

# WILLIAM LIAO

COMPUTER SCIENCE & MATHEMATICS @ UMD

william.q.liao@gmail.com

+1 (610) 999-0818

## EDUCATION

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### University of Maryland, College Park

College Park, MD (Aug. 2020 – )

- Bachelor of Science - BS, Computer Science with Honors (Expected Dec 2024) GPA: 3.93
- Bachelor of Science - BS, Mathematics (Expected Dec 2024)
- Minor in Computational Finance
- Banneker/Key (Full Ride) Scholarship Recipient
- Relevant Coursework - Machine Learning, Probability Theory, Theory & Methods of Statistics, Cryptography, Data Science, Theory of Computation, Algorithms, Programming Languages, Computer Systems, Discrete Structures, Linear Algebra, Calculus I-III

## WORK EXPERIENCE

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### 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 datastore.
- 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

### 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

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### 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 training algorithm.
- Presented findings in NeurIPS style report.

### 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 visualizations using seaborn and matplotlib to aid in exposition.

## SKILLS

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**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.