

# Sophia Zheng

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## EDUCATION

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**Massachusetts Institute of Technology (MIT)** Cambridge, MA  
**M.Eng. in Computer Science, Concentrations in HCI + AI** 2024-25  
Advisor: Arvind Satyanarayan  
Research Interests: Visualization systems, Interactive data, Human-AI interaction  
GPA: 5.0/5.0  
**B.S. in Computer Science, Minor in Urban Studies + Planning** 2020-24  
GPA: 4.7/5.0

## RESEARCH EXPERIENCE

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**MIT Visualization Group** Fall 2023 - Present

Research assistant, Mentor: Arvind Satyanarayan

- Developing an interactive visualization system mapping data provenance in computational notebooks as a node-edge graph to streamline EDA navigation and insight generation by leveraging program slicing and LLMs
- Designed and prototyped a computational notebook tool that annotates visualizations by hierarchizing data and bidirectionally linking a mark to its corresponding datum to promote visual and data literacy

**MIT Civic Data Design Lab** Spring 2022

Undergraduate researcher, Mentor: Sarah Williams

- Transformed 17th century maps for ReAct Beirut: a digital platform recording local craftsmen heritage
- Created a website showcasing projects from our FA21 data visualization class

**MIT Election Data + Science Lab** Summer 2021

Undergraduate researcher, Mentor: Charles Stewart III

- Standardized large datasets of local, state, and national election returns data with Python scripts
- Conducted literature reviews of local policy issues within Hudson County, New Jersey

**MIT Digital Humanities Lab** Spring 2021

Undergraduate researcher, Mentor: Catherine Clark

- Applied computer vision object classifications to hundreds of thousands of historical Parisian photos
- Implemented UI prototypes of a heat map to visualize photo density

**MIT Data + Feminism Lab** Fall 2020

Undergraduate researcher, Mentor: Catherine D'Ignazio

- Crafted a data narrative analyzing differences in the historical commemoration of suffragettes by creating data + map visualizations of census race and spatial data

## INDUSTRY EXPERIENCE

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**Spring Health - SWE Intern (Platform)** Summer 2023

- Deployed and smoke tested new backend calculation logic of provider / patient appointment availability
- Collaborated to streamline SSO login via public JWT verification, reducing user-experienced latency

## Esri - SDE Intern

Summer 2022

- Implemented NLP location based Named Entity Recognition for a geolocation browser extension
- Built scripts to automate post-processing of deep-learning wetland identification rasters in ArcGIS

## TEACHING EXPERIENCE

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### 6.1040 Software Studio - Graduate Teaching Assistant

Fall 2024

*Instructors: Arvind Satyanarayan, Max Goldman*

- Taught weekly recitation covering fundamental full-stack concepts
- Hosted weekly office hours to help students debug full-stack apps and understand concept-based and value sensitive design
- Closely mentored student groups for final projects developing web apps in need-specific domains

### 6.1010 Fundamentals of Programming - Lab Assistant

Spring 2024

### 6.100 Introduction to Programming (Python) and Data Science - Lab Assistant

Spring 2023

## PROJECTS

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### High Accuracy Eye Tracking to Encode Facial Variability

Spring 2024

- Trained a novel, multi-layered CNN-based computer vision model to improve eye tracking accuracy

### Connections: Navigating Ambiguity with Large Language Models

Fall 2023

- Tested various clustering models and word embeddings with fine-tuned prompts to evaluate the accuracy of ChatGPT-3.5 in resolving word ambiguity within the New York Times Connections puzzles

### Family Separation under the Zero Tolerance Policy

Fall 2021

- Data visualization article analyzing the magnitude of family separations under the 2018 Zero Tolerance Policy with interactive arc diagrams

## SERVICE + LEADERSHIP

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### Student Program Coordinator

2020-24

*MIT Priscilla King Gray Public Service Center*

- Managed a team of students to design and lead an annual intensive, 5-day program for incoming freshmen on Boston community work through service placements, workshops, and discussion

## ADVANCED RELEVANT COURSEWORK

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Deep Learning; Big Data, Society, + Visualization; Quantitative Methods in NLP; Advances in Computer Vision; Community-Informed Design (Harvard); Probability + Statistics; Computer Systems Engineering; Linear Algebra + Optimization