

# James Bao

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in /JamesNZL  
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## Career Objective

I am **chasing an internship** to grow my passion 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

- **Computer Systems** Engineering
- Cumulative GPA of 8.3/9.0 (**A–A+**)
- Dean's Honours List

## Experience

### Embedded Software Engineer Intern

Nov 2022 – Mar 2023

Windcave Ltd

Auckland, NZ

- Writing **C/C++ firmware** on a new STM32U585 **ARM** development board
- **Rapid prototyping** of external **QSPI and OSPI** flash memories
- **Creating** a simple **Point of Sale system** on CHU200TP payment terminal

### 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 **Altium Designer**
- Experience writing **firmware** for **Atmel megaAVR** and **ARM Cortex-M33**

### C/C++

- Experience with **C** and Arduino-flavoured C++
- Learnt through **projects**, University Engineering courses, and **industry**
- Used C to develop **OSPI memory drivers** for an **STM32U585**
- Used Arduino C++ for simple sensor reading and **actuator control** functionality

### Git/GitHub

- Fluency with **feature branches**, pull requests, issues, and GitHub Actions
- **5300+ contributions** accrued over the past **5 years**

**Other Languages** I am also highly proficient in **TypeScript/JavaScript**, and have familiarity with **VHDL**, **C#**, **Python**, **Java**, and **MATLAB**.

## Project Experience

### Smart Energy Monitor

[cs209.jamesnzl.xyz](https://cs209.jamesnzl.xyz)

2022

The University of Auckland

- **Smart energy monitor** I designed in a **group of four**
- **Lecturer's Choice** for **top team** out of all 40 teams
- 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

### Flappy Bird

[jamesnzl.xyz/compsys305-flappy-bird](https://jamesnzl.xyz/compsys305-flappy-bird)

2023

The University of Auckland

- An **FPGA implementation** of Flappy Bird built in a **team of three**
- Played on a **Cyclone V FPGA** with a PS/2 mouse, DIP switches, and pushbuttons
- ▶ Git and GitHub
- ▶ VHDL
- ▶ Altera Quartus Prime

### 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

- **First in Course Award** for ELECTENG/COMPSYS 209: **Analogue and Embedded Firmware Design**
- **First in Course Award** for ENGGEN 131: Introduction to Engineering Computation and **Software Development**
- **Dean's Honours List 2022**
- Bayonet of Honour
- 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

## Passions

**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 embracing 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

### Weili Liu

[weili.liu@windcave.com](mailto:weili.liu@windcave.com)

Embedded Development Manager

Windcave Ltd

Weili has been a **significant mentor** and **guided** me closely during my internship.

### Duleepa J Thrimawithana

[d.thrimawithana@auckland.ac.nz](mailto:d.thrimawithana@auckland.ac.nz)

Senior Lecturer

The University of Auckland

Duleepa invited me to be a COMPSYS 209 **Teaching Assistant** and to assist with his **Smart Car workshop** at Mānawa Mai **Open Day**, based on my **technical proficiency** and **communication skills**.

### Matua Johnny Waititi

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

Te Kaihautū o Te Puna

Westlake Boys' High School

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