Masters students. You'll synthesise the key concepts from your courses with the specialist learnings from your electives, applying them to build a portfolio customised for your career trajectory.

Find a full list of courses and program structures at unsw.to/mvsid-structure

Entry Requirements

Applicants for the Graduate Certificate and Masters programs require a recognised Bachelors degree with an equivalent of a UNSW 65 weighted average mark (WAM). Entry is not dependant upon a degree related to the creative disciplines given that the programs aim to enable practitioners from a wide range of industry sectors to integrate visualisation, simulation and immersive environments into their work contexts.

Recognition of prior learning

Each of our programs are designed to build a pathway to increasing your capabilities and expand upon your hard-earned experience. We offer the following options to optimise your time learning in our postgraduate qualifications.

- Short courses and specialised training programs can be recognised as prior learning, allowing you to claim credit in the Masters and Graduate Certificate programs.
- Entry into the Graduate Certificate without a Bachelors degree is possible with industry experience of over five years.
- Transferring from the Graduate Certificate to Masters degree is possible with a credit average grade.
- Reducing the duration of the Masters degree to 0.7 years and the Graduate Certificate to 0.3 years may be possible through a recognition of prior learning application. Applicants for short courses can be considered for industry experience of over five years, formal and informal learning.

Find more details and apply for recognition of prior learning at unsw.to/vsid-rpl



Brad Miller, data_shadow, 2011, Interactive Installation, Custom Software. Audio: Ian Andrews. Artspace, Sydney. Photo: Philippa Bateman

Hear Dr Keir Winesmith explain the unique skillset these programs provide for the future workplace.



Application of simulation in
defence force flight training.



Lieutenant Colonel James McRae illustrates
the defence industry opportunities in
simulation and visualisation.



Connected to industry

Our courses have been co-created in proud partnership with a wide range of simulation experts and leading organisations. As a student, you'll learn from those working in industries at the forefront of developing and applying visualisation, simulation, and immersive environments. Engaging with applications from a diverse cross-section of industries, you'll become equipped to apply innovations to your areas of interest.

Regular engagement with industry and our extensive creative community networks ensures we keep our program constantly up-to-date with a rapidly changing employment landscape. This has a real impact on the reputation of UNSW graduates who are ranked 1st in Sydney and NSW as the most employable*.

Industry Partner



The Asia Pacific Simulation Alliance (APSA) is an independent social enterprise bringing together experts from government, industry and academia.

Industry contributors

- Beyond Conflict Innovation Lab
- Big Bang Sound Design
- Cubic
- Coal Services
- MOD
- Rabdan Academy
- Real Serious Games
- Soartech
- State Library of NSW

Industry Collaborators



Cross-institutional collaborators

- Virginia Modeling Analysis & Simulation Center, Old Dominion University

Short course partners

- Asia Pacific Simulation Alliance
- BIRDI
- Academy Xi

iCASTS. Underground mining simulation. Credit: Jeffrey Shaw and Dennis DeI Favero, iCinema.



Hear Matthew Farrelly explain why VR is critical to revolutionising the mining sector.



Why UNSW?

You'll be joining Australia's top creative faculty at a world leading university.

UNSW Art & Design is consistently recognised by the Australian Research Council's Excellence in Research Report as the country's top creative faculty. You'll be positioned for international success by studying at a top 50 global university*.

We're dedicated to interdisciplinary, practical and impactful education.

UNSW Art & Design has a proud history of merging creative thinking with practical application. We started as the Sydney Mechanics' School of Arts in 1833 and this philosophy continues to drive us to have an impact across disciplines today.

Our purpose-built campus will give you the space and opportunities to get hands-on and learn alongside the next generation of leading design, art and media thinkers. You'll be supported by our expert staff to push the boundaries of your making by utilising our full range of studios, workshops, labs and makerspaces.

UNSW Research Labs

As a student of our visualisation, simulation and immersive design courses, you'll be joining a community of established, innovative and extensive discipline collaborators. You'll have opportunities to engage with UNSW's world-class researchers and visit our innovative research facilities.

- EPICentre: Expanded Perception & Interaction Centre
- 3D Visualisation Aesthetics Lab
- Creative Robotics Lab
- iCinema: Centre for Interactive Cinema Research
- Ingham Institute Clinical Skills and Simulation Centre
- National Facility for Human Robot Interaction Research
- Research Centre for Integrated Transport Innovation (rCITI)
- TRACSLab: UNSW Travel Choice Simulation Laboratory



Employer reputation

We are ranked 24th in the world for employer reputation.

QS Graduate Employability Rankings, 2020



Leaders in education

UNSW Sydney is a founding member of the prestigious Group of Eight (Go8) and the PLuS Alliance. We are the only Australian university to be invited to join the Global Alliance of Technological Universities.



Creating future leaders

UNSW Sydney was the most awarded university in the AFR Top 100 Future Leaders Awards 2020.

*QS World University Rankings, 2020

Still have questions?

Is it possible to complete a program while working full time?

Yes. This low residency program has been designed to accommodate busy professionals. The core courses are conducted online, and students attend with two intensive face to face meetups per year on campus or at our industry partner facilities. Students will also have full access to all campus facilities throughout each term. For elective courses, students will be able to select from a range of fully online courses or on campus face to face courses with weekly classes.

Will I get to experience and use immersive technologies?

Yes. You'll have the opportunity to have hands-on experience with a range of different technologies such as headsets, mobile devices, 3D immersive domes, a variety of simulators, and high-end computer workstations for creating immersive environments.

I have no experience working with technologies or programming. Is this program for me?

No matter your level of technical expertise, all students will be exposed to and supported in using a range of immersive technologies. You can choose to tailor your courses to your professional strengths or try something new. For example, a programmer may choose to extend their area of expertise through electives, while a manager may decide to study how to manage simulation or immersive projects.

I already have extensive technical skills, would I benefit from this program?

While other programs focus only on the technical side of visualisation and simulation, this program will help you to solve problems and meet the challenges within contemporary industry practices. Courses will augment your existing technical skills by developing your understanding of design principles, human experience and narrative and sensemaking.

How is this program relevant to my job or profession?

The core courses will help you understand how the principles of human experience create a foundation for immersive experience across all disciplines. You'll complete a personal portfolio of learning over the program that will enable you to identify and analyse opportunities for practical applications of virtual, augmented, and mixed reality (VR, AR and MR) technologies in your profession or industry.

UNSW Art & Design

Ask a question: unsw.edu.au/ask

Ask about short courses: adshortcourses@unsw.edu.au

How to apply: unsw.to/pg-apply

📞 1300 UNI NSW (1300 864 679)

📄 unsw.to/vsid

   @artdesignunsw

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COVER IMAGE: Immersive 360-degree data visualisation installation, EXIT. Photo credit: Silversalt.

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