

Cindy Zhang

cindy@princeton.edu \diamond <https://cindyzyzhang.github.io/>

EDUCATION

Princeton University

September 2022 - Present

Ph.D. in Computer Science

Advisor: Adji Bousso Dieng

Massachusetts Institute of Technology (MIT)

September 2018 - May 2022

B.S. in Mathematics with Computer Science

GPA: 4.9/5.0

Relevant Coursework: Machine Learning (6.867, 6.036), Algorithms for Inference (6.438, 6.435), Fundamentals of Statistics (18.650), Real Analysis (18.100Q), Algorithms (6.046, 6.006), Software Construction (6.031), Theory of Computation (18.404), Computation Structures (6.004), Linear Algebra (18.700)

EXPERIENCE

Laboratory for Information and Decision Systems

January 2021 - August 2022

Student Researcher (PI: Devavrat Shah)

- Established theoretical link between individual fairness and matrix estimation
- Devised and implemented experiments to supplement mathematical findings on the accuracy and fairness properties of different matrix estimation methods

Mądry Lab

May 2021 - October 2021

Student Researcher (PI: Aleksander Mądry)

- Conducted experiments on the sensitivity of deep neural networks to planted correlations in training data using the 3DB framework

MIT Media Lab

December 2020 - February 2021

Student Researcher (PI: Ramesh Raskar)

- Conducted research on efficient methods of selective forgetting
- Designed and implemented experiments simulating the retained dataset through methods commonly used for adversarial attacks

Learning and Intelligent Systems Group

January 2020 - December 2020

Student Researcher (PIs: Leslie Kaelbling, Tomás Lozano-Pérez)

- Conducted research on leveraging prior experience when transferring knowledge between interactions in similar domains through vision
- Implemented continual learning algorithms that enable robots to more efficiently explore new action spaces

Uber ATG (now part of Aurora)

June 2020 - August 2020

Software Engineering Intern

- Revamped release tool used across ATG by creating a new React app with the latest UI libraries, migrating previous features, and adding new displays to improve user workflow

Divvly

June 2019 - August 2019

Software Engineering Intern

- Developed tools to streamline entry of new reagents in the marketplace

PUBLICATIONS

Matrix Estimation for Individual Fairness (preprint)

2021

Sarah H. Cen, Cindy Zhang, Devavrat Shah

TEACHING

MIT	Teaching Assistant for 6.042 Mathematics for Computer Science	<i>Fall 2021</i>
	Teaching Assistant for 18.100A Real Analysis	<i>Spring 2021</i>
	Teaching Assistant for 18.S097 Proof-Writing Workshop	<i>IAP 2021</i>
	Lab Assistant for 6.036 Introduction to Machine Learning	<i>Fall 2019</i>
	Lab Assistant for 6.009 Fundamentals of Programming	<i>Spring 2019</i>
Other	Instructor at Middle East Entrepreneurs of Tomorrow (MEET)	<i>Summer 2022</i>
	Teaching Assistant on Art of Problem Solving	<i>Spring 2019</i>
	Counselor at the Ross Mathematics Program	<i>Summer 2018</i>

PROJECTS

Comparing Methods of Neural Net Compression

- Implemented several neural net compression algorithms and compared how well they individually and in tandem preserve model accuracy while reducing model size

Probabilistic Model of Political Candidate Qualities

- Used inverse planning framework to implement a probabilistic generative model in WebPPL that infers a political candidate's qualities from their political stances

Interactive Map for Boston Children's Museum

- Built an interactive map for the Boston Children's Museum website as part of Code for Good
- Added backend features for museum staff to easily enter temporary exhibits or events

LEADERSHIP AND SERVICE

Momentum *March 2022 - Present*
Developed curriculum to teach fundamentals of AI to underserved high school students

MIT CodeIt *February 2022 - May 2022*
Mentored female and nonbinary middle school students in computer science fundamentals

Undergraduate Math Association *September 2020 - May 2022*
Served as technology chair; contributed to developing a course selection guide and running a proof-writing workshop to make math courses at MIT more accessible

CovEd Mentorship Program *October 2020 - June 2021*
Mentored K-12 students heavily affected by the COVID-19 pandemic

Undergraduate Society of Women in Math Mentorship Program *September 2020 - May 2021*

Society of Women Engineers Mentorship Program *September 2019 - May 2021*

TECHNICAL SKILLS

Computer Languages	Python (proficient), Java (proficient), C++, JavaScript, HTML, CSS
Software & Tools	PyTorch, React, Redux, Docker, Git