James Bao

james@jamesnzl.xyz
+64 22 410 1580
Auckland, New Zealand
/JamesNZL
/JamesNZL
jamesnzl.xyz

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 **VDHL**, **C#**, **Python**, **Java**, and **MATLAB**.

Project Experience

Smart Energy Monitor
2022

cs209.jamesnzl.xyz — *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
2023

jamesnzl.xyz/compsys305-flappy-bird — *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
2020

jamesnzl.xyz/13cte — *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
  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

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
Embedded Development Manager

weili.liu@windcave.com — *Windcave Ltd*

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

Duleepa J Thrimawithana
Senior Lecturer

d.thrimawithana@auckland.ac.nz — *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
Te Kaihautū o Te Puna

jwa@westlake.school.nz — *Westlake Boys' High School*

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