

# Michelle Liu

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## EDUCATION

### Brown University

Sep 2021 – May 2025

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

Providence, RI

- **Relevant Courses:** Computer Systems, Theory of Computation, Functional Programming, Web Development, Machine Learning, Natural Language Processing, Numerical Methods of Differential Equations, Graph Theory, Real Analysis
- **Awards:** Robinhood Hackathon Bronze, Jane Street Electronic Trading Challenge 3rd Place, AIME Qualifier

## EXPERIENCE

### Susquehanna International Group

Jun 2024 – Aug 2024

Quantitative Trading Intern

New York, NY

- Studied options theory, markets, and financial instruments to understand trading strategies in addition to market dynamics
- Participated in **simulated electronic mock trading** sessions to develop trading skills and apply them in real-time scenarios
- Conducted a **Python** project to analyze the attention effect, assessing stock trends leading up to earnings or events

### 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
- 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

### Jreamboard | React, Node.js, JavaScript, Express 🐙

- Developed a podcast and audio-based social media web application for the Jream Foundation
- Prototyped frontend using **Figma** and implemented UI using **React**, designing a login and audio posts page
- Built backend architecture with **Express** and **PostgreSQL** to store audio and account information

### 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

### Caching I/O | C

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

### Goodbot Slack | Python 🐙

- Utilized **Python** to create workplace satisfaction Slack bot implementing polls and sentiment analysis for mental health

## SKILLS

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

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