Coy Zhu
Engineering Undergraduate at Trinity College, University of Cambridge.

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Education

Trinity College, University of Cambridge Expected 2027
Engineering BA and MEng
Ranked 1st out of 317 in University of Cambridge in 2nd Year (862/965) 2025
Jeremy Pemberton Prize (most distinguished 2nd Year student across all subjects @ Trinity)
Rex Moir Prize (top of tripos) – Mick Longton Prize (exam performance) – Re-elected as Senior Scholar
Ranked 4th out of 323 in University of Cambridge and **1st** in Trinity College in 1st Year (799/900) 2024
Elected as Senior Scholar – Garrett Fund Prize (exam performance)

Nottingham High School 2016 – 2023
Silver Medal @ International Physics Olympiad (32/50) – Ranked 55th out of 400+ in the world
Ranked 1st in the UK for BPhO – NPL Theoretical Physics Prize (theory exam performance)
Gold in UK Chemistry Olympiad (72.5/86) – Qualified for UK IChO team selection camp
Distinction in British Mathematics Olympiad (33/60) – Full marks in the Senior Maths Challenge
4 A* in Further Mathematics, Mathematics, Physics and Chemistry
Deputy Head Boy – Entrance Scholar – Music Scholar – A-Level and GCSE Examination Scholar

Experience and Projects

Cambridge University Engineering Department Cambridge
Machine Learning Research Intern July 2025 – August 2025

- Implemented both **U-Net and FCN-ResNet** architectures to segment blood vessels from Flow-MRI magnitude scans using an **AdamW optimiser** and **patience-based early-stopping** training methods for effective regularisation, preventing overfitting.
- Explored a range of loss functions, including **weighted cross-entropy, Dice and focal-Tversky** losses. These were chosen to tackle FN vs FP issues in training.
- Designed a **level-set iterative method** to perturb geometries (implictly encoded by SDFs), producing artificial MRI scan and mask data pairs for supervised learning.
- Achieved **82.2% IoU** on validation set, consisting of real MRI magnitude scans.

summer.holiday
Hackathon Project March 2025

- Wrote the backend for an LLM-powered holiday planning assistant.
- Extensive usage of APIs to receive and refine search queries using an AI agent (GPT-4o).
- **Ranked 3rd** at the ARM hackathon, earning an Honourable Mention.

Snake Game
Personal Project September 2024

- Wrote an efficient 500 line **OOP-based** implementation of the popular game Snake in C++.
- Stored data through proficient use of the STL and used OpenGL for rendering graphics.
- Trained an **A2C agent** to play the game, implementing the **REINFORCE** learning algorithm.

Extra-Curricular Courses and Societies

Stanford CS229 – Machine Learning 2025

- Rigorous mathematical coverage of Machine Learning, including supervised and unsupervised models, ranging from GLMs and SVMs to Neural Networks and Transformers.
- Completed all problem sheets and coding tasks, including a final project (see below).
- Final Project

President – Trinity College Engineering Society 2024 – 2025

- Organised speaker events from various companies, ranging from startups to big tech.
- Organised several successful social networking events and society merchandise for members.
- Led efficient weekly meetings to encourage communication and teamwork within the committee.
- Successfully negotiated sponsorships for the incoming committee from a range companies.

Vice-President – Cambridge University Jazz Orchestra 2025 – 2026