

MICHAEL LO RUSSO

0420 894 837 | lorussom28@gmail.com | [LinkedIn](#) | [mlorusso.com](#)

SUMMARY

Engineering student at UNSW specialising in Mechatronics, with practical experience spanning embedded systems, mechanical design, software development, electrical installation, and construction. Built a residential house, autonomous robots, and 3D-printed thermal hardware. **Available to work 4 days per week while completing my degree.**

Visit my website portfolio for more details on my projects: [mlorusso.com](#)

EDUCATION

Bachelor of Engineering (Honours) (Robotics and Mechatronics)

Jan 2022 – Aug 2026

UNSW | WAM: 75 (Distinction)

RESEARCH EXPERIENCE

Honours Thesis — PVT & Heat Pump Assessment Tool | UNSW / Coolsheet

Sep 2025 – Present

- Building a web-based modelling tool (Python back-end, HTML/CSS front-end) that simulates the energy performance and cost-saving potential of Coolsheet's photovoltaic-thermal (PVT) panels and heat pump systems for industrial and commercial applications.
- Delivered a working v1 calculator with a modular architecture designed to integrate additional industry datasets; pulling Australian climate data via weather APIs to generate location-aware performance estimates.
- Validating simulation outputs against real-world installation data from Coolsheet's commercial PVT deployments.

ENGINEERING PROJECTS

Micromouse Maze Navigation Robot

May 2024 – Aug 2024

- Designed and programmed an autonomous maze-solving robot using LiDAR, IMU, and wheel encoders with PID control; navigated a 3.6 × 2.4 m arena with walls and obstacles in under 90 seconds.
- Implemented BFS path planning with OpenCV occupancy grid mapping on an Arduino Nano, processing sensor data in real time.

Rubik's Cube Solving Robot

Mar 2025 – Present

- Designing and building a 5-axis robotic manipulator (NEMA 17 steppers, TMC2209 drivers, ESP32) that accepts a scrambled cube state via a custom web interface and physically solves it using the Kociemba two-phase algorithm.
- Developed full-stack integration across Fusion 360 mechanical design, C++ firmware with AccelStepper motor control, a Python solving server, and an HTML/JavaScript UI for cube face input.

Custom GPU Cooling Funnels

Jan 2025

- Designed and 3D-printed airflow funnels in Fusion 360 across 3 design iterations; reduced GPU temperatures by 7°C under full load, inspired by automotive ducting principles.

Residential Construction

Jun 2024 – Apr 2025

- Built a house alongside my father, performing framing, roofing, plumbing, and electrical work while ensuring all construction adhered to building compliance and regulatory standards.

UR5e Robotic System | UNSW

May 2025 – Aug 2025

- Programmed a UR5e industrial robot for autonomous math problem solving, pick-and-place, and orientation adjustment; developed trajectory planning to produce smooth pen lifts and legible handwriting output.

Unmanned Ground Vehicle Control System | UNSW

Sep 2024 – Dec 2024

- Built a multi-threaded C++ control system integrating LiDAR, GNSS, Xbox controller, and collision sensors for autonomous and teleoperated driving with real-time crash avoidance and MATLAB visualisation.

WORK EXPERIENCE

Experience Consultant | Samsung Electronics (Parramatta)

Jan 2023 – Present

- Diagnosed and resolved hardware/software issues across Samsung mobile, tablet, and smart device lines, maintaining a net promoter score above 85%.
- Sold \$950k+ in inventory; communicated complex technical information to both technical and non-technical customers across in-store and phone channels.

TECHNICAL SKILLS

Languages: C, C++, Python, Java, VHDL, HTML/CSS

Systems & Control: Sensor fusion (LiDAR, GNSS, IMU), PID control, real-time path planning, OpenCV, Arduino, MATLAB/Simulink

CAD & Manufacturing: SolidWorks, Fusion 360, Bambu Studio, 3D printing (FDM/PLA)

Web & Tools: Next.js, TypeScript, Tailwind CSS, Git, VS Code, LaTeX