

James Bao

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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 8.25/9.0 (A)
- Dean's Honours List

Experience

Embedded Software Engineer Intern

Nov 2022 – Mar 2023

Windcave Ltd

Auckland, NZ

- Writing **C/C++ code** 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
- **4400+ contributions** accrued over the past **5 years**

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

Project Experience

Smart Energy Monitor

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

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 ELECTENG/COMPSYS 209: **Analogue and Embedded Firmware Design**
- › **First in Course Award** for ENGEN 131: Introduction to Engineering Computation and **Software Development**
- › **Dean's Honours List 2022**
 - › School Prefect and Deputy House Captain
 - › First in Level 3 Calculus
 - › First in Level 2 Physics
 - › First in Level 2 Programming
- › Bayonet of Honour
- › Top of Course Award
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 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

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

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

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.