

# James Bao

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## Career Objective

I am **chasing opportunities** to grow my love for **analogue electronics** and **embedded systems**.  
I love active problem-solving and **tinkering** until something is exactly right.  
I want to **improve human lives**—whether through software, hardware, 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)

The University of Auckland

2021 – 2024

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

## Experience

### Course Cadet Staff

New Zealand Cadet Forces

Jul 2021  
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

### 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 **peripheral control** functionality

### Git/GitHub

- Git version/source control and GitHub project management
- 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](https://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, serial communication, and Bluetooth communication
- Git and GitHub
- LTspice
- Microchip Studio
- Proteus VSM
- Altium Designer

### Automatic Peg Cleaner

[jamesnzl.xyz/13cte](https://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

### 2021

- **First in Course Award** for ENGGEN 131: Introduction to Engineering Computation and **Software Development**

### Pre-2021

- Bayonet of Honour
- Cadet Warrant Officer Class Two
- Top of Course Award  
NZCF Senior Non-Commissioned Officer's Course
- School Prefect and Deputy House Captain
- First in Level 3 Calculus
- First in Level 2 Physics
- First in Level 2 Programming

## 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 an Officer Cadet in the New Zealand Cadet Forces. I was previously a cadet for five years, including 17 months as a Cadet Warrant Officer Class Two.

## References

### Captain James Green, NZCF

[james.green@cadetforces.org.nz](mailto:james.green@cadetforces.org.nz) or +64 21 101 8020

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

Cadet Unit Commander  
City of Auckland Cadet Unit

### Rebecca O'Gram

[rog@westlake.school.nz](mailto:rog@westlake.school.nz)

Rebecca was my Year 13 Calculus **teacher**, and is one of the **most influential** teachers I have ever had.

Associate Principal  
Westlake Boys' High School

### Matua Johnny Waititi

[jwa@westlake.school.nz](mailto:jwa@westlake.school.nz) or +64 20 410 53400

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

Te Kaihautū o Te Puna  
Westlake Boys' High School