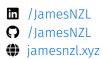
James Bao

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



© Career Objective

I am chasing a graduate role to grow my passion for embedded systems and electronics.

I want to improve human lives—whether through hardware, firmware, 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.

☆ Soft Skills

Problem Solving

> Lapply 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 8.4/9.0 (**A** – **A+**)

> Dean's Honours List



EROAD Ltd

Windcave Ltd

Firmware Engineer Intern

Nov 2023 – Feb 2024

Auckland, NZ

- Writing C++ RTOS application service with GoogleTest unit & component tests
- > Implementation of **REST API** business logic
- > File system POSIX RAII interactions to facilitate remote file retrieval
- > Security architecture, threat modelling, and data flow diagrams

Embedded Software Engineer Intern

Nov 2022 - Mar 2023

Auckland, NZ

- > Writing C firmware on STM32U585 ARM board
- > Rapid prototyping of external QSPI and OSPI flash memories
- > Creating a **FreeRTOS** Point of Sale system on CHU200TP payment terminal

♥ Technical Skills

Firmware & Embedded Systems

- > Experience writing firmware for Atmel megaAVR and ARM Cortex processors
- ➤ Hands-on with **bare-metal**, **FreeRTOS**, and Freescale MXP RTOS
- > Proficiency with microcontroller **peripherals** and **serial communication** protocols
- > ADCs, GPIOs, Timers, UART, SPI, I2C, connectivity, control systems, OS concurrency, Makefiles, *nix CLI

Analogue & Power Electronics

- > Circuit & PCB design learnt through practical application
- > Wireless **inductive power transfer** and power electronics familiarity
- > Extensive hands-on experience with soldering and instrumentation equipment
- > Fluency with LTspice and Altium Designer

Git/GitHub

- > Fluency with **feature branches**, pull requests, issues, and GitHub Actions
- > 7400+ contributions accrued over the past 6 years

Other Languages On top of C/C++, I am fluent in TypeScript/JavaScript, and have experience with MATLAB, Python, C#, Java, and VHDL.

Project Experience

algovision 2023 -

docs.jamesnzl.xyz/algovision

Personal Project

- > Self-directed project to build a algorithm visualisation tool in hardware
- > Full design process, parts selection, and board bring-up
- ➤ USB Power Delivery, custom LED matrix display, STM32U575 ARM Cortex-M33 firmware

▶ Git and GitHub

▶ LTspice

▶ STM32CubeMX

▶ Figma

Altium Designer

▶ MATLAB

Pathfinding Robot

2023

docs.jamesnzl.xyz/compsys301-pathfinding-robot

The University of Auckland

- > Pathfinding robot | designed in a group of four
- > Top team out of all 23 teams
- > Analogue circuit & PCB design, time- & frequency-domain signal analysis, using a PSoC 5LP, pathfinding algorithms, and motor control systems

▶ Git and GitHub

LTspice

▶ PSoC Creator

▶ MATLAB

▶ Altium Designer

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

Microchip Studio

▶ Altium Designer

▶ LTspice

▶ Proteus VSM

Other Projects More projects can be found on my GitHub profile.

P Achievements

> Dean's Honours List 2023

> Dean's Honours List 2022

- > First in Course Award for COMPSYS 301: Hardware Firmware Systems Design
- > First in Course Award for COMPSYS 209: Analogue and Embedded Firmware Design
- > First in Course Award for ENGGEN 131: Introduction to Engineering Computation and Software Development

9 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 an Officer Cadet in the New Zealand Cadet Forces, after 5 years as a cadet & 17 months as a Cadet Warrant Officer Class II.

A References

Weili Liu

Chris SolomonFirmware Tech Leadchris.solomon@eroad.comEROAD Ltd

Chris was my EROAD internship buddy, and gave a wealth of knowledge towards my successful outcomes.

weili.liu@windcave.com

Embedded Development Manager
Windcave Ltd

Weili was a significant mentor and guided me closely during my Windcave internship.

Dr. Duleepa J Thrimawithana

Senior Lecturer

d.thrimawithana@auckland.ac.nz

The University of Auckland

I am Duleepa's **Teaching Assistant**, and also assist with his **IPT Smart Car workshop** at Mānawa Mai Open Day.