

Eric Zhan

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Education

Massachusetts Institute of Technology

Sep 2024 - May 2028

Bachelor of Science in Artificial Intelligence and Decision Making (6-4)

- Relevant coursework: Software Construction (6.102), Introduction to Machine Learning (6.390), Computation Structures (6.191), Introduction to Low-level Programming in C and Assembly (6.1903), Linear Algebra (18.06), Differential Equations (18.03)

Research Experience

Quantum Nanostructures and Nanofabrication Laboratory (QNN)

Feb 2025 - Present

Undergraduate Researcher

- Investigated fluctuation sources in superconducting nanowire single photon detectors.
- Prepared and performed measurements on superconducting devices.
- Performed data analysis and visualization with MATLAB and Python.
- Maintained and improved drivers to communicate with instruments within the QNN lab codebase.

MIT Program for Research in Mathematics, Engineering and Science (PRIMES)

Jan 2023 – Jan 2024

Researcher

- Improved bounds on an unsolved math conjecture with applications in dynamical systems and number theory.
- Presented my findings at the annual MIT PRIMES conference and at the Brandeis University Dynamics and Number Theory Seminar.
- V. Nekrasov and E. Zhan, *On Nontrivial Winning and Losing Parameters of Schmidt Games*, arXiv e-prints (2024), <https://doi.org/10.48550/arXiv.2401.00614>.

Institute for Computing in Research

Jul 2023 - Aug 2023

Researcher

- Performed research in optics and plasma imaging using computational methods.
- Developed open source Python software to research new models of ray tracing and geometric optics.
- Collaborated with a mentor from Los Alamos National Laboratory.
- Codeberg repository: https://codeberg.org/eric.zhan/Geometric_Optics_Corrections_Simulations

Work Experience

Daily Challenge with Po-Shen Loh

Feb 2022 - Jul 2024

Instructor

- Effectively taught concepts in math competitions to students using pre-prepared materials from Professor Loh (CMU).
- Collaborated with partner teaching assistants in classes and outreach “livesolve” events.
- Engaged and motivated students to learn; inspired students to enjoy mathematics.

Awards

- Regeneron Science Talent Search Scholar (2024), National Merit Scholarship Finalist (2024)
- USA Math Olympiad Bronze Medalist (2023), USA Junior Math Olympiad Winner (2022), Honorable Mention (2021)
- USA Physics Olympiad 2x Silver Medalist (2024, 2023), Bronze Medalist (2022)
- National Science Bowl Top 16 Team Captain (2023, 2024)
- President’s Volunteer Service Award Gold (2022)

Skills

- Programming Languages: Python, Java, Typescript, C, Assembly.
- Web frameworks: Django, Next.js, React.
- Other: LaTeX, SQLite, AWS, Linux.

Projects

- A full stack website to host the MIT Brass Rat Puzzle Hunt, served 200 teams during the puzzle hunt.
- Full House, a platform for students to find and share summer housing developed with peers in the MIT Full Stack club.
- For additional projects and other information, see <https://ericzhan.me>