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:** 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