# Faculty of Engineering and Design
# Summer Research Scholarships

## 2026/2027 Projects (Architecture & Planning)

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| **Project code** | ENG008 |
| **Project title** | **Mapping Public Architecture in Auckland** |
| **Discipline** | Architecture & Planning |
| **Supervisor(s)** | Farzaneh Haghighi |
| **Contact details** | F.haghighi@auckland.ac.nz |
| **Skills Needed** | • Interest in architecture, public buildings, civic space and urban life<br>• Ability to undertake a focused literature review<br>• Strong reading, writing and analytical skills<br>• Ability to identify and compare architectural case studies<br>• Basic mapping, visual documentation or graphic presentation skills<br>• Some familiarity with Auckland's built environment would be useful, but is not essential |

**Project description**

This project investigates how "public architecture" can be defined, identified and evaluated in Auckland. Public architecture will be approached not simply as publicly owned buildings, but as architecture that contributes to civic life, public access, collective use and shared urban experience. The student will begin with a focused literature review on public architecture, civic architecture, publicness and the public realm. This review will be used to develop a small evaluation framework, drawing on criteria such as accessibility, ownership and control, visibility, openness, threshold conditions, spatial configuration, programme, civic function and the capacity to support public life.

The student will then map examples of public architecture in Auckland and select a sample of 10 projects, such as libraries, community facilities, civic buildings, or cultural institutions. Each case study will be assessed against the literature-based criteria to identify how different buildings enable, limit or stage publicness. The project will produce a concise literature review, a mapped catalogue of selected Auckland examples, and a comparative matrix evaluating their civic and public qualities.

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| **Project code** | ENG009 |
| **Project title** | **Future AI applications and their implementation in Architecture Practice and Education** |

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## 2026/2027 Projects (Architecture & Planning)

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|---|---|
| **Discipline** | Architecture & Planning |
| **Supervisor(s)** | Dr Sarosh Mulla<br>Dr Ferdinand Oswald<br>Dr Alessandro Premier |
| **Contact details** | ferdinand.oswald@auckland.ac.nz<br>s.mulla@auckland.ac.nz<br>alessandro.premier@auckland.ac.nz |
| **Skills Needed** | • Prospective candidates for this project should demonstrate passion for academic research<br>• interest in architecture technology and experience with AI tools. |

**Project description**

AI is already transforming image making, written communication and technical drawings. New AI tools emerge very rapidly and large Venture Capital funding are dedicated to startups focused on AI. It appears that AI tools for architecture will be used by practices in the documentation, quality assurance processes, NZS and building code verifications. AI can also play a crucial role on technology enhanced learning. However, most of these tools are not applied at the School of Architecture or in NZ architecture offices. And there is no accurate available data on which of these startups or existing tools cater for architectural professions, or could cater for the construction industry as a whole.

The goal of this scholarship project is to carry out a survey of the currently available AI tools that are dedicated to the architecture profession. It is essential to understand how AI tools can positively aid architecture profession and tertiary education as well as their disruptive consequences. This research will be carried out by using AI tools and will involve a classification of opportunities for AI in architecture, including teaching of the discipline.

Objectives:
1. Survey of the currently available AI tools for architectural design and architecture technology.
2. Evaluation of benefits, disruptions and implementation possibilities for education and professional practice.
3. Application and implementation of those tools in academic and practice. Combination of AI tools to use them as research and practice tools.

List of possible AI tools:
Perplexity pro
Design TOgether (D.TO)
Conix AI
SWAPP
Phyton Coded
ChatGPT

We are currently seeking two students for this project. Ferdinand Oswald and Alessandro Premier are available to provide support and meet with students prior to their submissions. To schedule a meeting, please send an email to Ferdinand or Alessandro.
This project will be incubated within the Future Cities Research Hub, drawing from the collaborative expertise and support of its diverse members.

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## 2026/2027 Projects (Architecture & Planning)

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|---|---|
| **Project code** | ENG031 |
| **Project title** | **Wind Tunnel Study of Façade Geometry and Airflow in Apartment Buildings** |
| **Discipline** | Architecture & Planning |
| **Supervisor(s)** | Dr Ferdinand Oswald; Dr Ahmad Zaki |
| **Contact details** | ferdinand.oswald@auckland.ac.nz<br>ahmad.zaki@auckland.ac.nz |
| **Skills Needed** | • Strong interest in aerodynamics, natural ventilation, and / or sustainable building design<br>• Background or enthusiasm in architectural technology and environmental design<br>• Interest in academic research<br>• Basic familiarity with design tools (preferred)<br>• Experience or interest in wind tunnel testing or airflow analysis (a plus)<br>• Open to Architecture students and one Aerodynamics student |

**Project description**

This project investigates how façade geometry influences airflow behaviour around mid-rise apartment buildings (6–8 storeys) using wind tunnel testing. Students will explore how design features such as solid–void variation, volume articulation, and façade fins affect aerodynamic performance and natural ventilation potential.

The work involves developing simplified building models and testing them in a wind tunnel to observe and measure airflow patterns around and across façades. Through comparative testing, students will assess how different façade configurations impact wind flow, pressure distribution, and ventilation effectiveness. The project connects architectural design decisions with measurable environmental performance outcomes.

Students will gain hands-on experience in experimental methods, model-making, and airflow analysis, while engaging with principles of sustainable building design and environmental performance.

Ideally, We are looking for an Architecture student to work collaboratively on this project. Ferdinand Oswald and Ahmad Zaki are available to support students and provide guidance throughout the project. Students are encouraged to discuss their ideas prior to submission; please contact Ferdinand or Ahmad via email to arrange a meeting.

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## 2026/2027 Projects (Architecture & Planning)

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|---|---|
| **Project code** | ENG032 |
| **Project title** | **Whare Pūtake Tuwhera / Open Source Housing: The G-Flat** |
| **Discipline** | Architecture & Planning |
| **Supervisor(s)** | Professor Anthony Hōete |
| **Contact details** | a.hoete@!auckland.ac.nz |
| **Skills Needed** | • Excellent drawing, 3D modelling and drawing skills: CAD, rendering |

**Project description**

Recent government reforms allow NZers to build a small, single storey, standalone dwellings - often called a 'Granny-Flat' - of up to 70 sqm without resource or building consent. Despite the nickname, these dwellings support a wide range of needs, from ageing in place and intergenerational living to housing young adults and creating rental opportunities. BRANZ funded research, Whare Pūtake Tuwhera / Open-Source Housing: The G-Flat' focuses on the design, rather than the delivery, of Small, Stand-alone Dwellings. Design is the blueprint for success. Design determines compliance, enables scalability, drives usability and liveability, reflects cultural and social need, influences cost, and informs policy and investment. Without well-considered design and specification, delivery becomes fragmented or inefficient; costs escalate due to rework or customisation; and housing stock may not meet long-term needs. As kaupapa Māori research, we will develop a suite of free, downloadable, code compliant designs for homeowners and builders. These will be standardised, build ready G Flats that meet homeowner needs, comply with the Building Code, and can be confidently priced, procured, and constructed by industry. This Summer Research project will specifically advance the architectural prototypes by developing scaleable one-dimensionally constrained rectangular plans at 30, 40, 50, 60 and 70sqm GIA. It will focus on: Māori housing outcomes, Designing for Manufacture and Assembly, Designing for Affordability, Designing for Financing.

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## 2026/2027 Projects (Architecture & Planning)

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|---|---|
| **Project code** | ENG057 |
| **Project title** | **Outdoor Thermal Comfort and Neighbourhood Perception in Intensified Auckland Residential Neighbourhoods** |
| **Discipline** | Architecture & Planning |
| **Supervisor(s)** | Iresh Jayawardena, supported by Lakmini Mendis (PhD Candidate) |
| **Contact details** | i.jayawardena@auckland.ac.nz |
| **Skills Needed** | • Show genuine interest in climate adaptation and urban planning, Commit to the fieldwork schedule across 10 weeks, Think critically about fieldwork observations, Create simple tables and figures to summarise findings<br>• Produce maps or diagrams showing spatial variation (optional) |

**Project description**

This project investigates how residents experience outdoor thermal comfort in Auckland's newly intensified (THAB and MHU) residential neighbourhoods and where they seek thermal refuge. It combines three complementary data streams: continuous microclimate monitoring, household interviews, and community perception surveys. HOBO temperature and humidity loggers are deployed in the front yards of 10 households across two case-study neighbourhoods for 8–10 weeks in summer. The summer scholar will assist in undertaking baseline and follow-up interviews with householders to document their thermal experience, adaptive behaviour, and neighbourhood-scale comfort-seeking patterns. A QR code survey deployed across each neighbourhood gathers broader community perceptions of outdoor comfort and desired design interventions.

Outcomes A comparative analysis integrating measured data (HOBO), qualitative household experience (interviews), and community perception (survey); preliminary identification of thermal stress zones and refugia; evidence-based design implications for outdoor space improvement in intensified neighbourhoods.

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## 2026/2027 Projects (Architecture & Planning)

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|---|---|
| **Project code** | ENG058 |
| **Project title** | **Dwelling in the Digital: A Serious Game of Claude Megson's Bowker House** |
| **Discipline** | Architecture & Planning |
| **Supervisor(s)** | Dr Anthony Brand (primary supervisor) Supported by the Digital Research Hub |
| **Contact details** | anthony.brand@auckland.ac.nz |
| **Skills Needed** | • Proficiency in, or strong appetite to learn, Unreal Engine — especially Blueprints visual scripting<br>• 3D modelling and level / interaction design<br>• Confidence conducting and analysing interviews (qualitative research)<br>• Self-directed and organised, keen to ship a finished, published product<br>• Bonus: C++, game audio integration, or prior Steam / itch.io experience |

**Project description**

Claude Megson is one of New Zealand's most distinctive - and overlooked - architects. His Bowker House has already been captured as a millimetre-accurate 3D model in Unreal Engine, built from a detailed LiDAR scan. This Summer Research project takes that model the final step: designing, creating and publishing it as a 'serious game' on Steam, where players explore the house, complete educational tasks, and learn about Megson and the ideas behind his architecture.

You will turn an existing architectural model into a playable game building gameplay and interactions in Unreal (Blueprints), and integrating research content and recorded interviews with former students, colleagues and others who knew Megson into the game world. Along the way you will gain hands-on experience with the university's research-ethics process and qualitative interviewing.

The core deliverable is a Steam-ready build: an engaging, self-contained serious game that makes a significant piece of New Zealand's architectural history explorable by anyone, anywhere. A rare chance to design, create and ship a real published game while contributing to live architectural research.

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## 2026/2027 Projects (Architecture & Planning)

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|---|---|
| **Project code** | ENG059 |
| **Project title** | **A Guide to North Shore Architecture** |
| **Discipline** | Architecture & Planning |
| **Supervisor(s)** | Prof. Andrew Barrie |
| **Contact details** | a.barrie@auckland.ac.nz |
| **Skills Needed** | • Archival research, writing<br>• 2D digital drawing (Photoshop, Illustrator, InDesign) |

**Project description**

Supported in part by a series of UoA Summer Research Scholarships, the New Zealand Institute of Architects has published a number of maps of New Zealand architecture. Refer: https://www.andrewbarrielab.com/block This scholarship project involves the research and production for a map of Devonport, Takapuna, and the North Shore area. The project will begin with library-based research to gather information, moving on to the layout and graphic production of the map itself, before carrying out fieldwork to verify the correctness and currency of the map produced. Solid research and graphic design skills are a necessity, and the ability to write well about architectural history is an advantage. The project will be supervised throughout the summer with weekly meetings. Previous maps have been published (printing sponsored by Dulux) by Architecture New Zealand (the nation's most significant architecture journal). This is likely to be taken over this year by Architecture Aotearoa magazine. Work on the project will run mid-November to mid-February.

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| **Project code** | ENG060 |
| **Project title** | **Design of a Timber Pavilion** |
| **Discipline** | Architecture & Planning |
| **Supervisor(s)** | Prof. Andrew Barrie |
| **Contact details** | a.barrie@auckland.ac.nz |
| **Skills Needed** | • Architectural design & documentation;<br>• 3D modelling,<br>• Timber fabrication & workshop skills |

**Project description** Staff and postgraduate students at the School of Architecture & Planning have developed an ongoing series of research-driven structures that seek to develop new approaches to timber construction—lightweight timber structural systems fabricated from small structural elements with machined timber-to-timber joints. These projects have been widely published and the recipient of multiple awards for design, engineering, and innovative fabrication.
These projects have involved relatively complex digitally machined joints. The creative practice research project for this Summer Research Scholarship involves adapting the techniques developed through these previous structures for everyday use on construction sites. The student's task will be develop a design for the joints, create prototype joints, and resolve a full-scale overall design for eventual construction. Work on the project will run mid-November to mid-February.