

2025 EECMS Summer Internship Application Form

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| Main Supervisor | Susannah Soon |
| Other supervisors (if applicable) | Kit Yan Chan Sonny Pham Andrew Maiorana |
| Project Title | AI-Enhanced Cardiovascular Diagnostics: Bridging the Gap for Remote Indigenous Health |
| Student location(s) for the project | EECMS |
| Duration of project | Eight weeks |
| Project Description | <p>Cardiac arrhythmias significantly impact health services, accounting for 9.1% of Australia's health system expenditure (\$12.7 billion) in 2019-20, particularly in remote areas where access to specialised care is limited. This issue is especially critical for the 30% of Australians, including 65% of Aboriginal and Torres Strait Islander populations, who reside in these regions, where access to cardiologists is limited resulting in health disparity and potentially avoidable burden on the Australian health system.</p> <p>Our project focuses on preventive healthcare by deploying a mobile care unit equipped with an AI-powered edge device that utilises multi-channel ECG sensors. This technology aims to detect cardiac arrhythmias early and facilitate timely treatment. The AI model, designed for efficiency and accuracy on edge devices, will be fine-tuned and validated against public datasets and optimised for real-time performance, enhancing diagnostic reliability and understandability.</p> <p>Leveraging the capabilities of edge AI, our diagnostic technologies employ multimodal data analysis and advanced language models to deliver precise and interpretable results. This empowers healthcare workers to make informed decisions quickly and efficiently, transforming how care is delivered in underserved areas.</p> <p>The AI system incorporates Diagnostic-AI to show confidence levels when providing diagnostic results; Explainable-AI to identify ECG features included in the diagnosis; and a Generative-AI interface for clinicians to interact with the system to validate and explain results.</p> |