

# Michelle Liu

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## EDUCATION

### Brown University

*Bachelor of Science, Applied Math – Computer Science, GPA: 4.00/4.00*

Providence, RI

Sep 2021 – May 2025

- **Relevant Courses:** Data Structures & Algorithms, Computer Systems, Parallel Computing (CPU+GPU), Web Development, Machine Learning, Theory of Computation, Statistics, Numerical Methods for Differential Equations, Stochastic Calculus
- **Awards & Certifications:** Robinhood Hackathon Bronze, AIME Qualifier, Rohn Truell Prize in Applied Mathematics

## EXPERIENCE

### Lightspeed

*Data Science Intern*

Jan 2024 – Current

Providence, RI

- Developed a restaurant cohorting algorithm using LDAs to optimize menu pricing and drive revenue growth
- Analyzed over 10,000 transactions using BigQuery to uncover sales patterns during holidays, informing restaurant strategy
- Developed sales and tip trend analyses using **Google Cloud Platform** Dataform and **SQL**, with Looker for strategic planning
- Led initiative to optimize table pacing, leveraging statistical models (**scikit-learn**, **pandas**) for over 5,000 restaurants

### Susquehanna International Group

*Quantitative Trading Intern*

Jun 2024 – Aug 2024

New York, NY

- Modeled the impact of attention effects on stock price volatility leading up to earnings reports and events using Python, applying time series analysis and statistical testing
- Executed real-time trading strategies and risk management in simulated **electronic mock trading sessions**

### Brown University

*Undergraduate Teaching Assistant*

Aug 2022 – Dec 2023

Providence, RI

- Designed over 10 assignments for **natural language processing**, statistics, and **machine learning** courses
- Supported over 300 individuals by moderating a question forums and providing individualized guidance during office hours

### JPMorgan Chase & Co.

*Software Engineer Intern*

Jun 2023 – Aug 2023

Jersey City, NJ

- Built a data pipeline using **Splunk** and **AWS** to extract and preprocess call center log data, improving data accessibility and analytics efficiency for over 50,000 users
- Implemented outlier detection and classification models, achieving over 90% accuracy in identifying irregular calls
- Created time series models to find trends in problematic calls across various regions, supporting over 10,000 call specialists

### Western Digital

*Software Development Engineer Intern*

May 2022 – Aug 2022

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, employing experience replay, self-play and adversarial strategies, achieving performance on par with rule-based adversaries and random agents
- Implemented custom environment in RLCard for Gin Rummy, including engineered feature extraction

### 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); C, C++, SQL (intermediate); R, JavaScript, HTML/CSS, MATLAB (novice)

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