Akhil Metukuru

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Education

University of Maryland **Expected May 2026**

B.S. Computer Science, Concentration in Machine Learning, Minor in Entrepreneurship *College Park, MD*

- **GPA:** 3.84
- **Awards:** Dean's List, President's Scholarship, OMSE Academic Excellence
- **Relevant Coursework:** Data Structures & Algorithms, Computer Systems, Discrete Structures, Linear Algebra, Statistics & Applications

Experience

Halvik May 2024 – Present

Software Engineering Intern *Vienna, VA*

- Developed a Generative AI application tailored for document retrieval and proposal generation by implementing a private Retrieval-Augmented Generation (RAG) system using AWS Bedrock, which improved document retrieval accuracy by 25% and increased proposal acceptance rate by 17%.
- Implemented efficient processing and management solutions using AWS S3 and Lambda, reducing latency by 11%.
- Leveraged Jupyter Notebooks for iterative development and testing within an Agile workflow, and utilized Docker for containerization to ensure consistent deployment.
- Streamlined the CI/CD pipeline design and implementation using AWS KMS and IAM, balancing robust security measures with ease of use.

xFoundry@UMD Jan. 2024 – Present

Product Innovation Engineer *College Park, MD*

- 1 of 30 students selected for a prestigious 15-month program focused on efforts to improve school safety.
- Leading the development of an MVP, fine-tuning LLMs with a curated dataset for analyzing textual threats, and integrating TensorFlow for computer vision, resulting in the detection and notification of key personnel about active shooter threats on campuses, backed by a $250K-$2M investment.

UMD FIRE Aug. 2023 – Present

Facial Recognition Researcher *College Park, MD*

- Utilized R to analyze facial recognition data using regression and factor analysis, uncovering significant patterns that improved prediction accuracy by 33%.
- Identified an 8% accuracy variance in facial recognition across races, genders, and ages, and implemented enhanced algorithmic weighting and adjusted training data sets, reducing bias and improving overall accuracy.

Projects

NBA Game Predictor | ***Python, Pandas, Scikit-Learn***

- Built a machine learning model with advanced feature engineering, data cleaning, and dimensional reduction.
- Collected and processed player-level and team-level data from open-source APIs, creating features representing team averages over the previous 5, 10, and 15 games.
- Implemented dimensionality reduction using Principal Component Analysis (PCA) and trained models including Random Forest and Logistic Regression, achieving high prediction accuracy and generating insightful evaluation.

SkyCast: Flight Delay Predictor | ***Flask, React, Pandas, Scikit-Learn***

- Developed a Flask-based application that harnesses the Open-Meteo API to predict flight delays by analyzing 5 real-time weather metrics: temperature, precipitation, wind speed, pressure, and visibility.
- Engineered a RandomForestRegressor model, achieving a mean absolute error (MAE) of 1.48 minutes.
- Designed a scalable React interface for dynamic user interaction; integrated with a Flask backend to handle over 33,000 API calls daily, ensuring application robustness and efficient traffic management.

University Registration System | ***Java, Multi-threading***

- Built a scalable system for course registration, allowing addition and cancellation of courses.
- Implemented sets and multi-threading to improve performance and developed error handling for reliable operation.

Technical Skills

Languages: Python, Java, C, C++, JavaScript, MATLAB, HTML/CSS, R, SQL, Assembly
Frameworks/Libraries: React.js, Node.js, Pandas, Scikit-Learn, Flask, OpenCV, TensorFlow
Tools/Technologies: AWS Services, Docker, LLMs, MySQL, Jupyter, Jira, MongoDB, UNIX/Linux, Git