Jerry Mao

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Education

Massachusetts Institute of Technology — **Cambridge, MA, USA**
Candidate for Bachelor of Science in Computer Science and Engineering; GPA 5.0/5.0 — Expected May 2023

- Selected coursework: Machine Learning (Grad), Advanced Algorithms (Grad), Probability, Linear Algebra
- Spring 2021 coursework includes: Reinforcement Learning (Grad), Statistics, Microeconomics, Systems Design

Caulfield Grammar School — **Melbourne, VIC, Australia**
High school diploma, Victorian Certificate of Education (Baccalaureate); ATAR 99.95/99.95 — November 2018

- Nationally highest possible ATAR percentile rank; dux of school with perfect scores in four subjects.
- Dux of class in college-level Extension Mathematics course run by the University of Melbourne.

Experience

Optiver APAC — **Sydney, NSW, Australia**
Software developer intern — December 2020 – January 2021

- Researched strategies for improving machine learning trading outcomes, combining theoretical results to empirically evaluate algorithms on experimental datasets and report proposed solutions for further work.
- Advised design of new parameter calculations and continual maintenance of commodities pricing script piloted during previous internship.

Optiver APAC — **Sydney, NSW, Australia**
Software developer intern — June 2020 – August 2020

- Remodelled options trading order management scheme, devising a new strategy that increases flexibility by a factor of 30.
- Evaluated alternate means of utilising the latest exchange software in collaboration with traders.
- Supported launch of new commodities trading desk, automating pricing parameter calculations with a script integrating with the existing trading framework.

MIT Quest for Intelligence — **Cambridge, MA, USA**
Undergraduate researcher – Improbable AI Laboratory — February 2020 – present

- Optimised deployment of machine learning experiments by designing a framework to manage cloud execution, compatible with the TensorFlow and PyTorch frameworks.

MIT Battlecode AI Programming Competition — **Cambridge, MA, USA**
President and organising committee member — September 2019 – present

- Architected infrastructure for distributed backend processing in Google Cloud, using Docker and Pub/Sub to create scalable software able to run over 25 000 matches per day.
- Debugged critical performance issues to significantly reduce latency and running costs by up to 50%.

Awards and Achievements

MIT Battlecode AI Programming Competition — *December 2015 – February 2019*

- Strategised team approach to a complex artificial intelligence game in a limited one-month development cycle, achieving 2nd place worldwide in a college and professional level event with over 1000 registered participants.

Informatics Olympiads and Competitive Programming — *June 2010 – present*

- International Olympiad in Informatics (IOI) gold medallist (2017) and four-time medallist from 2015 to 2018.
- ICPC 2021, with perfect score in NENA and pending results of NADC contest as part of MIT team.
- Google Codejam competition, placing 39th (2020) and 47th (Distributed) out of 96 000 competitors globally.
- Microsoft Q# Quantum Coding Contest, placing 49th out of over 10 000 registered participants globally.

Mathematics Olympiads — *September 2010 – September 2018*

- Australian Mathematics Olympiad: IMO Team Selection School invited attendee.
- Australian Mathematics Competition: nine-time prizewinner (top 0.3%) and three-time top-scorer statewide.

Skills

Languages
C++, Python, MATLAB, Java, MySQL, Q#

Tools and technologies
PyTorch, XGBoost, Git, Docker, GCP, AWS EC2