

Raj Bariya

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Computer Science undergraduate with experience building software applications, integrating machine learning models, and developing data-processing workflows through applied research and development.

Education

Morgan State University

B.S. in Computer Science

Baltimore, MD

Expected May 2027

Technical Skills

Languages: Python, SQL, JavaScript, HTML/CSS, Bash, Rust

Machine Learning: PyTorch, TensorFlow/Keras, scikit-learn, XGBoost, LSTMs, feature engineering

Data & Visualization: pandas, NumPy, PostgreSQL, Matplotlib, Plotly

Web & Development: Flask, React, Streamlit, REST APIs, Docker, Git/GitHub

Cloud Platforms: AWS, Microsoft Azure

Computer Vision: OpenCV, CVAT, OCR, stereo depth sensing (Intel RealSense D435)

API Integration: Azure Document Intelligence, Google Gemini, Google Cloud Vision, weather data APIs

Research Experience

Student Researcher — Pothole Segmentation & Depth Estimation

Mar 2026 – Present

Morgan State University / DEPA Lab

Baltimore, MD

- Investigating pothole segmentation and depth estimation with an Intel RealSense D435 stereo depth camera for road-damage severity assessment.
- Constructed a machine learning model for pothole segmentation, processing over 500 high-resolution images to provide critical data for infrastructure maintenance strategies.

Publications

AI-Driven Climate Resilience Education: A Framework for Predictive Thinking in Engineering Classrooms

A. O. Ajala, B. I. Adeika, **R. Bariya**, et al. *ASEE Annual Conference & Exposition*, June 2026.

Real-Time Flight Delay Prediction Using Integrated Machine Learning and Meteorological Intelligence for CNS/ATM Decision Support

A. O. Ajala, **R. Bariya**, E. Masa-Ibi, and K. Nyarko. *Integrated Communications, Navigation and Surveillance Conference (ICNS)*, IEEE, pp. 1–6, April 2026.

Selected Projects

Flight Delay Prediction & Forecasting

2025 – 2026

Python, Flask, Streamlit, PyTorch, Plotly | [Code](#) | [Streamlit app code](#)

- Built Flask and Streamlit applications that combine flight schedules and weather forecasts from both route endpoints with saved ML models to estimate arrival delays.
- Evaluated logistic regression, random forest, and gradient boosting on 5 million U.S. flights with 51 origin/destination weather variables, achieving approximately 85% accuracy in classifying on-time versus delayed flights.
- Implemented a PyTorch LSTM pipeline for weekly delay forecasting using six-week input sequences, chronological data splits, early stopping, and MAE/RMSE evaluation code.

InvenScan — Receipt Data Extraction

2026

Python, Azure Document Intelligence, PostgreSQL | [Code](#)

- Integrated Azure Document Intelligence into a Python prototype that converts receipts into structured product and pricing records for inventory workflows.
- Recorded an 89% Azure field-confidence score, flagged uncertain extractions for manual review, and persisted approved line items in PostgreSQL.

Awards & Activities

Crowd Favorite — HITI Lab Health AI Datathon, Emory University

2026

Developed a prior-guided mammography prediction pipeline with multi-agent report generation.

STEM Expo Volunteer, Morgan State University

Oct 2025

Supported K–12 STEM outreach activities and explained technical concepts to visiting students.