MEDHANSH SEKHRI

Bachelor of Engineering (Honours) / Master of Engineering / Mechanical & Aerospace | University of Queensland
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EDUCATION

Bachelor of Engineering (Honours) / Master of Engineering | University of Queensland | 2026 – Present
- Specialising in Mechanical and Aerospace Engineering
- Actively pursuing self-directed engineering projects alongside and beyond the curriculum

Secondary Education | St Laurence's College, Brisbane | 2021 – 2025
- Academic Focus: STEM
- Recipient of multiple Academic and Merit Awards throughout secondary schooling
- Awarded ATAR Distinction upon completion of secondary education

ENGINEERING PROJECTS

Autonomous Radar Scanner | Self-Directed Build | 2026 – Present
- Task: Design and build a real-time object detection system from scratch as the sensing foundation of a future autonomous drone, with no prior experience in Arduino or C++.
- Action: Programmed an Arduino UNO R3 in self-taught C++ to control an SG90 servo motor sweeping an HC-SR04 ultrasonic sensor across 180 degrees, transmitting distance data via serial communication at each angle; developed a live radar display UI in Processing rendering real-time object position and distance markers, and resolved a mechanical mounting failure by fabricating a custom sensor stand from cardboard and Blu-Tack.
- Result: Delivered a fully functioning radar scanner with live UI, built entirely from first principles, with all code hosted publicly on GitHub.

Flood-Resistant Station-Keeping House | ENGG1100, University of Queensland | 2026
- Task: Lead a multidisciplinary team to design and build a prototype flood-resistant house capable of resisting lateral and vertical displacement during a simulated flood event, within a team budget of approximately $170 AUD.
- Action: Oversaw all subsystems as team leader, including structural design (XPS foam and corflute construction informed by buoyancy calculations), and personally led the power and control subsystem, integrating an Arduino UNO with two L298N dual H-bridge motor drivers and four 12V DC gear motors to drive a diagonal pulley and reel station-keeping system at each corner; wrote C++ control logic mapping joystick inputs to PWM motor signals for precise bidirectional tension control; designed and 3D printed custom PLA spools on a Bambu X1 at UQ Innovate, and used Tinkercad to prototype and validate circuit wiring before physical assembly.
- Result: Delivered a fully integrated electromechanical station-keeping system combining structural, electrical, and embedded software elements within budget constraints.

Secondary School Engineering Projects | St Laurence's College | 2021 – 2025
- CO2 Dragster: Designed and built a balsa wood vehicle optimised for aerodynamics and weight distribution, achieving the fastest recorded time of 0.49 seconds over 1 metre.
- Model Rocket: Designed in OpenRocket with an ogive nose cone and elliptical fins, reaching an apogee of 97 metres using a B6-4 motor; 3D printed nose cone with plastic bag and nylon parachute recovery system.
- Balsa Truss Tower: Designed and constructed a load-bearing balsa tower applying tension, compression, moments, and static equilibrium principles to maximise structural efficiency.
- Autonomous Warehouse Rover (LEGO EV3 Mindstorms): Programmed an autonomous rover using colour and ultrasonic sensors to navigate and transfer loads accurately without manual input.

CERTIFICATIONS

- **AVI30419, Certificate III in Aviation (Remote Pilot): UAV operations, airspace regulations, safe drone deployment**
- CHC24015, Certificate II in Active Volunteering

TECHNICAL SKILLS

Programming	C++ (Arduino IDE), Processing, OpenRocket, Tinkercad
Hardware	Arduino UNO R3, HC-SR04 Ultrasonic Sensor, SG90 Servo Motor, L298N H-Bridge Motor Drivers, 12V DC Gear Motors, Breadboard Circuits, LEGO EV3
Fabrication	FDM 3D Printing (Bambu X1), Balsa Wood Construction, XPS Foam and Corflute Fabrication
Other	UAV Operations, GitHub, Microsoft Office Suite

LEADERSHIP & ACHIEVEMENTS

- Team Leader, ENGG1100 Flood-Resistant Housing Project, University of Queensland
- Debating Captain, St Laurence's College
- Air Force Cadets: leadership training and procedural discipline
- Peer Mentor, Student Support Programs
- National Youth Summit Delegate and Multicultural Ambassador, Parliament House, Canberra
- International Science School Participant, Queensland Selection
- RACI Titration Competition: High Distinction (highest award) and first-place team finish
- QUT Future You STEM Summit Participant

EMPLOYMENT EXPERIENCE

CSSD Technician | Brisbane Private Hospital, Healthscope | 2026 – Present

- Decontaminate, inspect, assemble, and sterilise surgical instruments to strict hospital-grade protocols in a high-stakes, zero-error environment.
- Operate and maintain sterilisation equipment including autoclaves and washer-disinfectors, applying systematic technical procedures to ensure instrument safety and traceability.
- Maintain meticulous documentation and compliance records in line with AS/NZS sterilisation standards, reinforcing precision, attention to detail, and procedural discipline directly transferable to engineering environments.

Hospitality and Food Service | KFC, Hungry Jack's, Andonis Cafe, School Cafe | 2022 – 2025

- Maintained strict compliance standards across multiple regulated workplaces, demonstrating reliability and procedural discipline.
- Managed competing priorities during high-volume service periods, developing composure and systematic problem-solving under pressure.
- Built strong interpersonal communication and team collaboration skills across diverse work environments.

ADDITIONAL INFORMATION

Citizenship	Australian Citizen, full unrestricted working rights
Portfolio	medhanshsekhri.github.io
GitHub	github.com/medhanshsekhri/Arduino-Radar-Scanner
References	Available upon request