

Michelle Liu

☎ (775) 772-8748 | ✉ michelle_h_liu@brown.edu | 🌐 michelleliu-4 | 🐙 michelleliu4 | 📄 michelleliu4.github.io

EDUCATION

Brown University

Sep 2021 – May 2025

Bachelors of Science, Applied Math – Computer Science, GPA: 4.00

Providence, RI

- **Relevant Courses:** Probabilistic Models, Stochastic Calculus, Game Theory, Statistics, Machine Learning, Natural Language Processing, Computer Systems, Numerical Methods of Differential Equations, Real Analysis, Complex Analysis
- **Awards:** Jane Street Electronic Trading Challenge 3rd Place, National Science Bowl Top 32, AIME Qualifier
- **Activities:** Applied Math DUG (President), Cambridge Math Circle (Instructor), Anime Video Game Ensemble (Co-Founder)

EXPERIENCE

Susquehanna International Group

Jun 2024 – Aug 2024

Incoming Quantitative Trading Intern

New York, NY

Lightspeed

Jan 2024 – May 2024

Data Science Intern

Providence, RI

- Analyzed Easter trends in restaurants, deriving sales pattern insights from over 10,000 transactions with BigQuery
- Developed and sales and tip trend analyses using **GCP Dataform** and **SQL**, integrated with **Looker** for visualization
- Led Tempo initiative to optimize table pacing, leveraging data science libraries in **Python**, reaching over 5,000 restaurants

Brown University

Aug 2022 – Dec 2023

Undergraduate Teaching Assistant

Providence, RI

- Designed assignments for **natural language processing**, **machine learning**, statistics, and functional programming courses
- Facilitated interactive workshops to foster collaboration, reinforce key concepts, and tackle challenging problem sets
- Supported over 300 individuals by moderating an online question forum and providing guidance during office hours

JPMorgan Chase & Co.

Jun 2023 – Aug 2023

Software Engineer Intern

Jersey City, NJ

- Leveraged Splunk and **AWS** to construct a robust data pipeline for extracting and preprocessing call center log data
- Implemented outlier detection and **classification models**, achieving over 90% accuracy identifying irregular and bad calls
- Created time series models to find general trends in problematic calls across various regions, supporting over 50,000 users

Visual Prosthesis Lab

Sep 2022 – Dec 2022

Undergraduate Research Assistant

Providence, RI

- Researched and implemented Python **computer vision** frameworks to aid visually impaired individuals in navigation
- Developed prosthetic devices by leveraging YoloV5 for object localization, Text2Voice for intuitive grasping, 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

IntelliGin | Python 🐍 📄

- Developed a Double DQN (Deep Q-Network) reinforcement learning model for Gin Rummy
- Implemented custom environment in RLCard for Gin Rummy, including engineered feature extraction
- Trained models using self-play and adversarial strategies, performing well against random and rule-based adversaries

Citadel Datathon | Python 🐍

- Analyzed geographical discrimination of loan applications using k-means clustering, collaboratively with team
- Utilized **NumPy**, **pandas**, seaborn, SciPy, and other Python libraries to construct insightful visualizations

Senate Environmental Vote Clustering | Python 📄

- Applied hierarchical clustering with dendrogram analysis to study environmental voting behavior in the Senate
- Leveraged **Python**, **NumPy**, scikit-learn, SciPy, and **pandas** to process and visualize the data, uncovering insights

Caching I/O | C

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

SKILLS

Languages: Python (proficient); JavaScript, HTML, CSS, ReasonML, (intermediate); C/C++, SQL, MATLAB (novice)

Frameworks & Tools: TensorFlow, PyTorch, React, Git, Docker, Google Cloud Platform, Amazon Web Services, Microsoft Office