

# Jerry Mao

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<b>Education</b>	<b>Massachusetts Institute of Technology</b> <i>Candidate for Master of Engineering in EECS (Artificial Intelligence); GPA 5.0/5.0</i>	<b>Cambridge, MA, U.S.</b> Expected January 2024
	<ul style="list-style-type: none"><li>Selected coursework: Sensorimotor Learning, Machine Learning, Advanced Algorithms</li><li>Selected Fall 2022 coursework: ML for Inverse Graphics, Computational Cognitive Science</li></ul>	
	<i>Candidate for Bachelor of Science in Computer Science and Mathematics; GPA 5.0/5.0</i>	Expected May 2023
<b>Experience</b>	<b>Hudson River Trading</b> <i>Algorithm developer intern</i>	<b>New York, NY, U.S.</b> May 2022 – August 2022
	<ul style="list-style-type: none"><li>Analysed generative properties of attention-based neural networks when applied to securities pricing data, evaluating custom model architectures on a suite of metrics to compare with baseline autoregressive algorithms.</li><li>Modelled high-frequency cryptocurrency prices to create automatic trading algorithms deployed to live markets, and empirically verified strategy profitability through backtests on a range of currencies.</li></ul>	
	<b>MIT Computer Science and Artificial Intelligence Laboratory</b> <i>SuperUROP scholar – Improbable AI Group</i>	<b>Cambridge, MA, U.S.</b> September 2021 – present
<b>Freelance</b>	<i>Undergraduate research assistant – Improbable AI Group</i>	February 2020 – August 2021
	<ul style="list-style-type: none"><li>Streamlined machine learning research workflows by designing an experiment interface that automates cloud deployment, supporting results analysis across at least 3 platforms to alleviate academic compute constraints.</li></ul>	
	<b>QuantCo</b> <i>Software engineer intern</i>	<b>Karlsruhe, BW, Germany</b> June 2021 – August 2021
<b>Freelance</b>	<ul style="list-style-type: none"><li>Optimised linear algebra library for matrix “sandwich” products by contributing new parallelism options to open-source BLIS framework, resulting in performance increases of up to 40% for narrow matrices.</li><li>Prototyped a new algorithm for data preprocessing, resolving pain points in data analysis workflows with an extensible solution that is also 20% more efficient.</li></ul>	
	<b>Optiver</b> <i>Software developer intern</i>	<b>Sydney, NSW, Australia</b> December 2020 – January 2021
	<ul style="list-style-type: none"><li>Researched machine learning algorithms for derivatives trading, combining theoretical results with empirical backtests to report proposed solutions for further work.</li><li>Advised design for new parameters in commodities pricing system, and supported periodic system maintenance.</li></ul>	
<b>Freelance</b>	<i>Software developer intern</i>	June 2020 – August 2020
	<ul style="list-style-type: none"><li>Invented a new algorithm for managing open options-trading orders, provably increasing flexibility by 30-fold.</li><li>Automated commodities pricing parameters, launching a new trading desk integrated with existing frameworks.</li></ul>	
	<b>MIT Battlecode AI Programming Competition</b> <i>President and organising committee member</i>	<b>Cambridge, MA, U.S.</b> September 2019 – present
<b>Skills</b>	<ul style="list-style-type: none"><li>Directed technical design for a complex artificial intelligence game, in an international event for college and professional level participants attracting over 1000 registrations every year.</li><li>Architected distributed infrastructure for asynchronous task execution in Google Cloud, using Docker and Pub/Sub to create a scalable system running over 25 000 matches daily.</li></ul>	
	<i>Finalist and competitor</i>	December 2015 – February 2019
	<ul style="list-style-type: none"><li>Designed AI strategy approach and coordinated team workflow in a limited one-month development cycle, to become a three-time tournament finalist and achieve 2<sup>nd</sup> place worldwide at the onsite finals.</li></ul>	
<b>Skills</b>	<b>Informatics Olympiads and Competitive Programming</b>	June 2010 – present
	<ul style="list-style-type: none"><li>ICPC 2021 world finalist with perfect score in NENA, 1<sup>st</sup> place in NADC and 2<sup>nd</sup> place in NAC.</li><li>International Olympiad in Informatics (IOI) gold medallist (2017) and four-time medallist from 2015 to 2018.</li><li>Google Codejam competitor, placing 39<sup>th</sup> (2020) and 47<sup>th</sup> (Distributed) out of 96 000 competitors globally.</li></ul>	
	<b>Selected languages:</b> C++, Python, Go, Java, TypeScript, MySQL, Q# <b>Selected tools and technologies:</b> PyTorch, XGBoost, Git, Docker, GCP, AWS EC2, OpenMP, Arduino	