Michelle Liu

(775) 772-8748 | michelle_h_liu@brown.edu | michelleliu-4 | michelleliu4 | michelleliu4.github.io

EDUCATION

Brown University — Expected May 2025
Bachelors of Science, Applied Math – Computer Science, GPA: 4.00 — *Providence, RI*

- **Relevant Courses:** Machine Learning, Deep Learning, Computer Systems, Data Structures & Algorithms, Honors Statistics, Graph Theory, Abstract Algebra, Numerical Solutions of Differential Equations, PDEs, Operations Research
- **UNR High School Dual-Enrolled Courses:** Game Theory, Microeconomics, Topology, Analysis, Number Theory
- **Awards:** 2x AIME Qualifier, National Science Bowl Top 32, Robinhood Hackathon Bronze Award, Discover Citadel & Citadel Securities Fellow, SIG Discovery Day Trading, Jane Street FTTP Electronic Trading Challenge 3rd Place

EXPERIENCE

JP Morgan & Chase — June 2023 – Aug 2023
Incoming Software Engineer Intern — *New York, NY*

Brown University — Aug 2022 – Present
Undergraduate Teaching Assistant — *Providence, RI*

- Develop projects and exams for **NLP**, **graduate-level machine learning**, statistics, and functional programming courses
- Lead and organize collaborative workshops to reinforce conceptual ideas and discuss challenging problems
- Support students by moderating online question forum and assisting over **300 students** in office hours

Visual Prosthesis Lab — Sep 2022 – Dec 2022
Undergraduate Research Assistant — *Providence, RI*

- Research and implement **computer vision** frameworks in **Python** to assist visually impaired individuals with navigation
- Develop visual prosthetic devices with object localization utilizing YoloV5, grasping utilizing Text2Voice, and OCR

Western Digital — May 2022 – Aug 2022
Software Development Engineer Intern — *Milpitas, CA*

- Designed test prioritization algorithm using **Python** and **machine learning**, increasing test cycle efficiency by over 50%
- Constructed regression, random forest, XGBoost, and neural network models to predict test failures with 95% accuracy
- Utilized **FastAPI** and **SQL** queries to access and post algorithm performances on **Elasticsearch**

PROJECTS

Jreamboard | *React, Node.js, JavaScript, Express*

- Developed frontend for audio-based social media web application with **Figma** and **React**, designing a login and posts page
- Constructed backend architecture using **Express** and **PostgreSQL** to store audio and account information

Senate Environmental Vote Clustering | *Python*

- Employed k-means, hierarchical, and spectral clustering to analyze and identify patterns in senator environmental voting
- Utilized **Python**, **NumPy**, scikit-learn, SciPy, and **pandas** to visualize and process the voting data

Caching I/O | *C*

- Designed caching system for file reading and writing, running **31%** faster than C's standard library

Search Engine | *Python*

- Designed search engine in a closed environment replicating Google's PageRank algorithm with tf-idf relevance

ACTIVITIES & LEADERSHIP

Applied Math Dept. Undergraduate Group | *President* — Mar 2022 – Present

- Lead club of over **200 students** and collaborate with board members to organize events like industry panels and mixers
- Manage over **$1000 budget** and organize social outreach as well as website

Anime Video Game Ensemble | *Co-President & Founder* — Sep 2021 – Present

- **Founded club** and recruited over **70 members** to arrange and perform anime and video game music in biannual concerts
- Orchestrate club management, weekly rehearsals, and social media including YouTube channel with over **40k views**

Cambridge Math Circle | *Mathematics Instructor* — Apr 2020 – Present

- Teach online math classes and explain challenging concepts for 1st-8th grade students in the Cambridge area
- Construct advanced Beast Academy and AoPS lesson plans used by over **150 students**

SKILLS

Languages: Python (proficient); JavaScript, HTML/CSS, ReasonML, (intermediate); C, Java, SQL, MATLAB (novice)
Frameworks & Tools: Git, NumPy, TensorFlow, React, Figma, WordPress
Interests: Rock climbing, aerial silks, piano, music arrangement