

Rowechen Zhong

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Education

Massachusetts Institute of Technology 2022 - 2025 (Expected)
Physics and Computer Science Double Major Advisor: Aram Harrow

Significant amounts of graduate-level coursework in mathematics, physics, and computer science. Most can be found at <https://rowechenzhong.github.io/coursework.pdf>.

Westwood High School: SAT 1600 2022

Programming Skills

Experienced: Python, PyTorch, Java, \LaTeX , Git

Familiar: Tensorflow, Jax, C++, TypeScript, Linux

Honors / Awards

Putnam Math Competition: Honorable Mention 2022

International Physics Olympiad (IPhO): Silver Medal, team USA 2022

USA Mathematics Olympiad (USAMO): Honorable Mention, rank 19th 2021

USA Computing Olympiad (USACO): Platinum division, Gold division perfect score 2021

Asian Pacific Mathematics Olympiad (APMO): Bronze Medal, rank 6th in USA 2022

Harvard-MIT Invitational Competition: Rank 3rd 2022

Math Olympiad Program (MOP): Blue MOP alumnus 2021

Work Experience

Undergraduate Researcher: *Marin Soljačić Group* 2023 – date

Researching machine learning models to solve high-dimensional partial differential equations such as strongly correlated many body systems. Supervisor: Di Luo

Undergraduate Researcher: *Lienhard Research Group* 2022 – 2023

Researched machine learning models to solve fluid equations. Designed a novel method of training models that are robust to perturbations and transparent to physical interpretation. Implemented using Pytorch. Supervisor: Danyal Rehman

Founder and Director: *Photon* 2021 – 2022

Director of private classes for math, physics, and computer science olympiads. Designed and delivered over 70 hours of lectures to over 40 students. Authored hundreds of pages of course material, homework assignments, and solutions.

Math Teacher: *ACES* 2020 – 2022

Designed curriculum and class materials, wrote diagnostic exams, delivered 34.5 hours of lectures on olympiad mathematics to middle and high school students.

Programming Projects

Accelerated Quantum Approximate Optimisation Algorithm 2023

Extended the QAOA algorithm for Maxcut through intelligent precomputation of subgraph hyperparameters. Won first place in the Quantinuum Challenge at the MIT-CQE iQuHACK Hackathon.

Wordbash 2023

Developed a full-stack MERN application. Wordbash is an online party game that uses OpenAI models to generate humorous prompts. Won prize for most engaging project at MIT WebLab.

Pineapple (MIT Battlecode Programming Competition) 2022, 2023

Designed algorithms in Java to play strategy games. Implemented pathfinding, complex strategies, and communications with limited computational resources using distributed algorithms.

EduNet 2022

Developed clear and concise ML library for educational use. EduNet is written completely in Numpy, and includes Convolution and Recurrent layers, various activation functions, and a Deep Q-learning framework.

Community Service

Head Coach: Canyon Vista Middle School Science Bowl / Mathcounts 2019 – 2022

Taught physics and mathematics, developed strategy, administered practice matches. Guided team to the national science bowl competition twice.

Director: Tree Mathematics Contest 2021

Organized a mathematics contest for middle and high school students. Created an online community of over 180 students. 92 students in 25 teams participated.