

Albert Zhou

He/Him | 027-296-5916 | zhoualbert140@gmail.com | [Github](#) | [Website](#) | NZ Citizen

OBJECTIVE

Engineering student seeking practical industry experience through internships. Skilled in analytical thinking, teamwork, and problem-solving, with experience in customer service and academic support.

EDUCATION

University of Auckland

Bachelor of Engineering (Honours)

7.16/9.00 (A/A- Average)

Mar 2025 – Nov 2028 (est.)

Auckland Central, Auckland

PROJECTS

Six-Axis Robotic Arm

June 2026 – Present

- Designed a complete 6-DOF robotic arm in Fusion, incorporating manufacturable tolerances, bearing fits, weight distribution, gear backlash, and motor holding torque requirements.
- Engineered the drivetrain using herringbone gears, high-ratio gearboxes, and integrated magnetic encoders and Hall-effect homing sensors for precise joint positioning.
- Designed the electrical architecture using STM32 and Raspberry Pi controllers, separating high and low voltage systems and incorporating protection circuitry for reliable operation.
- Optimised the system for long-term reliability through thermal management, slip ring integration, and compact cable routing.

Autonomous Obstacle-Avoidance Drone

Aug 2024 – Jan 2026

- Developed an autonomous drone platform using a Raspberry Pi 4B running PX4, integrating ultrasonic and IR sensors for obstacle detection and altitude regulation.
- Implemented signal processing techniques including low-pass filtering and smoothed averaging to improve reliability of noisy sensor measurements.
- Designed an autonomous navigation mode to maintain room-centering and obstacle avoidance using real-time sensor feedback.

Social Media Web Application

Mar 2024 – Jun 2024

- Developed a full-stack social media platform using React, TypeScript, Tailwind CSS, and Appwrite with user authentication, posts, and image uploads.
- Built a responsive interface and integrated backend services for user management, database operations, and secure media storage.

EXTRACURRICULAR

DEVS x UOACS Hackathon 2026 - 1st Place

July 2026

- Won 1st Place in a university hackathon by developing a fully functional embedded prototype combining hardware and software.
- Integrated a Raspberry Pi, SPI LCD touchscreen, and React Native (Expo) application into a self-contained interactive system.
- Solved low-level hardware integration challenges including Linux display configuration, SPI communication, touchscreen calibration, and kiosk deployment.

Vending Machine Manager / General Executive - Maker Club

October 2025 – Present

- Maintained and upgraded a cashless vending machine, troubleshooting hardware and software issues to improve reliability and longevity.
- Established relationships with local vendors, negotiating product offerings and coordinating inventory supply.
- Automated monthly vendor reporting by generating sales and inventory reports, streamlining communication and reducing manual administrative work.

TECHNICAL SKILLS

Programming and Software Development: C/C++, Python, Typescript, JavaScript, HTML/CSS, R, Matlab, C#

Embedded Systems and Electronics: Arduino, ESP32, STM32, Raspberry Pi, UART, SPI, I2C, Sensor Integration

Mechanical Design: Fusion, SketchUp, 3D Printing, Gear Design, Tolerance Analysis, Torque Testing

Robotics and Automation: PX4 Autopilot, Stepper Motors, Encoders, Autonomous Systems, Control Systems