Ian Au

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Education

University of Adelaide **GPA: 6.8 Mar. 2025 – Nov. 2029**
Bachelor of Electrical and Electronic Engineering and Mathematical and Computer Science. *Adelaide, SA*

Marryatville High School **ATAR: 98.7 Jan. 2020 – Nov. 2024**

Projects

Maze Generator | *C++* **26th Jan. – 8th Feb. 2026**
- Using raylib and backtracking, created a maze generator.
- Implemented using good refactoring practice involving SOLID principles.
- Used an innovative bitboard to store cell data in the maze grid.
- Used the strategy design patterns for ease of implementing different player movement and maze generation.

Particle Collision Simulator | *Python* **10th Jan. – 15th Jan. 2026**
- A particle simulator in pygame simulating collisions of particles.
- Used industry standard techniques for collision resolution, implemented real-world physics
- Implemented object-oriented programming practices such as polymorphism for different particles of different masses.

Neural Network Handwritten Digit Recognition | *C++* **Oct. 1st – 23rd 2025**
- Network capable of processing up to 100k samples with an accuracy of 98%.
- Created a MLP neural network from scratch.
- Created a UI for testing and training the network, training image classification.
- Worked in a group of 3 as a team member and coordinator for neural network design.

Alien Adventure | *Python* **Dec. 1st 2023 – Oct. 5th 2024**
- Used DFS for path unlocking in world interactions.
- Designed a tile-based collision system integrated with moving platforms and semi-solids.
- Supports up to 300 entities on a screen without lag.
- A user-friendly level editor with 10+ playtesters involved in the testing process.

Leadership / Extracurricular

Ravi's Study Program **Dec. 2025 – Feb. 2026**
Student *Adelaide University*
- Worked through 100+ DSA style questions with 35+ rated hard.
- Regularly spent 40+ hours a week practicing communication, critical thinking, code refactoring and design.
- Able to thrive in an environment with only 17% program completion rate.

Adelaide Competitive Programming Club **Aug. 2025 – Present**
Member *Adelaide University*
- Participated in workshops and community events.
- Regularly competed in programming competitions in division B, ranking overall 9th.

Adelaide Electrical Engineering Society Club **Mar. 2025 – Present**
Member *Adelaide University*
- Participated in micro-controller workshops and helped out 3-4 students with setting up.
- Participated in their design and build challenge and built a working gyroscope sensor using arduino and C++, managed to get 3rd place.

ICPC Programming Competition **Sep. 2025**
Division B competitor *Adelaide University*
- Participated in an international programming competition, scoring 28th.

Technical Skills

Languages: Python, C++, MATLAB, C
Developer Tools: Pycharm, VS Code
Technologies/Frameworks: GitHub, Linux