James Bao

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

⊕ Professional Summary

*I am dedicated to **improving human lives** through a **beautiful combination** of hardware and firmware.*

I am **hungry for best practises**, with a commitment to **continuous learning** and personal growth.

I have a **proven problem-solving** mindset, and leave things **better than I found them**.

I am an effective **communicator & collaborator**, leading multiple **top university design teams** to success.

I am an **asset to any team**—I don't make promises I cannot keep.

🎓 Education

Bachelor of Engineering (Honours)   2021 – 2024
The University of Auckland

- Part IV **Computer Systems Engineering**
- Student Representative and **Teaching Assistant**
- Cumulative GPA of 8.4/9.0 (**A** – **A+**)
- Dean's Honours List (top 5%)

⚙ Technical Skills

TypeScript/JavaScript
- Front-end **browser** and back-end **Node.js** applications
- Object-oriented and functional patterns
- **async/await**, Promises, and callbacks
- **Serverless functions** with Next.js and Cloudflare Workers

Next.js/React
- Next.js Pages and **App Router**
- React **custom hooks**
- Props and state management
- API routes and **server/client components**
- Lazy-loading and memoisation
- **CSS Modules**, Sass, and **Tailwind CSS**

Git/GitHub
- Fluency with **feature branches**, pull requests, issues, and GitHub Actions
- **7800+ contributions** accrued over the past **6 years**

Other Languages I also comfortable with **C/C++**, and have familiarity with **C#**, **Python**, **Java**, and **MATLAB**.

🧰 Industry Experience

Firmware Engineer Intern   Nov 2023 – Feb 2024
EROAD Ltd   *Auckland, NZ*

- Writing **C++ RTOS application** service with **GoogleTest** unit & component tests
- Created a **Next.js/React** front-end dashboard application with **Zod** data validation
- Developed a 'highly polished internal support tool' that **reduced 4+ hours**-worth of work to **less than 2 minutes**
- Implemented **REST API** business logic to facilitate asynchronous **remote file retrieval** from in-field devices
- Produced **security architecture**, threat modelling, and data flow diagrams to identify & secure attack vectors

Embedded Software Engineer Intern   Nov 2022 – Mar 2023
Windcave Ltd   *Auckland, NZ*

- Writing **C firmware** on STM32U585 **ARM** board
- Performed **rapid prototyping** of external **QSPI and OSPI** flash memories to inform hardware revision
- Implemented a **FreeRTOS** graphical Point-of-Sale system prototype on a Windcave payment terminal to satisfy **long-outstanding customer demand**

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

🧪 Project Experience

notion-assignment-import
jamesnzl.xyz/notion-assignment-import

2022

- ❯ **Cross-browser** extension that loads Canvas assignments into a Notion database
- ❯ **5200+ unique users** in **eighteen months**
- ❯ Variety of tools including **Gulp**, Browserify & ESBuild, **Sass**, and PostCSS
- ❯ Learnt more about **REST APIs**, HTTP and HTTP clients, and **OAuth2**

- ▸ Git and GitHub
- ▸ TypeScript, HTML
- ▸ Sass and PostCSS
- ▸ Gulp, Browserify, and ESBuild
- ▸ Insomnia

Pronto
aucklandarmycadets.github.io/Pronto

2020 – 2021
City of Auckland Cadet Unit

- ❯ Full-featured Discord bot to **streamline** Unit **procedures**
- ❯ Comprehensive **codebase documentation** with **JSDoc**
- ❯ Experimenting with **Cloud Computing** services including DigitalOcean, Linode, Vultr, and currently **Oracle Cloud**

- ▸ JavaScript, Node.js
- ▸ MongoDB
- ▸ JSDoc
- ▸ Virtual Private Servers
- ▸ SSH, Bash, Unix CLI

Unit Website
github.com/aucklandarmycadets/aucklandarmycadets

2022
City of Auckland Cadet Unit

- ❯ A **modern, performant website** to overhaul my Cadet Unit's online presence
- ❯ Serverless functions with both **Next.js** and **Cloudflare Workers**
- ❯ Created my **own CDN** to cache Notion's ephemeral images and **optimise performance**
- ❯ Experience in managing **DNS records**, administering Google Search Console, and enhancing **SEO**

- ▸ Next.js (and React) with Vercel
- ▸ Serverless functions
- ▸ DNS Records, SEO

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

🏆 Achievements

Dean's Honours List
auckland.ac.nz

2022, 2023
Faculty of Engineering

Awarded to students who are either placed in the top 5% of their Engineering study in their discipline and part, and/or have attained a GPA of at least 8.25 from their enrolled Engineering courses for that year.

First in Course Awards
auckland.ac.nz

2021, 2022, 2023
Faculty of Engineering

First in Course Awards are given each semester to students who have achieved the highest overall mark in a particular taught course.

- ❯ COMPSYS 301: **Hardware Firmware Systems Design**
- ❯ COMPSYS 303: **Microcomputers and Embedded Systems**
- ❯ COMPSYS 209: **Analogue and Embedded Firmware Design**
- ❯ ENGGEN 131: Introduction to **Engineering Computation and Software Development**

Other

Pre-2021

- ❯ Bayonet of Honour — *City of Auckland Cadet Unit*
- ❯ Top of Course Award — *New Zealand Cadet Forces*
- ❯ 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 am passionate about our indigenous culture & language—I achieved Excellence in my NCEA Level 3 Te Reo Māori examinations, and maintain involvement with Te Whānau o Te Puna at Westlake Boys' High School.

Youth Development I now volunteer as an Officer Cadet in the New Zealand Cadet Forces, after 5 years as a cadet with 17 months as a senior Cadet Warrant Officer Class II.

👥 References

References are available on request.