

Barima Yaw Sawasan Wiafe-Ababio

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EDUCATION

Massachusetts Institute of Technology (Cambridge, MA)

Bachelor of Science in Mathematics with Computer Science - *Expected May 2025*

Relevant Coursework: Machine Learning, Software Construction, Theory of Computation, Calculus, Probability, Linear Algebra & Optimization, Differential Equations, Computational Thinking & Data Science, Design & Analysis of Algorithms, Real Analysis, Discrete Mathematics, Combinatorial Analysis, Statistics,, Seminar in Theoretical Computer Science, Project Laboratory In Mathematics (Research in Probability, Combinatorics, and Theoretical Computer Science).

EXPERIENCE

Amazon - Advertising

June 2024 - August 2024

Software Development Engineer Intern

- Built a full-stack tool for Amazon's ad support team, leveraging asynchronous queries to fetch data from multiple services, providing real-time metrics for deeper investigation and data-driven insights into ad-serving campaigns.

Kavli Institute for Astrophysics and Space Research

December 2023 - June 2024

Undergraduate Machine Learning Researcher

- Developed and validated a domain adaptation methodology for TESS and Kepler light curves using Python, enhancing classification accuracy amidst evolving data characteristics.
- Innovated with unlabeled samples for classifier flexibility, showcasing adaptability in machine learning applications for astronomical data.

MIT Mathematics Department

September 2023 - December 2023

Undergraduate Research Mathematician

- Developed and optimized time series and regression models in R, applying them to real-world datasets, improving predictive accuracy on sample data sets (i.e oil prices, etc)
- Collaborated on model testing and analysis, integrating time series forecasting with regression to advance predictive methodologies..

Amazon - Sponsored Brands & Ad Serving

June 2023 - August 2023

Software Development Engineer Intern

- Reduced ad serving latency by 3-4 ms through Java-based integration of LMAX Disruptor, enhancing system performance.
- Led testing and iterative design improvements, securing a return offer.

MIT Mathematics Department

March 2023 - July 2023

Undergraduate Research Mathematician

- Applied stochastic variations to Newton's method, enhancing algorithmic understanding and stability via Python simulations.
- Engaged in team-based research, driving forward theoretical and practical insights in numerical optimization.

MIT Media Lab - Camera Culture Group

March 2023 - June 2023

Undergraduate Researcher

- Automated shadow map generation, leveraging adaptive thresholding and Otsu binarization to enhance satellite imagery analysis.
- Proposed improvements to 3D modeling techniques using Neural Radiance Fields, optimizing deep learning models for light path prediction.
- Evaluated neural network architectures (CNNs, GANs) to advance light and shadow inference methods..

MIT Digital Humanities Lab

September 2022 - December 2022

Computer Vision and Web Developer

- Enhanced object detection precision utilizing OpenCV for improved user query results; implemented interactive web elements elevating user engagement.

SKILLS

Proficient: Python (PyTorch, Sci-kitlearn, OpenCV), JavaScript/TypeScript, SQL/MySQL, R; **Familiar:** C/C++, Julia, Java (Spring), MATLAB