Michelle Liu

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EDUCATION

Brown University — Providence, RI
Bachelor of Science, Applied Math – Computer Science, GPA: 4.00/4.00 — *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, FINRA Securities Industry Essentials, AIME Qualifier

EXPERIENCE

Lightspeed — Jan 2024 – Current
Data Science Intern — *Providence, RI*

- Developing an item price recommendation algorithm using clustering techniques on guest profiles to optimize menu pricing and drive revenue growth (ongoing project)
- 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 — Jun 2024 – Aug 2024
Quantitative Trading Intern — *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 — Aug 2022 – Dec 2023
Undergraduate Teaching Assistant — *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. — Jun 2023 – Aug 2023
Software Engineer Intern — *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 — 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, 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); SQL, JavaScript, HTML/CSS, (intermediate); C/C++, MATLAB (novice)
Frameworks & Tools: React, TensorFlow, PyTorch, Git, Docker, Google Cloud Platform, Amazon Web Services, Microsoft Office