Lucy Cai

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EDUCATION

Massachusetts Institute of Technology (MIT) ***Exp. June 2026***

B.S. in Computer Science (2025), Candidate for M.Eng in Computer Science

- GPA: 4.7 / 5.0
- Relevant Coursework: Deep Learning (6.7920), Robotic Manipulation (6.4212), Digital Systems Lab FPGA (6.111), Dynamical System Modeling and Control Design (6.310), Design and Analysis of Algorithms (6.046), Computer Graphics (6.837), Computer Systems Engineering (6.033), Machine Learning (6.036), Web Development Lab (6.148), Computer Security (6.053), Computation Structures (6.004), Advanced Abstract Algebra (18.702)

Phillips Exeter Academy ***Sept. 2017 – June 2021***

- GPA: 10.48 / 11 (Cum Laude) | SAT: 1590 / 1600
- Awards: AIME: 9/15 (2020), 7/15 (2019), Math Prize for Girls Bronze Olympiad Medal (2019, 2018, national top 22)

INTERNSHIPS

Blackrock Neurotech ***June 2025 – Aug. 2025***

BCI Software Intern

- Built the Neural Signal Generator (NSG), Blackrock's first testing pipeline with dynamic data which greatly expands capability to test critical products; generates and visualizes neural data from mousepad movements in real time
- Developed FPGA code which handles up to 128 channels of electrode data with 33 millisecond latency

Amazon ***May 2024 – Aug. 2024***

Software Dev ML Intern with AWS Data Analytics

- Developed Amazon's first set of automatic unit test generation software built using large language models (LLMs)
- Optimized performance by cross-testing four different approaches in recent research, which generate up to hundreds more tests than naive LLM prompting

SpaceX ***May 2023 – Aug. 2023***

Software Engineering Intern with Starshield

- Built a pipeline for satellite collision avoidance which handles all ephemeris messages from entire Starlink fleet (~5000 satellites). Deployed to Continuous Integration for use across company
- Streamlined data upload/download process by cutting down hundreds of lines of code

MIT Lincoln Laboratory ***June 2022 – May 2023***

Machine Learning Intern with Active Optical Systems

- Analyzed and improved a machine learning network converting 2D images to 3D point clouds on lidar data; performed resolution and sensitivity experiments on another machine learning model classifying vehicles

PROJECTS

MIT Learning and Intelligent Systems Lab (LIS) ***Sept. 2025 – Present***

M.Eng Graduate Researcher

- Working with Prof. Leslie Kaelbling on robotics research

MIT Digital Systems Lab ***Oct. 2024 – Dec. 2024***

FPGA Engineer

- Built a functional paper piano using a two-camera FPGA system equipped with a self-devised computer vision algorithm that senses finger placement; led a team of three people

MIT Web Development Lab ***Jan. 2022***

Fullstack Developer

- Designed a website from scratch that enables users to play a collaborative story-telling game with friends in real time
- Led a team of three people to complete website in two weeks; mastered both frontend and backend work

MIT Research Science Institute (RSI) ***June 2020 – Aug. 2020, June 2021***

Math Researcher, Teaching Assistant

- Wrote an 18-page topology research paper studying optimal placement of heat sources on a parallelogram torus to reach equilibrium at the fastest rate, using Fourier series and Mathematica modeling; gave daily lectures as a TA the next year

SKILLS AND INTERESTS

Previous US Department of Defense Secret Security Clearance

Skills: Python, SystemVerilog, Typescript, Linux, Git, C, LaTeX, Drake, Langchain, Assembly

Interests: Creative Writing, The Tech (MIT Student Newspaper), MIT Lightweight Women's Crew, Woodworking