

Marcus O. Chan

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RECENT PROJECTS

Trading Invitational - Citadel 2025

Auckland, New Zealand

Contestant

May 2025 – May 2025

- Competed against 70 selected students from Australian and New Zealand Universities in AmplifyME's two-sided hedge fund - liquidity provider simulation. Overall, placed in the **top 30%** in both hedge fund management and market making.
- This involved optimising a bid/ask spread around the reference price, communicating with hedge funds (other players), maximising P&L while managing exposure and risk, and **automating** these processes using Python in later stages.

MIT BattleCode 2025

Auckland, New Zealand

Team Lead

Jan 2025 – Feb 2025

- Led a team to place consistently within the **top 20%** internationally out of 402 teams during weekly scrimmages.
- Developed a **Java-based** AI agent to run in a virtual environment for the international competition. This includes improving agent attack logic, which reduced resource consumption by **70%** per tower destruction (objective completion)

Transformer-Based - Stock Predictor

Auckland, New Zealand

Independent Project

Feb 2025 – Feb 2025

- Leveraged mathematical models to predict stock price trends using **Multi-Headed attention** transformers, Deep Neural Networks, Natural Language Processing models, and Linear Regression Time Series algorithms.
- Processed and analysed **40 million+** financial data points, learning to filter useful indicators from noisy data called from various sources such as rest **API pipelines** and financial statements, training involved **Pytorch, Pandas, and Matplotlib**

AI plays Subway Surfers - Computer vision

Auckland, New Zealand

Independent Project

April 2025 – May 2025

- Utilised model fine-tuning on CNNs and Transformers for obstacle detection in a computer vision system to allow for the agent 'jake' to traverse optimally in the presented frame, the model can analyse 5 frames per second, **200ms** per inference
- Whilst adhering to the time constraints, it has a combined predictive **mAP@50 score of 98.7%** and a **mAP@95 score of 70.0%** (95% overlap with labels), showcasing high predictive power whilst obtaining a **99.0%** precision within the test set.

ACTIVITIES AND LEADERSHIP

- Developers Society (DEVS) **Social Executive**, supervising events such as hackathons and planning university-wide social events, helping to connect software enthusiasts with the industry through technical and interpersonal skill development
- Dedicated over **70 hours of volunteer work** at my local toy library, engaging with a diverse range of age groups as well as connecting with my wider community.
- 5x **National Gold medalist** over a variety of events, including Sparring, Coordinated team patterns, and Special technique (advanced kicking)

EDUCATION

University of Auckland

Auckland, New Zealand

Bachelor of Engineering (Hons)

Expected Graduation, Nov 2028

- Intending to specialise in software engineering, actively participating in university tech clubs DEVS and SESA

Auckland Grammar School

Auckland, New Zealand

Class of 24'

Jan 2020 – Dec 2024

- Ranked in the B stream, second to top class among 18 academic streams for 3 out of 5 years at Auckland Grammar
- Subjects studied at AS and A levels include: Mathematics, Economics, Physics, Chemistry, Biology, and English Literature. Notable awards include: **Distinction** in the Australian Maths Competition (AMT), **High Distinction** in the NZ Economics Competition (UoA), and Duke of Edinburgh's **Bronze and Silver** awards.

Skills & Interests

Skills: Python, Pytorch, Scikit-learn, Numpy, VScode, and Jupyter Notebooks

Interests: Chess, Video Games, Hackathons, Gym, Marathons, Volunteering, and Web design