Ryan Tsai

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EDUCATION

BE (Hons) Software Engineering, University of Auckland; 2024 – 2027

- *Grade*: 8.09 GPA
- *Relevant Modules*: Intro to Computer Systems; Object Oriented Programming; Discrete Mathematics; Data Structures and Algorithms (in progress), Software Quality Assurance (in progress)

Saint Kentigern College, Auckland; 2019 – 2023

- Proxime Accessit
- Top in Year: Mathematics, English, Chemistry, Japanese

SKILLS

Languages: TypeScript, JavaScript, Java, Python, C, R, MATLAB
Frameworks & Libraries: Express.js, Node.js, React, Tailwind CSS
Tools and Skills: Git, GitHub Flow, Maven, JUnit, MongoDB, Firebase, Cloudflare R2

EXPERIENCE

Thinking2Morrow, English and Mathematics Tutor   **Feb 2024 - Present**

- Tutored students from Year 1 to 13 across NCEA, IGCSE, and Cambridge curricula.
- Delivered personalized lessons and feedback, both in individual and group settings (up to 12 students)
- Developed key professional skills: time management, communication, collaborative planning

PROJECTS

Ferrous Fellow
Created a toy robot using **TensorFlow Lite** and **OpenCV** for facial and speech recognition. Integrated with the OpenAI API to analyse emotional cues and recommend music accordingly.
Tools: Python, AI/ML, Speech Recognition

Astral Images
Built a full-stack image hosting platform with React and Tailwind CSS on the frontend, Express.js, Firebase, and Firestore for backend logic and authentication. Used Cloudflare R2 for image storage.
Tools: React, Node.js, Express, Firebase, Cloudflare R2

FFXIV Market Predict
Developed a predictive pricing tool for the game FINAL FANTASY XIV using scikit-learn's Random Forest Regressor. Integrated TypeScript and Python for data collection and model execution on crowd-sourced market data.
Tools: Python, TypeScript, scikit-learn, ML

VALORANT API Wrapper
Engineered a TypeScript wrapper using Express.js to access internal VALORANT API endpoints, enabling external apps to retrieve in-game data normally locked behind the game client.
Tools: TypeScript, Node.js, Express, REST APIs

Astral Bot / Astral Music
Created a modular Discord bot for server moderation and entertainment, integrating MongoDB, Reddit, and VALORANT API. Built advanced music features including queueing, volume control, and voice filters, later merging multiple bots into a unified system using Discord.js and Node.js.
Tools: Node.js, Discord.js, MongoDB

Astral Music Website
Designed a promotional, responsive website using HTML, CSS, and JavaScript for the Astral Music Discord bot.
Tools: HTML, CSS, JavaScript