William Liao

Mathematics & Computer Science @ UMD
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Education

University of Maryland, College Park College Park, MD (Aug. 2020 –)

- Bachelor of Science - BS, Mathematics (Expected May 2024) GPA: 3.94 / 4.00
  - Minor in Computational Finance
- Bachelor of Science - BS, Computer Science (Expected May 2024)
- Banneker/Key (Full Ride) Scholarship Recipient
- Relevant Coursework - Probability Theory, Theory & Methods of Statistics, Financial Markets and Financial Datasets, Portfolio Management, Financial Econometrics, Partial Differential Equations, Machine Learning, Numerical Analysis, Design and Analysis of Algorithms, Linear Algebra, Calculus.

Work Experience

Amazon Web Services, Inc.
Software Development Engineer Intern Seattle, WA (Jun. 2023 – Aug. 2023)

- Developed service in Native AWS to export data from an internal multi-primary regionally replicated data store to AWS S3 buckets, helping to accelerate org-wide adoption of data store. (Java)
- Designed and created operational dashboard to monitor metrics and provide alerts for system failures.

Capital One
Software Engineer Intern (Technology Internship Program - Center for Machine Learning) McLean, VA (Jun. 2022 – Aug. 2022)

- Designed and implemented dataset access service using Flask and AWS DynamoDB for real-time model serving platform. (Python)
- Trained and optimized an XGBoost machine learning model for credit card fraud detection; used Dask for parallel processing of large datasets.
- Deployed model onto production Kubernetes-based platform for use as an highly available API microservice.

University of Maryland
Teaching Assistant College Park, MD (Aug. 2021 – Dec. 2022)

- Led discussion/lab sections to reinforce class concepts and introduce extra material.
- Held office hours; graded projects and exams.
- Classes TAed: CMSC216 - Intro. to Computer Systems; CMSC351 - Algorithms; BUFN400 - Intro. to Financial Markets and Financial Datasets

nth Solutions, LLC
Software Developer Intern Exton, PA (Jan. 2019 – Jul. 2020)

- Developed a user-facing dashboard using Java and JavaFX that facilitates communication of data between an IMU(Accelerometer, Gyroscope, Magnetometer) module and a computer. Dashboard is also responsible for configuring the module for data collection and processing the recorded data.
- Implemented a JavaFX Graph / Media Player into the dashboard that enables the visualization of IMU motion data synchronized with recorded video of IMU module's movement.

Projects, Activities, and Awards

Adversarial Communication in Multi-Agent Reinforcement Learning (Jan. 2023 - May. 2023)

- Investigated the effectiveness of attention-based methods for improving total reward in Multi-Agent RL settings with benign and adversarial communication among agents.
- Designed and implemented approach in PyTorch on top of standard PPO traning algorithm.

International Collegiate Programming Contest (ICPC) Feb. 2023

- Mid-Atlantic USA Regional - Top 25%

Lakers Analysis Project

- Analyzed historical NBA team data using statistical and data science techniques to explain Lakers' underperformance relative to expectations in 2022.
- Created data visualizations using seaborn and matplotlib to aid in exposition.

Skills

Programming Languages Proficient: Python, C, Java; Familiar: OCaml, C++, Rust, Racket, Scheme, R
Technical Skills NumPy, Pandas, Scikit-learn, XGBoost, Dask, Matplotlib, Jupyter, MATLAB, LaTeX
Kubernetes, Docker, Flask, AWS s3, AWS DynamoDB, JavaFX, VSCode, Git, Agile Dev.