

Faculty of Business and Economics

Summer Research Scholarships

2026/2027 Projects (Information Systems and Operations Management)

Project code:	BUS005
Project title:	Is AI Making Us Smarter? Understanding how AI influences Student Learning
Discipline:	Information Systems and Operations Management
Supervisor(s)	Randy Wong
Contact details	randy.wong@auckland.ac.nz
Skills Needed	<ul style="list-style-type: none"> • The ideal student will have an interest in artificial intelligence, technology, and learning. • The student should possess good critical thinking and analytical skills, along with the ability to pay attention to detail. • Experience with literature reviews, surveys, or data analysis software would be beneficial but is not required, as training and guidance will be provided throughout the project.
<p>Project description</p> <p>AI tools are rapidly changing how students learn, solve problems, and complete academic work. While these technologies offer new opportunities for learning and productivity, important questions are about their long-term impact on critical thinking, problem-solving abilities, and competence development. As universities, employers, and policymakers adapt to the growing presence of AI, there is increasing interest in understanding how people can use AI effectively without becoming overly reliant on it.</p> <p>This project investigates how students engage with generative AI and how different patterns of AI use influence learning outcomes and competence development. The project forms part of a broader research programme examining the implications of AI. The student will work with the research team to review emerging research, collect and analyse data, and help generate evidence-based insights into the future of learning in an AI-enabled world.</p> <p>The project addresses a highly topical issue with implications for education, work, and society and offers students an opportunity to contribute to research on one of the most significant technological developments of our time.</p>	

Project code:	BUS006
Project title:	Open-Source Optimisation for Airline Disruption Management: Modernising and Extending Aircraft Scheduling Models
Discipline:	Information Systems and Operations Management
Supervisor(s)	Sarah Marshall
Contact details	sarah.marshall@auckland.ac.nz
Skills Needed	<ul style="list-style-type: none"> • Experience with Python, Julia or another programming language • Interest in optimisation, mathematical modelling, operations management, supply chain management, analytics, or data science • Ability to work independently and solve technical problems

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	<ul style="list-style-type: none"> • Willingness to learn new tools, methods, and technologies • Strong attention to detail • Good written and oral communication skills
<p>Project description</p> <p>Airlines regularly face operational disruptions caused by weather events, maintenance requirements, crew shortages, supply chain disruptions, and other unexpected events. When aircraft become unavailable, airlines must decide which flights to operate and which flights to cancel while minimising impact on passengers and operations.</p> <p>The long-term goal of this research is to develop optimisation models that help airlines make better operational decisions during disruptions. Previous research developed a mixed-integer optimisation model for aircraft allocation and disruption mitigation using SAS software.</p> <p>The focus of this summer project is to convert the existing SAS implementation into an open-source platform such as Python or Julia. The student will work with the existing model and code to reproduce previous results and verify that the new implementation produces equivalent outputs. The student will also help document the model, code, and computational workflow to support future research.</p> <p>This project is well-suited to students with experience in programming and optimisation. Previous experience using SAS is not required.</p>	

Project code:	BUS007
Project title:	Artificial Intelligence and Analytics for Airbnb Success: Understanding What Drives Bookings
Discipline:	Information Systems and Operations Management
Supervisor(s)	Pooja Sengupta
Contact details	pooja.sengupta@auckland.ac.nz
Skills Needed	<ul style="list-style-type: none"> • Python programming (preferred) or R programming. The student will be provided with templates for Python/R code needed for analysis provided. • Moderate knowledge of statistical analysis of data. • Data cleaning and preprocessing. • Machine learning and predictive modelling. • Data visualisation. • Deep interest in quantitative and problem-solving skills such as data-driven decision support system for businesses. • Capability to interpret findings machine learning models.

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Project description

With the emergence of Airbnb and other sharing-economy giants there has been a change both guests' and hosts' behaviours regarding accommodation and engagement. Recent extant literature have found many antecedents that contributed to successful bookings of Airbnb listings. Some of those are factors such as per night price, amenities, reviews written by previous guests, and host reputation, indicated by their Superhost status. However, there is a research gap in understanding the role of AI in integrating text, images, and behaviours in the interpretation of guest decisions. In this project we propose to target the factors that influence successful bookings and to that end, utilize advanced analytics, AI, and machine learning (ML) ensemble models. Students interested in this project will have the opportunity to engage with epic proportions of data related to Airbnb, including listings features, host profiles, guest reviews, pricing, and multimedia reviews in the form of images. The project will examine the role of trust, the quality of communication, the content of reviews and property images, and the responsiveness of hosts. Methodologically we will employ text mining, sentiment analysis, topic modeling, explainable ML, and large language models to produce insights.

The goal of this project is to create a sophisticated, intelligent decision-support system that will allow for the prediction of booking success and provide tailored advice and recommendations for potential Airbnb hosts.

Project code:	BUS008
Project title:	Designing Heuristics and Optimisation Models for Warehouse Product Placement
Discipline:	Information Systems and Operations Management
Supervisor(s)	Lisa Hillas
Contact details	lisa.hillas@auckland.ac.nz
Skills Needed	<ul style="list-style-type: none">• Programming skills (Python, R, or MATLAB)• Ability to formulate real world problems as mathematical models• Experience with simulation (preferred, but not required if programming/mathematical modelling skills are strong)

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Project description

In modern supply chains, a large portion of warehouse operating costs comes from order picking: the time-intensive process of retrieving individual items from different places in the warehouse, and combining them into a single order. Where the different products are stored within the warehouse can have a major impact on the time order picking takes, with small changes in layout potentially leading to significant reductions in warehouse operating costs. This project will explore how to improve product placement within a warehouse using optimisation and heuristic methods. The student will use a synthetic data set and programming tools like Python, R, or MATLAB to identify what the optimal layout would look like when filling the warehouse from scratch. To address existing facilities, the student will then implement heuristic algorithms to identify practical layout changes that will reduce order picking times with minimal operational disruption. Finally, they will use simulation to test the layouts generated and evaluate their performance.