

500 Memorial Dr  
Cambridge, MA 02139  
(617) 909-7166

# Andi Liu

Python, TypeScript, C++  
GitHub: [andi6558](#) / [lad6558](#)  
[andiliu@mit.edu](mailto:andiliu@mit.edu)

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## EDUCATION

### Massachusetts Institute of Technology (MIT)

B.S. in Computer Science

GPA : 5.0/5.0

Sept 2021 - May 2025

Cambridge, MA

**Coursework:** Advanced Algorithms (graduate), Natural Language Processing, Machine Learning, Artificial Intelligence, Computer Networks, Computer Security, Software Construction, Functional Programming in Scheme

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## SUPERVISED RESEARCH

### Networking for ML Research | Prof. Manya Ghobadi

Sept - Dec 2023

- Designed and implemented congestion control algorithms for data parallelism in ML training, resulting in a 10% improvement in average iteration time for VGG19 and GPT2 models.
- Automated the running of experiments and collection of data using Bash scripts.

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## PROJECTS & ACTIVITIES

### MIT ChatGPT-powered Event Platform

Apr 2023 - Present

- Developed [frontend](#) and [backend](#) for MIT-wide event platform [DormSoup](#) with partner using Next.js and Tailwind CSS.
- Prompt-engineered ChatGPT to parse emails into JSON. Hosted backend using AWS EC2 and RDS for PostgreSQL.

### Machine Translation Research using Transformer Model

Sept - Oct 2022

- Trained machine translation transformer [model](#) based on the Hugging Face T5 architecture adversarially against fine-tuned GPT-2 to mitigate gender bias in NLP, surpassing baselines in multiple metrics. Wrote a 9-page [paper](#).

### Game Development Projects

Oct 2021 - May 2022

- Programmed stealth [game](#) with team using Unity with C#, practicing Scrum methodologies under Agile principles.
- Developed [frontend](#) for an *Among Us* type game using the Phaser game engine, ranked 2/150+ in HackMIT.

### Competitive Algorithmic Programming in C++

2017 - 2021

- Trained in Olympiad graduate-level algorithms and data structures in C++ for 1500+ hours.
- Ranked 6/2575 in USACO US Open 2020, securing a place among the 26 National Finalists across all U.S. high schools.

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## INTERNSHIPS

### Software Engineer Internship | Capital One

Jun - Aug 2023

- Developed frontend for Ozone UI, an internal dashboard used for AWS compliance with TypeScript, React, and Figma.
- Architected Spec2Code, an ML pipeline that auto-generates Python code from pseudocode written by cloud compliance policy engineers. Trained a Random Forest Classifier and demoed to internal customers as a proof of concept (POC).

### Software Engineer Internship | AMD

May - Aug 2022

- Fixed driver defects causing graphics corruption in games like *Minecraft* and *Metro Exodus* using Visual Studio in C++.
- Optimized *Fortnite* performance on AMD cards, achieving a notable 2% boost in frame rate.
- Automated the variable setup process of the daily-used internal tool DXCPanel, saving manual configuration time.

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## HONORS

- National Finalist (top 26 among US highschoolers) – USACO 2020.
- Ranked sixth (out of 2575) – USACO Open 2020.
- Ranked second (out of 150+ teams) – HackMIT 2021.
- Ranked third (out of 59 teams) – MIT Battlecode 2022.