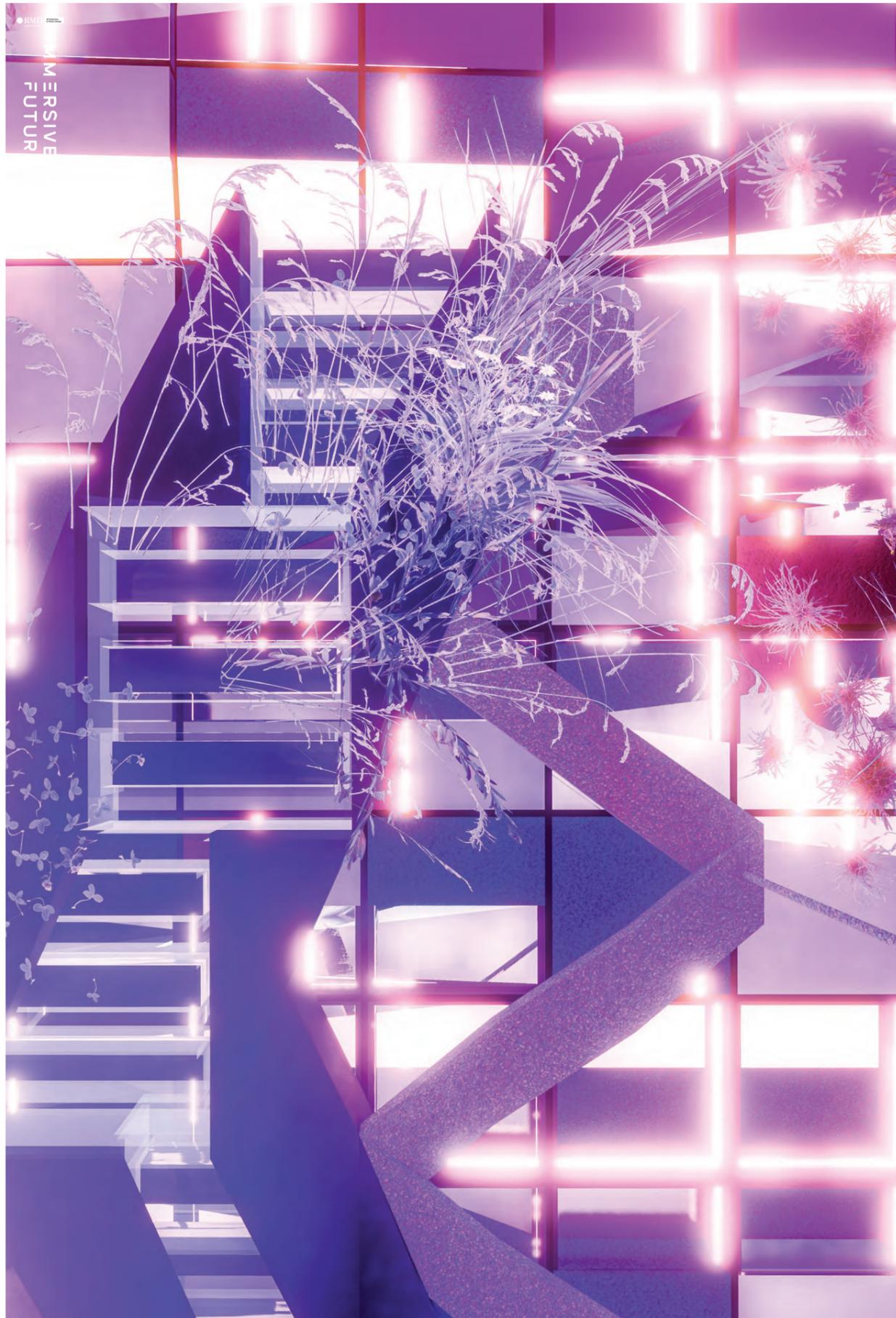


IMMERSIVE EXPERIENCES

LM3





The RMIT Architecture & Urban Design Immersive Futures Lab explores the potentials of gaming technologies and immersive media for architectural design.

Our interdisciplinary approach explores gaming environments and technologies to develop new immersive and real-time design processes, visualisations, applications and pedagogies. We posit that understanding possible “now, near, and future” visions and realities, require innovative hybrid methods for making, curating, engaging, and imagining our cultural and built environments.

Our work spans speculative and applied design research, in partnership with cultural institutions, industry, and universities.

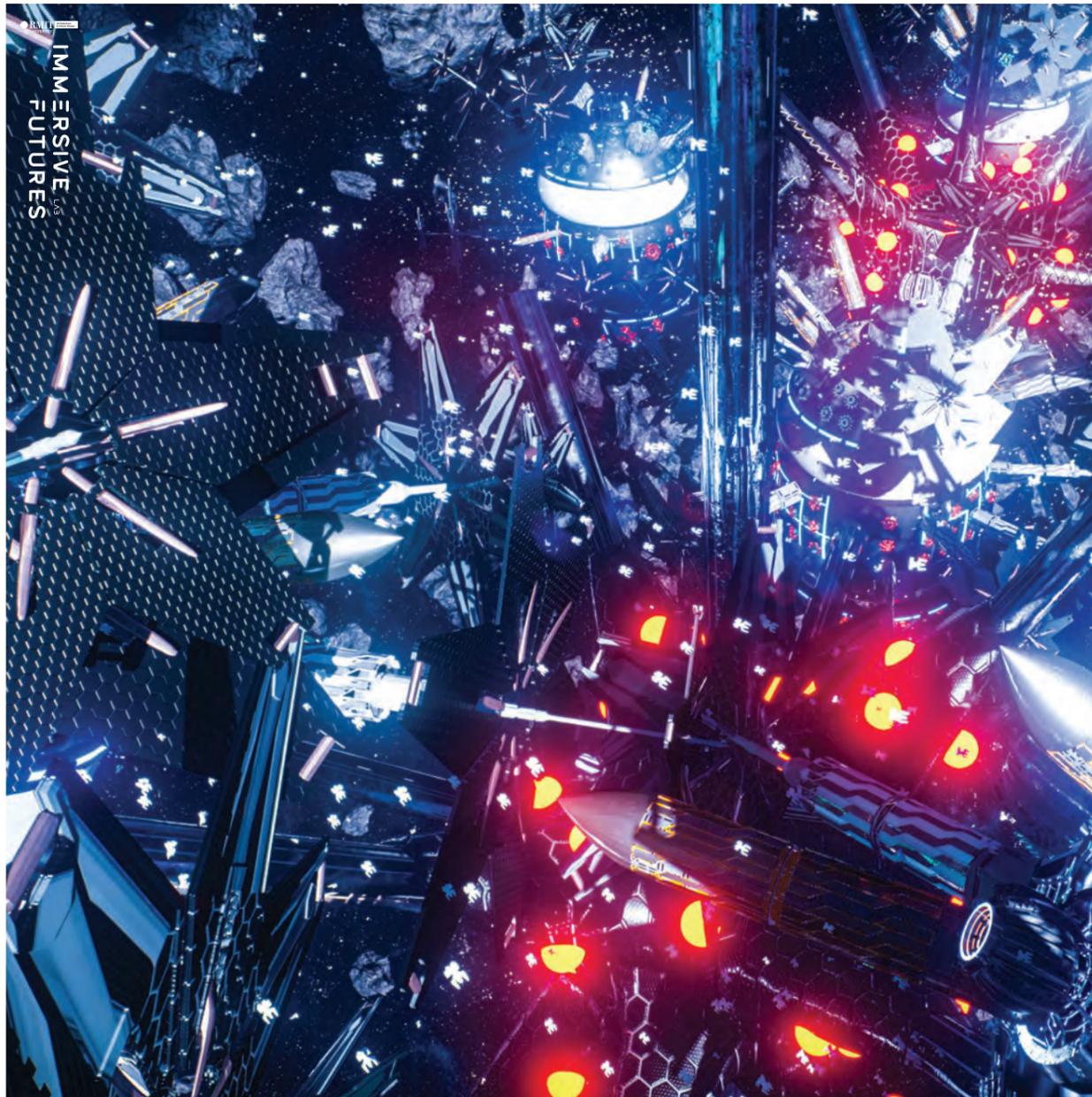
We develop immersive, explorable gaming environments as new platforms for architectural exploration and technique, enabling unique forms of experiences, interactions, and knowledge-sharing across disciplines and the public.

We design spaces that foreground continuous, interactive, and scalable environments that allow stories and ideas to evolve across multiple realities, media and audiences. The lab is part of the RMIT School of Architecture and Urban Design.

↑
Cover images: Future Naami: First Light exhibited as a wandering experience part of Now or Never Festival 2023 and Robin Boyd Foundation's House Show 2025.

Image top: Wander Wander exhibited as part of Melbourne Design Week 2021.

Image left: View of the proposed physical space for 'A New Kind of Wonder', Federation Square, 2023.



Speculative Futures & Worldmaking

The lab has developed a series of projects exploring the use of gaming technologies and environments to imagine and construct real-time and explorable speculative future worlds that engage with contemporary planetary concerns.

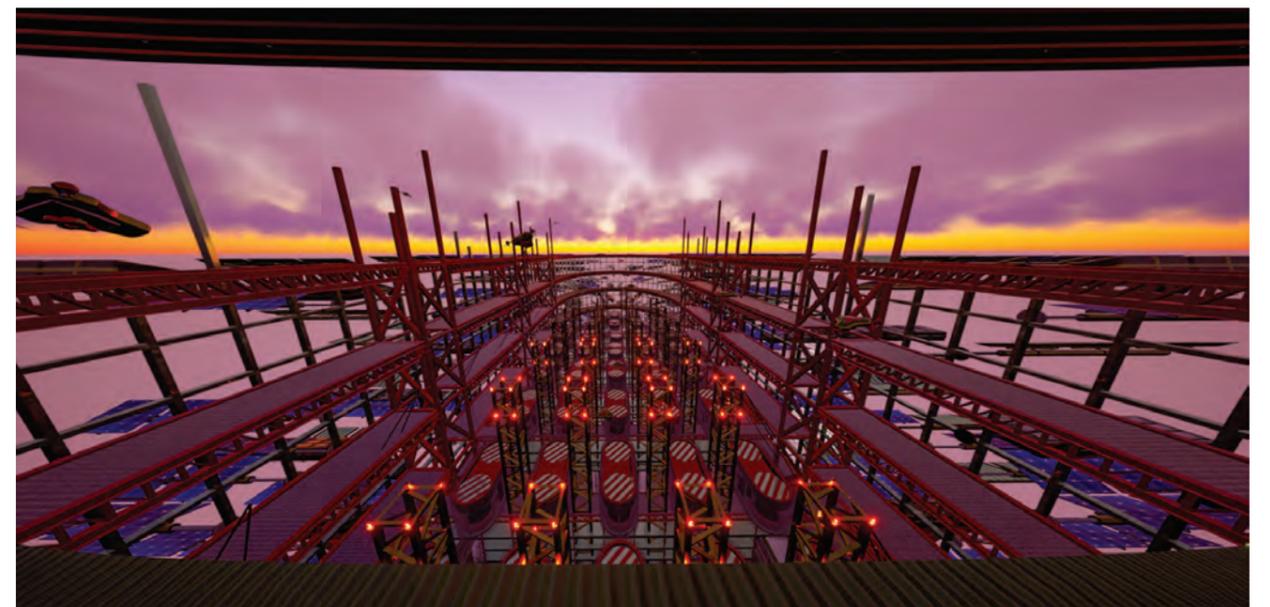
The research spatialises real-world data and narratives into immersive, didactic, explorable and narrative-driven gaming environments that speculate on alternative futures for our built and cultural landscapes.

↑
Space Urchin winning competition project as part of the Jacques Rougerie Foundation International Architecture and Innovation Competition 2022.

Cross-Disciplinary Gaming Environments

The lab is developing research into cross-disciplinary potential of gaming environments. This area explores how immersive tools can intersect with and enrich various fields, creating innovative frameworks that leverage gaming technologies to

expand design systems and tools across diverse disciplines.



Ecology of Extended Experiences

This area cultivates interconnected and interactive experiences, where architectural ideas and narratives evolve across multi-reality and multi-media formats.

This research seeks to develop scalable and engaging environments that provide continuity, accessibility and interactivity, fostering immersive storytelling and collaborative exploration.

↑
Image top: Future Naarm: First Light exhibited as a wandering experience part of Now or Never Festival 2023.

Image below: Future Hong Kong: The Tenth Dragon exhibited as part of The ACADIA and CAADFIA Joint Exhibition: Habits Of The Anthropocene 2023.

Immersive and Interactive Visualisations

The lab is exploring on making complex architectural and spatial information accessible. This area develops explorable visualisations and interactive tools that democratise design knowledge.

This research aims to empower broader audiences to engage with and understand complex architectural and interdisciplinary gaming concepts through immersive gaming technologies and environments.



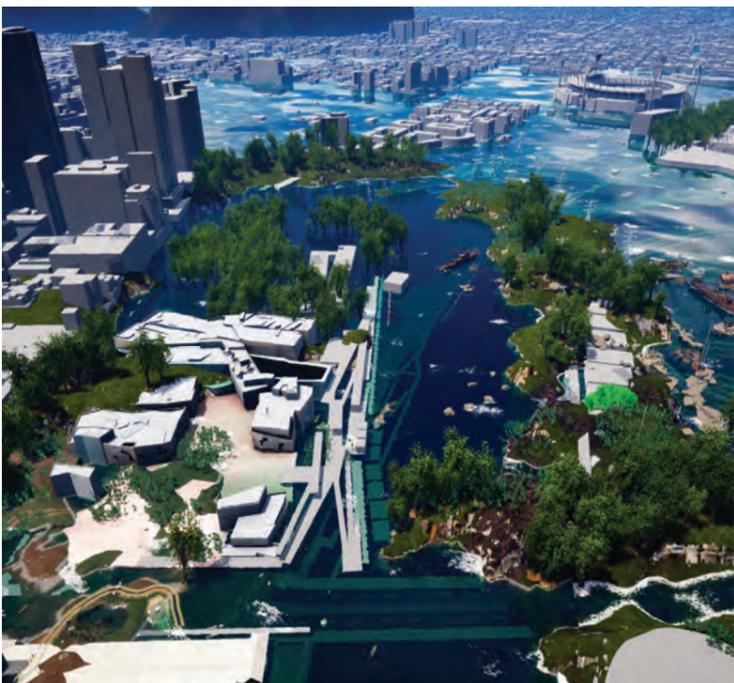
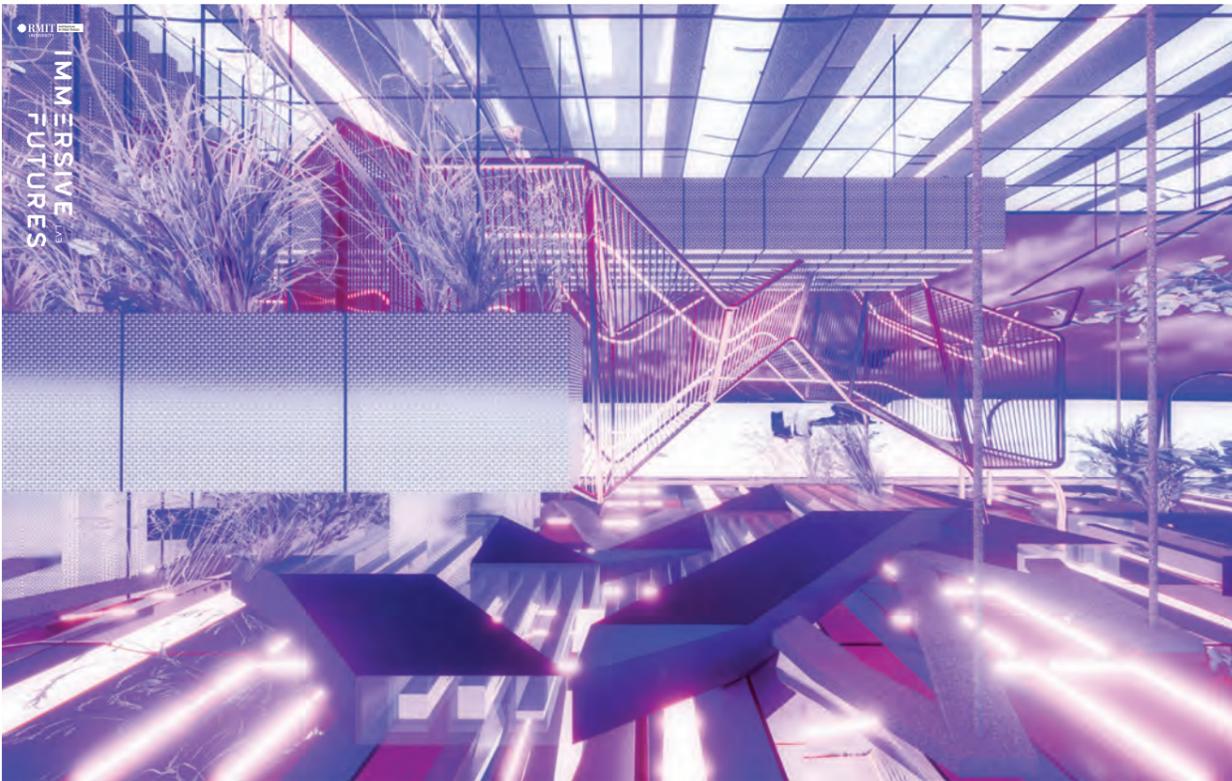
Future Naarm: First Light

RMIT Design Hub Gallery
 Now or Never Festival
 Melbourne, Australia
 2023

This project invited audiences to explore a flooded future Naarm transformed by rising sea levels. Presented as an arcade, this immersive, speculative environment harnesses the power of didactic and open-world wandering games to unravel hidden connections and reveal new constellations of ideas about what our future cities could look like at the intersection

of emerging technologies, climate, city, culture and country. This work serves as a catalyst for a collective reimagining of a world where the impact of environmental change on cities and cultures is met with creativity and wonder. It was part of the 'Wild Hope: Conversations for a Planetary Commons' exhibition at City of Melbourne's Now or Never Festival 2023.

↑
 Image top and below right: Views of the virtual gaming environment of Future Naarm: First Light
 Image below left: View of the arcade at the RMIT Design Hub allowing audiences to explore Future Naarm. Credit: Tobias Tilz.



A New Kind of Wonder

Federation Square
 Experience Lab Program
 Melbourne, Australia
 2023

This research project developed a multi-reality immersive experience that encompassed real-time gaming technologies, immersive architecture, interactive objects, provocative narratives, unpredictable encounters and wandering games. It brought together a diverse community that led to the development of the Immersive Futures Group.

It was part of Federation Square's Experience Lab Program that aimed at developing new experiences and entrepreneurial practices that would set a benchmark within the creative industry, surprise and delight visitors to Fed Square and cement a brand new experience within the Melbourne landscape. The outcomes were presented at an Industry and Public Showcase event at Federation Square.

↑
 Image top: View of the proposed physical space at Federation Square.
 Images below: Views of the virtual gaming environment linked and projected with the physical space.



**Extreme Imaginings:
Fractal Cities**

+MODEL Barcelona
Architectures Festival
Barcelona, Spain
2023

Presented as an online exhibition, this project featured an array of provocative and thought-provoking images, simulations and videos exploring a visionary future through gaming technologies and immersive media. Fractal Cities imagined extreme future scenarios and future-centric planetary propositions that focused on the geological and biological aspects of the city, recognising the importance of

natural systems and processes in creating alternative sustainable futures. The project proposed a radical alternative: a global network of dynamic cave-like structures that primarily utilises available local-specific materials to create a balanced relationship between humans and the natural world seeking to work with the complex systems and processes that make up the biosphere.

↑
Images: Views of the speculative Desert City, one of three geographic locations exhibited online through images and simulations as part of Barcelona Architectures Festival 2023.



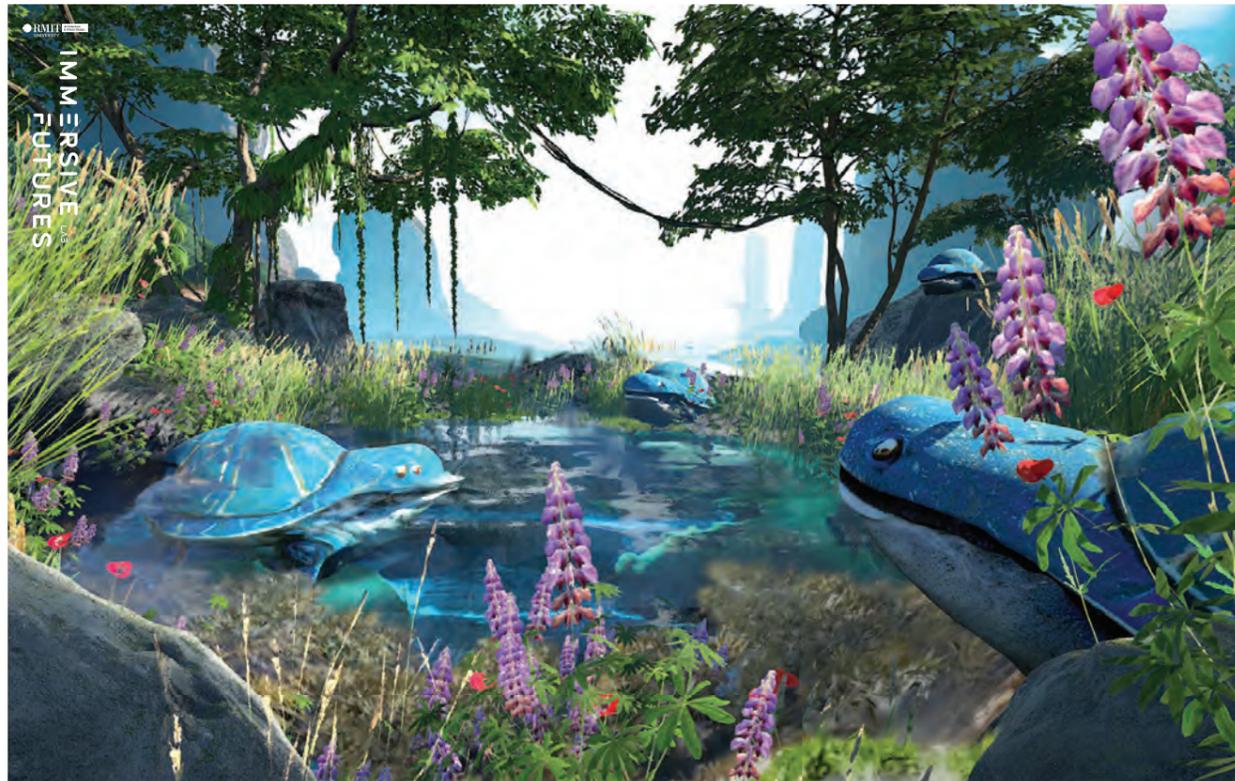
Wander Wonder

NGV
Melbourne Design Week
Melbourne, Australia
2021

Wander Wonder was the lab's first exploration into open-world wandering experiences. It was a virtual, immersive and explorable open-world environment that utilised game engine technology where the world played host to a fantastical and speculative post-anthropocentric world of architecture, landscape, technology, nature and experiences. It contained

spatial and sensorial habitats as didactic and provocative escapes from reality. It was presented at a number of events to include the 17th Venice Architecture Biennale 2021 Italian Virtual Pavilion Sezione del Padiglione Italia and ACMI+RMIT Audience Lab 2021.

↑
Images: In-game screenshots of Wander Wonder, exhibited as part of Melbourne Design Week 2021.

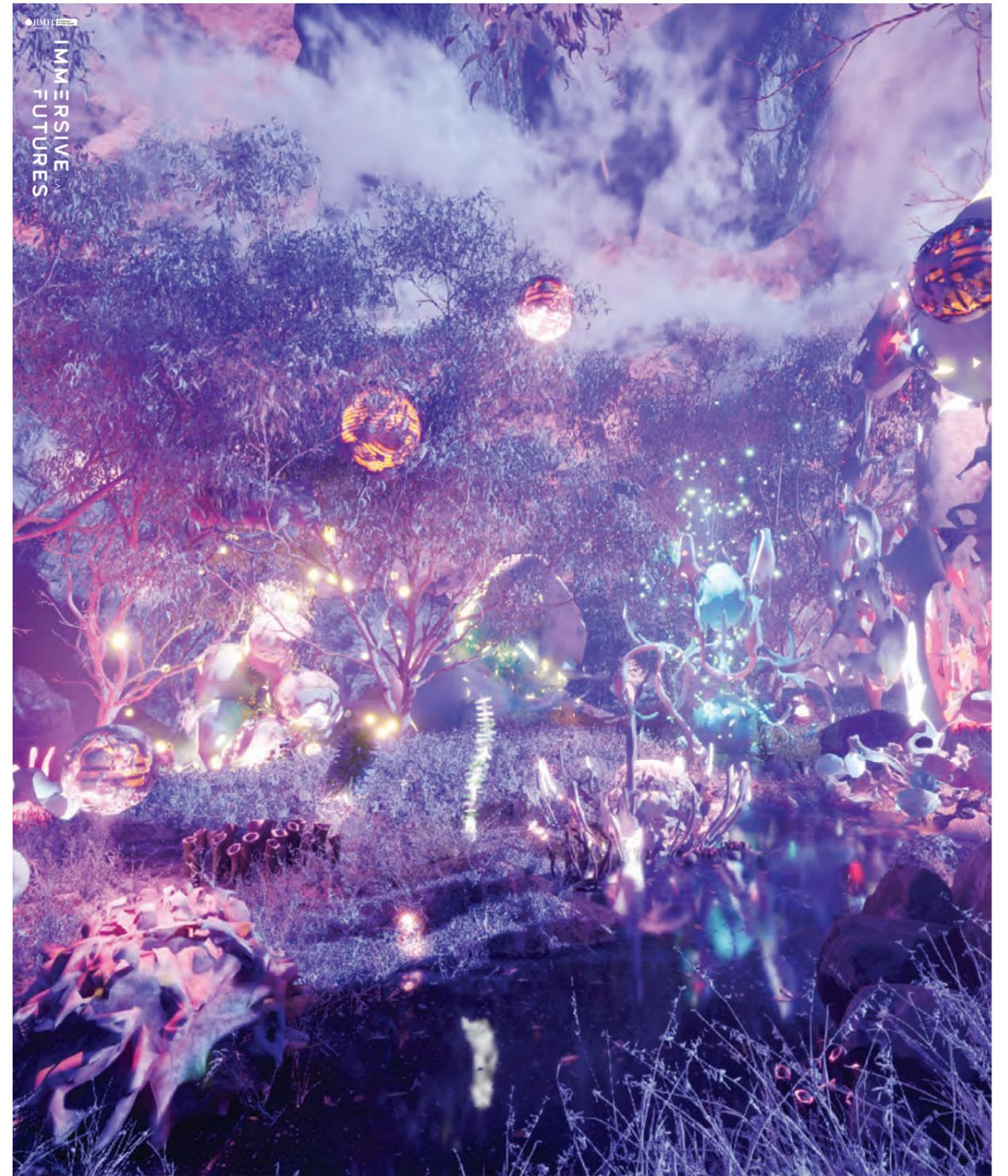


We Are Stardust
MPavilion
Melbourne, Australia
2025

Designed for families and children, this AI workshop invited audiences to imagine new 'naturaficial' ecologies into the MPavilion. The gardens became a narrative backdrop and the pavilion itself morphed into a concrete canvas—a space where kids can let new creatures, architectures, and environments take root.

Inspired by issues around climate change, audiences had a chance to build deeper ecological awareness and play with ways to re-fuse connections between the natural and built worlds. Participants' creations have the chance to keep growing in a future explorable digital ecosystem.

↑
Image top: Experimental environment that brought together text-to-3D AI, NERF AI, gaming environments and stories into one ecology.
Image below: Workshop at the MPavilion 2025.



MRC Otherverse
Melbourne Recital Centre
Melbourne, Australia
2024-

This research project aims to activate MRC's underutilised transitional spaces through the visualisation and spatialisation of data into immersive experiences. Using gaming environments, the research is developing a virtual and living sensorial ecology of fields, organisms and textures with their own behaviours controlled by data.

↑
Image: View of the virtual MRC Otherverse in development.



Space Urchin

Jacques Rougerie
International Architecture and
Innovation Competition
Paris, France
2022

This project was submitted to an international competition completed through the RMIT Architecture research elective titled 'GAMR Unit: Space Edition' (2022) led by Patrick Macasaet, assisted by Andre Wee and in collaboration with architecture students. This project was developed by exploring and researching gaming technologies, environments and techniques for

architectural design. Inspired by the biological form, anatomy and communal herds of sea urchins, it imagined a starport as an interplanetary infrastructure through 3 principle ecologies: 'Resilient Skin Ecology', 'Space Junk Ecology' and 'Herd Ecology'.

It was the winner of the Jacques Rougerie Foundation: Space Focus Prize.

↑
Image: In-game screenshot of Space Urchin.



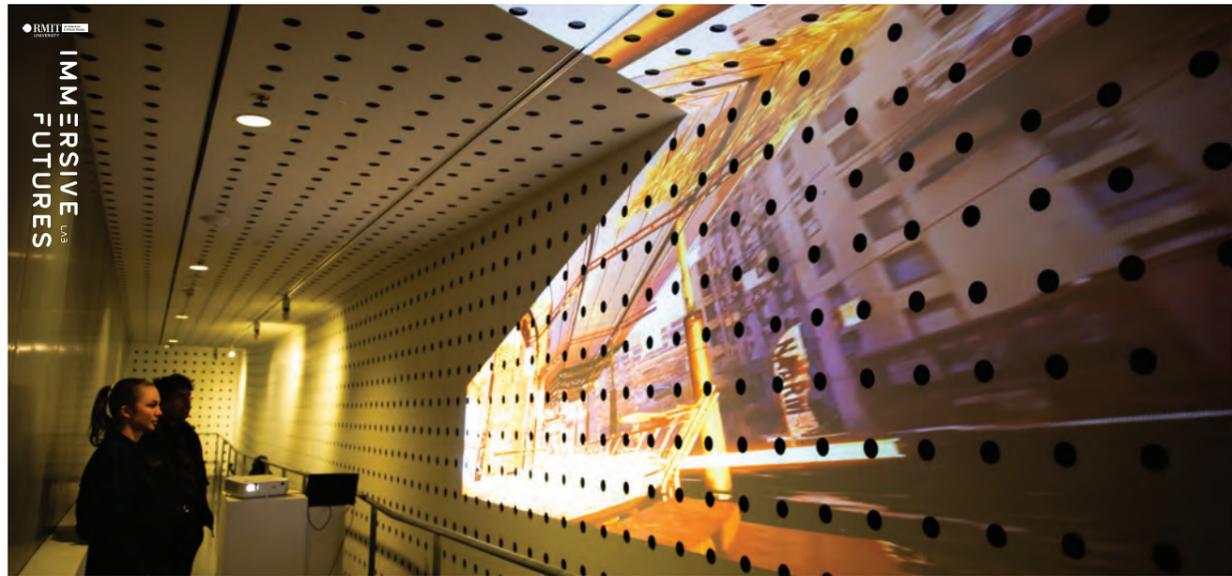
D.A.N.I.

Hong Kong Drone
Port Competition
Hong Kong, Hong Kong
2022

This project titled 'Decentralised Autonomous Nomadic Infrastructures' (D.A.N.I.) explored our emerging design processes and research in using gaming technologies and their applications for architectural design and architecture. It merged approaches on world-making, narratives and gaming environments.

It received an Honourable Mention as part of the Non Architecture Hong Kong Drone Port Competition 2022.

↑
Image: In-game screenshot of D.A.N.I.

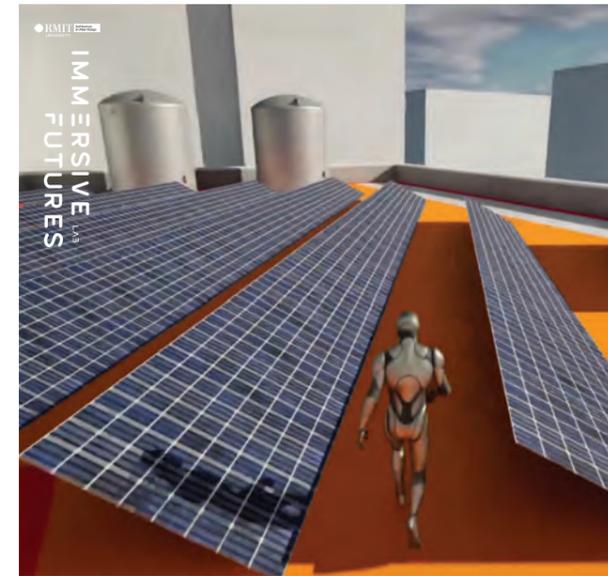


**ACMI Research Project:
Immersive Research
Catalysts**

ACMI
Melbourne, Australia
2024

This project was in collaboration with ACMI and RMIT's Enabling Impact Platforms investigating new insights into immersive experiences, spontaneous simulations, bridging physical and virtual environments and speculations on immersive tools.

↑
Image: Working with students to develop new forms of real-time immersive projections.



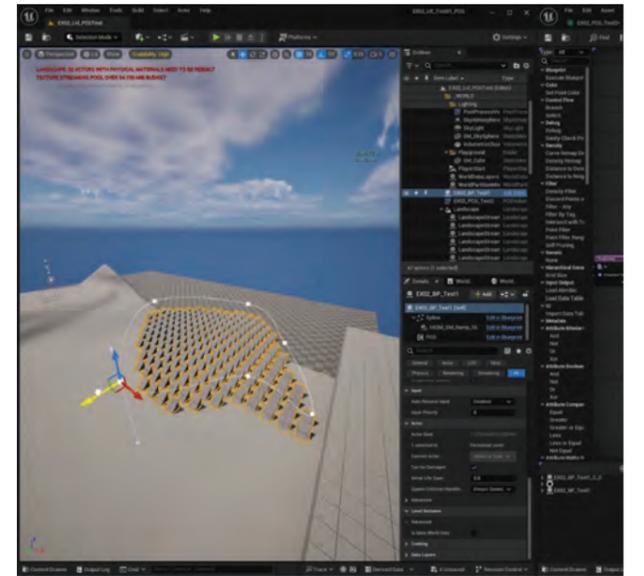
**Solar Panel Optimisation
with BIM and Immersive
Technologies Research**

RMIT Architecture
Melbourne, Australia
2024

This project was developed in collaboration with RMIT School of Property Construction Property Management and the RMIT Post Carbon Research Centre. It looked at the optimisation of solar panel design using Building Information Technologies and Immersive Gaming Technologies for assessments in existing buildings.

The lab's contribution was on developing workflows for how evaluation processes could be automated and enhance the accuracy of photovoltaic array design assessments through advance simulations and shadow analysis in gaming environments.

↑
Image: Developing tools and workflows with Unreal Engine 5, Rhino and Cesium to optimise solar panel layout design.



**Gaming and Immersive
Architecture Pedagogy**

RMIT Architecture
Melbourne, Australia

The lab has a long standing research in developing immersive and experiential architectural design studio pedagogy utilising virtual and hybrid environments and gaming technologies. Tools and techniques that are developed in our research projects are brought into design studio pedagogy allowing students to experiment

and develop new and/or alternative ways of designing, representing, communicating and visualising their ideas. The lab continually develops and nurtures a strong ecosystem between learning and teaching and research. Research outcomes in this space have contributed to research journals, conferences, architecture competitions, film festivals and more.

↑
Image: RMIT Architecture students and public, represented as avatars, participated in a collaborative forum event using Sansar as a form of knowledge sharing in the virtual environment.



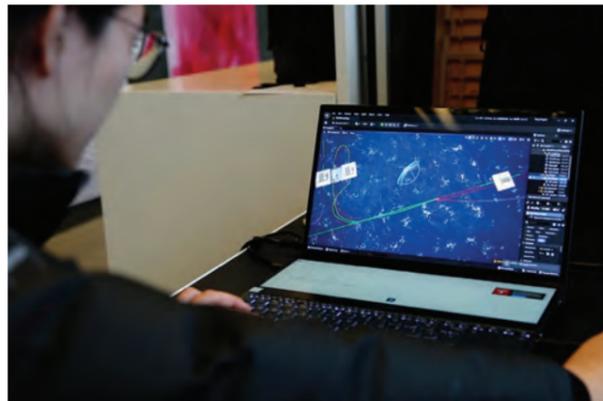
**AASA Teaching & Learning
Research Project**

RMIT Architecture
Melbourne, Australia
2024

This project is in collaboration with University of South Australia and the Association of Architecture Schools of Australasia (AASA) as part of the AASA Teaching & Learning Grant 2023. It researched the implications of AI into architectural education. The lab developed a series of architecture design studios and electives investigating this area.

The lab also developed new tools, techniques and workflows in spatialising AI outcomes into explorable real-time gaming environments and other methods in hybridising AI and gaming design workflows.

↑
Image: RMIT Bachelor of Architectural Design - Design Studio students exhibiting their final proposals as an explorable open-world environment merging design processes with AI, World-making, Gaming and Narratives.



Team

Contact

Dr Patrick Macasaet
patrick.macasaet@mit.edu.au
@immersivefutures

The lab is part of the RMIT School of Architecture and Urban Design, led by RMIT Architecture Lecturer Dr Patrick Macasaet.

The RMIT Architecture & Urban Design Immersive Futures Lab undertakes design-practice research consisting of researchers

with a diverse set of expertise across disciplines. The team is a combination of RMIT Architecture continuing and industry staff members, students and research assistants who all work together to develop innovative techniques, projects and ideas.

↑
Images top row: Photos of lab team members and collaborators as part of the Experience Lab Industry showcase. Credit: Tobias Titz.
Images middle and below left: Lab team members testing a virtual environment prototype.
Images below right: Industry Partner Vei Tan and RMIT A&UD Immersive Futures Lab Research Leader Patrick Macasaet.

IMMERSIVE
FUTURES

RMIT
UNIVERSITY
Centre of Digital
Ecosystems

RMIT
UNIVERSITY
School of Property,
Construction and Project
Management

University of
South Australia

MAP
Melbourne
Arts Precinct
Corporation CO

FED
SQ.

MELBOURNE
RECITAL CENTRE

JACQUES ROUGERIE FOUNDATION
INSTITUT DE FRANCE

acmi



Robin
Boyd
design matters
foundation
museum house
education

ASSOCIATION OF
ARCHITECTURE SCHOOLS OF
AUSTRALASIA

MPAVILION

Collaboration and Partners

The The RMIT Architecture & Urban Design Immersive Futures Lab thrives in interdisciplinary and collaborative research and projects, working closely with commercial partners, diverse disciplines and institutions.

RMIT Architecture & Urban Design Immersive Futures Lab

Research Leader: Dr Patrick Macasaet

Future Naarm: First Light (p.5)

Project Team: Dr Patrick Macasaet, Vei Tan, Shuming Ivy Zhou and Zechen Huang

A New Kind of Wonder (p.6)

Project Team: Dr Patrick Macasaet, Vei Tan (Founder, Superscale), Youjia Huang (Digital Lead, Superscale), Shuming Ivy Zhou (Superscale) and Zechen Huang (Superscale)
First Nations Advisor: Cienan Muir (Founder, Indiginerd)
Project Mentor: Peter Tullin (Co-Founder, Experience Lab and Experience Consortium and Founder, Remix Summits)
Industry Partner: Federation Square, Melbourne Arts Precinct Corporation, Experience Consortium, Indiginerd, Superscale

Extreme Imaginings: Fractal Cities (p.7)

Project Team: Dr Patrick Macasaet, Shuming Ivy Zhou, Zechen Huang

Wander Wonder (p.8)

Project Team: Dr Patrick Macasaet, Vei Tan and Ezra Macasaet

We Are Stardust (p.9)

Lead Facilitator: Vei Tan (Founder, Superscale)
Technical Lead: Dr Patrick Macasaet
Workshop Facilitators: Adithya Lal, Anna Quach, Jackson Le, Keira McLaverty, Kevin Williams, Lynn Gonsalves, Rachelle Yeoh, and Vei Tan.
Industry Partner: MPavilion, Superscale

MRC Otherverse (p.10)

Project Team: Dr Patrick Macasaet, Vei Tan (Founder, Superscale)
Research Assistant: Sophie Sung
Industry Partner: Melbourne Recital Centre

Space Urchin (p.11)

Developed as part of the 'GAMR Unit 01: Space Edition' Research Elective at RMIT Architecture. Research Elective Leaders:
Dr Patrick Macasaet and Andre Wee
Stage 1 Student Team: Kenny Lam, Jingchao Li, Shao Teo, Longfei Ma, Jingyi Wu, Sherina Suhartanji, Oupu Wang, Zechen Huang, Shuming Zhou, Qinling Yao, Dingqiao Deng, Minxuan Hou, Jackson Le, Yi Lou, Yan Chun Khor, Hanlin Wang, Hyunju Kim

D.A.N.I (p.12)

Project Team: Dr Patrick Macasaet and Vei Tan

ACMI Research Report (p.13)

Research Leader: Dr Patrick Macasaet
Editors: Vei Tan and Dr Patrick Macasaet
Student Research Assistants: Jamie Bond and Kevin Williams
Industry Partner: ACMI

Solar Panel Optimisation with BIM and Immersive Technologies Research (p.14)

Research Leader: Dr Alireza Ahankoob (RMIT PCPM)
Research Team: Dr Behzad Abbasnejad (RMIT PCPM), Ian Nazareth (RMIT Architecture), Dr Patrick Macasaet (RMIT Architecture)
Student Research Assistant: Kenny Lam

AASA Teaching & Learning Grant (p.14)

Research Leaders: Dr Sean Pickersgill (University of South Australia) and Dr Patrick Macasaet (RMIT Architecture)
RMIT Architecture Design Studio Leaders: Dr Patrick Macasaet and Vei Tan with Sophie Sung

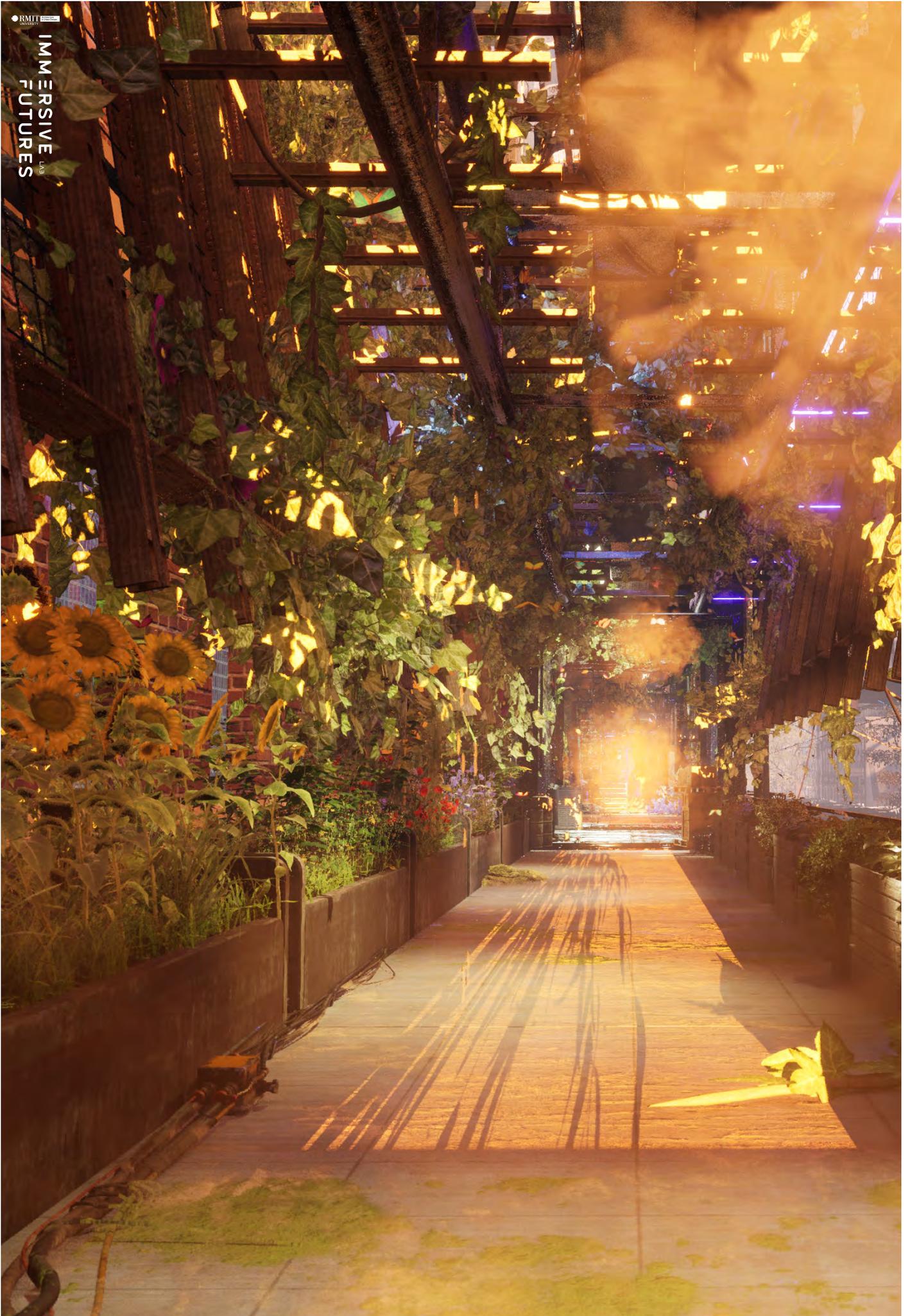
Future Hong Kong: The Tenth Dragon (p.4)

Project Lead: Dr Patrick Macasaet
Student Research Assistants: Rachelle Yeoh, Kenny Lam and Adithya Lal

Project Credits

Image right: View of the speculative Desert City, one of three geographic locations exhibited online through images and simulations as part of Barcelona Architecture Festival 2023.





RMIT
University
IMMERSIVE
FUTURES