RYAN MANCHESTER

Software Engineering - Embedded & Machine Learning

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SUMMARY

Computer Science graduate and current MSc student with practical experience in embedded C, Python, and machine learning, supported by postgraduate study in interpretable machine learning, deep learning, and machine learning for data streams. Experienced in technical teaching, multidisciplinary research, and safety-critical healthcare, with a strong interest in embedded, autonomous, and ML systems.

EXPERIENCE

Sessional Assistant
University of Waikato
2024-Present | Hamilton

- Support and Tutor for COMPX551 Mobile and Wearable Computing; COMPX349 Embedded Systems; COMPX316 Network Security; and COMPX241 Software Engineering Design 1.
- Also supported COMPX234 Systems and Networks; COMPX230 Computer Hardware and Microprocessors; and COMPX201 Data Structures and Algorithms, and other papers through the Computing and Software Engineering Degrees.
- Guide labs, coursework, marking, one-to-one problem solving across programming, teaching hardware, networking, security, and software engineering practice.

Paid Researcher
Te Whatu Ora
2023-2024 | NZ

- Developed Python-based approaches for temporary patient names during mass-casualty events and major IT outages, collaborating with clinicians and refining the design through feedback.

SKILLS

Python	**C**	**Embedded Systems**
Machine Learning	**Linux/Git**	**Networking**
Flutter/Dart	**Security**	**HCI/UX**
Healthcare Research	**Teaching**	**Mentorship**

TRAINING / COURSES

Virscient's ELEVATE programme
Selective 10-week programme developing practical skills in embedded C, microcontrollers, peripherals, toolchains, build systems, debugging, Bluetooth/BLE, IEEE 802.11, and professional software engineering practice.

EDUCATION

Master of Science - Computer Science
University of Waikato — In progress | Hamilton

- Thesis research in mental-fatigue detection using sensing workflows, feature engineering, SVM models, and evaluation.

Bachelor of Computer Science
University of Waikato — GPA 8.73 / 9
Completed Jul 2025
Graduated 14 Oct 2025

VOLUNTEERING

Emergency Medical Technician
Hato Hone St John
2020 - Present | 5+ years | New Zealand

- Volunteer frontline ambulance officer providing patient care in time-critical and uncertain situations.
- Developed calm decision-making, situational awareness, clear communication, teamwork, and structured problem solving under pressure.

Scholarships

- ★ Master of Science Scholarship
  University of Waikato postgraduate scholarship.
- ◆ 2025 Summer Research Scholarship
  Supported cognitive-fatigue research.
- ◇ Research & Enterprise Study Award - 2024
  Funded the unidentified patient name project.
- ● HECS International Exchange Scholarship - 2024

PROJECTS

Mental Fatigue Detection (MSc thesis)
In progress | University of Waikato | Machine learning

Developing a machine-learning pipeline for mental-fatigue detection, covering sensor capture, data preparation, feature engineering, SVM modelling, and evaluation.

- The work builds on a 2025 Summer Research Scholarship focused on cognitive-fatigue detection.

Specific Study Focus on

Check Me - Period Tracker
In development | Flutter / Dart | Privacy-first mobile application

Being Developed in collaboration with the Menstrual Health Network at the University of Otago, Check Me is a privacy-first, Open source, menstrual and reproductive-health tracker designed around on-device data storage.

- Includes cycle predictions, reminders, and user-controlled data export while keeping sensitive information under the user's control.

Name Generation for Unidentified Patients
Nov 2023 - Feb 2024 | Te Whatu Ora | Python

Award-supported paid research creating temporary, human-readable identifiers for unidentified patients during mass-casualty events and major IT outages when normal electronic health records may be unavailable.

- This is the same project funded by the 2024 Research & Enterprise Study Award.
- Balanced clinical clarity, dignity, cultural considerations, and emergency workflow requirements.
- Explored naming strategies including Te Reo Māori-informed approaches and Markov-chain generation, with regular clinician feedback.

Academic Transcript and References available on request