ALIYU BELLO ALIYU

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Baltimore, MD.

EDUCATION

Doctor of Philosophy in Advanced Computing Aug 2026 - Present

Morgan State University **Baltimore, MD.**

Master of Science in Advanced Computing Aug 2025 - May 2026

Morgan State University **Baltimore, MD.**

Thesis title: An End-to-End AI Surveillance System Using Multi-Source Data Fusion and Visual Intelligence for Public Safety
Advisor: Dr. Guobin Xu

Bachelor of Science in Analytics, specialization in Data Analytics. Sep 2019 - Jan 2024

University of Prince Edward Island **Charlottetown, PEI.**

Thesis title: Teamwork Success Prediction
Advisor: Dr. Aya Salama

Relevant Coursework: Data Structures & Algorithms, Database Systems, Probability & Statistics, Machine Learning, Cloud Computing, Artificial Intelligence.

RESEARCH INTERESTS

Data Science and Predictive Analytics | Artificial Intelligence and Machine Learning | Computer Vision and Image Understanding | Data-Driven Decision Systems and Automation | Quantum AI

PROFESSIONAL EXPERIENCE

Juxtopia **Baltimore, MD.**

Software Engineer Apprentice Jun 2025 – Aug 2025

Contributed to implementing AI algorithms for Human Activity Recognition (HAR) using DeepLearning4J (DL4J) and LSTM networks. Trained HAR models with JiBand wearable data, used OpenSim for sensor visualization, and supported the development of AI-driven e-training systems.

University of Prince Edward Island

Assistant International Students Recruiter Oct 2022 – May 2023

Maintained and monitored prospective student databases, tracking inquiries, applications, and admissions progress. Optimized recruitment processes and support systems, resulting in a 70% increase in international student enrollment.

RESEARCH EXPERIENCE

Graduate Research Assistant Sep 2024 - Present

Department of Computer Science, Morgan State University. **Baltimore, MD.**

Quantum AI for Edge Devices

- Researching hybrid quantum-classical AI architectures for edge devices, focusing on resource constraints, latency, and practical deployment.

AI in Public Safety

- Designed an AI-powered surveillance system using YOLO models to detect weapons and violent actions in real time, integrating automated alerts and multi-object detection to support public safety.

AI in Social Work

- Collaborating on data science research in social work, using data cleaning, exploratory analysis, and machine learning to identify trends and support evidence-based decisions.

Teaching And Mentoring

Teaching, Computer Architecture and Organization (COSC 243) Aug 2026 - Present

Department of Computer Science, Morgan State University. **Baltimore, MD.**

- Teaching digital logic and computer organization through lectures and practical examples. Guiding students in circuit design, Verilog programming, and simulation through labs, assignments, and assessments.

Teaching Assistant, Introduction to Computing May 2025 - May 2026

Department of Computer Science, Morgan State University. **Baltimore, MD.**

- Taught Introduction to Computing (COSC 110), covering fundamental computing concepts, programming basics, database management, data analysis, and cloud computing. Guided students to develop essential computing skills.

Tutor Sep 2023 - Jan 2024

School of Mathematical and Computational Sciences, University of Prince Edward Island.

- Taught and assisted in instructing Linear Algebra and Introductory Programming, providing academic support and guidance to undergraduate students.

Projects

Teamwork Success Prediction **Python | R**

Developed machine learning models to predict team success in achieving project milestones using data from five datasets. Conducted data preprocessing, applied statistical tests for evaluation, and utilized multiple machine learning algorithms.

Optimized performance through hyperparameter tuning and employed the **LIME** method for interpretability of key success factors.

Predictive Analysis for Hazardous Material Transportation Incidents **Python**

Applied advanced data analytics techniques, including geospatial mapping and machine learning, to analyze transportation incidents. Leveraged a Decision Tree model for predictive insights, identifying factors influencing incident likelihood, and provided actionable recommendations for improved safety and logistics.

Event-Based Network Simulator **Java**

Built an event-driven network simulator in **Java** modeling protocols like routing, congestion control, and security. Implemented routers, switches, and Dijkstra's algorithm for shortest-path routing, and evaluated performance for engineering insights.

Publications

[1] **A. B. Aliyu**, J. Guo, G. Xu, and L. Deng. "An AI Surveillance Framework with Multi-Source Fusion and Temporal Validation for Public Safety." *2026 IEEE/ACIS 24th International Conference on Software Engineering Research, Management and Applications (SERA)*, pp. 225-230, IEEE, 2026.

[2] **A. B. Aliyu**. *An End-to-End AI Surveillance System Using Multi-Source Data Fusion and Visual Intelligence for Public Safety.* Master's thesis, Morgan State University, 2026.

[3] K. VanExel, K. Quintero, **A. B. Aliyu**, J. Guo, G. Xu, X. Liu, and L. Deng. "Distributed High-Performance Computing for Accelerating Image Classification Workloads." *2026 35th International Conference on Computer Communications and Networks (ICCCN)*, pp. 1-6, IEEE, 2026.

University Service

Assistant Head of Finance, Student Union Oct 2021 – May 2022

Student Union, University of Prince Edward Island.

Assisted with budget development, monitoring, and financial record management, ensuring accurate expense tracking, documentation, and reporting for transparency and accountability.

Supported strategic financial planning by compiling reports, verifying transactions, and identifying cost-saving opportunities to enhance operational efficiency.

Student Ambassador Jan 2023 - Dec 2023

School of Mathematical and Computational Sciences, University of Prince Edward Island.

Provided support and guidance to incoming international students, explaining university policies, procedures, and available resources while assisting with orientation programs, campus tours, and informational sessions.

Mentored international students by offering academic guidance, cultural adjustment support, and personalized advice to enhance their transition and overall university experience.

Technical Skills

Programming Languages: Python | Java | R | SQL | C++ | C | JavaScript | Dart

Software & Technologies: AWS | Apache Spark | PowerBI | Tableau | Azure | Hubspot | Matlab

Leadership & Extracurriculars

Intra-African Trade Fair (IATF) Nov 2023

IT personnel for Borealis Nigeria Limited.

United Nations (UN) Apr 2021

International model united nations (IMUN).

References

Dr. Guobin Xu
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Morgan State University
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Imec
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Amal Mohamed Abdelfattah, PhD
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