

James Bao

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Career Objective

I am **chasing an internship** to grow my love for **analogue electronics** and **embedded systems**.
I want to **improve human lives**—whether through hardware, software, or a **beautiful combination of both**.
I am always looking to **learn** new things and **grow** as a person—and I apply this mindset to everything I do.

Skills Summary

Problem Solving

- › I **apply** my strong **logical thinking** to challenging situations, and leave things **better than I found them**.

Communication Skills

- › I am an effective communicator with an aptitude for **breaking down challenging concepts**.

Leadership

- › I am passionate about intent-based leadership and **understanding** each member's **strengths and weaknesses**.

Teamwork

- › I strive to **be an asset** to any team. I am known for my reliability—I **do not make promises I cannot keep**.

Education

Bachelor of Engineering (Honours)

2021 – 2024

The University of Auckland

- › Specialising in **Computer Systems** Engineering
- › Cumulative GPA of 8.2/9.0 (A)

Experience

Course Cadet Staff

Jul 2021

New Zealand Cadet Forces

Auckland, NZ

- › Selected to staff the Northern Area Junior Non-Commissioned Officer's Course 04/21
- › A mentor and **role model** to the course of 50+ students
- › Aided Directing Staff in **training delivery**, student assessment, and welfare management
- › Maintained **morale** and esprit de corps
- › Applied my instructional technique and leadership skills to deliver a 'very efficient Final Parade'

Freelance Software Developer

2020 – 2021

- › Back-end development with JavaScript, **Node.js**, and **MongoDB**
- › Built a custom Discord bot tailored to streamline **digital order management** and processing

Technical Skills

Electronics and Embedded Systems

- › Analogue **circuit & PCB design** learnt through practical application
- › Extensive **hands-on** experience with **soldering** and using **multimeters** & **oscilloscopes**
- › Familiarity with **LTspice**, Microchip Studio, Proteus VSM, and EasyEDA
- › Experience writing **firmware** for **Arduino** and ATmega328PB **Xplained Mini**

C/C++

- › Familiarity with **Arduino**-flavoured C++ and standard C
- › Learnt through **projects** in high school and University Engineering courses
- › Currently using C to develop **firmware drivers** for an **ATmega328PB**
- › Used Arduino C++ for simple sensor reading and **actuator control** functionality

Git/GitHub

- › Usage of **feature branches**, pull requests, issues, and GitHub Actions
- › **3000+** **contributions** accrued over the past **4 years**

Other Languages I am also highly proficient in **TypeScript/JavaScript**, and have limited experience in **Python**, **Java**, and **MATLAB**.

Project Experience

Smart Energy Monitor

uoa-ece209.github.io

2022

The University of Auckland

- **Smart energy monitor** I am currently designing in a **group of four**
- Involves analogue **circuit & PCB** design, signal conditioning, using an **ATmega328PB**, writing **firmware** drivers, and UART & **Bluetooth** communication
- ▶ Git and GitHub
- ▶ LTspice
- ▶ Microchip Studio
- ▶ Proteus VSM
- ▶ Altium Designer

Automatic Peg Cleaner

jamesnzl.xyz/13cte

2020

Westlake Boys' High School

- **Self-directed** Year 13 Control Technology project
- Learnt about **embedded systems**, MOSFETs, capacitors, diodes, **circuit and PCB design**, 3D modelling, 3D printing, and **firmware development** through **practical application**
- ▶ Arduino
- ▶ AutoCAD
- ▶ EasyEDA

Other Projects More projects can be found on my [GitHub profile](#).

Achievements

- **First in Course Award** for ENGGEN 131: Introduction to Engineering Computation and **Software Development**
- Bayonet of Honour
- Cadet Warrant Officer Class Two
- Top of Course Award
- School Prefect and Deputy House Captain
- First in Level 3 Calculus
- First in Level 2 Physics
- First in Level 2 Programming
- NZCF Senior Non-Commissioned Officer's Course

Interests

Outdoors I have a deep love for the outdoors, and find it an amazing outlet to recharge my batteries.

Teaching I love crafting intuitive explanations for difficult, technical concepts—and seeing the lightbulb moment.

Te Ao Māori I care deeply about engaging with the indigenous culture & language of Aotearoa New Zealand.

Youth Development I am currently an Officer Cadet in the New Zealand Cadet Forces. I was previously a cadet for 5 years, including 17 months as a Cadet Warrant Officer Class Two.

References

Captain James Green, NZCF

james.green@cadetforces.org.nz or +64 21 101 8020

Cadet Unit Commander
City of Auckland Cadet Unit

James has been a **significant mentor**, and has heavily **guided** my growth as a person.

Duleepa J Thrimawithana

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Senior Lecturer
The University of Auckland

Duleepa invited me to assist with his **ECSE Smart Car workshop** at Mānawa Mai **Open Day** after recognising my **technical proficiency** and **communication skills** in COMPSYS 209: Analogue and Embedded Software Design.

Matua Johnny Waititi

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Te Kaihautū o Te Puna
Westlake Boys' High School

Matua Johnny was my Te Reo Māori **kaiako** and **form teacher**, and has also played a **pivotal** role in my life.