BILAL ZAKARIA

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EDUCATION

Georgia Institute of Technology   Atlanta, GA
Master of Science in Computer Science, Concentration in Machine Learning   Jan 2025 – May 2027

Middle Tennessee State University   Murfreesboro, TN
Bachelor of Science in Mechatronics Engineering   Aug 2020 – May 2023

EXPERIENCE

Founder & Developer — BlockAugur   June 2025 – Present
blockaugur.com   Remote
- Designed and deployed a full-stack analytics platform delivering real-time and historical insights for the top 100 cryptocurrencies, updating every five minutes.
- Engineered Python ETL pipelines to collect and process high-frequency market data into PostgreSQL for statistical analysis.
- Built RESTful APIs with FastAPI serving advanced metrics including volatility, Sharpe/Sortino ratios, alpha/beta, and correlation heatmaps with Statistical Learning methods (DT, RT, Bagging)
- Developed an interactive React + Tailwind + Plotly frontend for dynamic charting and financial analytics.
- Implemented user authentication with Supabase and deployed on secure cloud infrastructure.

Software Solution Engineer   June 2023 – Present
Markem-Imaje   Nashville, TN
- Designed and deployed data-centric CoLOS line architectures across manufacturing facilities, enabling automated and traceable data acquisition.
- Built full-stack applications using VB.NET and SQL Server to streamline labeling operations and integrate structured data flows with Oracle and SAP ERP systems, following OOP principles for maintainability.
- Developed ETL pipelines in Python to preprocess manufacturing data for reporting, anomaly detection, and downstream analytics.
- Created SQL-based dashboards, SSRS reports, and Python scripts for generating real-time insights and facilitating root cause analysis across production lines.

Artificial Intelligence Research Assistant   Jan 2023 – May 2023
Middle Tennessee State University   Murfreesboro, TN
- Conducted artificial intelligence research on 3D MRI brain scans using transformer-based models.
- Developed and optimized deep learning pipelines in PyTorch for MRI data analysis.
- Preprocessed large-scale medical imaging datasets to improve model performance and efficiency.

PROJECTS

Project 4-Sight | *HTML, CSS, MySQL, PHP, Git*   Aug 2022 – May 2023
- Developed an advanced wearable device for the visually impaired with obstacle detection, navigation, and safety sensors.
- Created an IoT platform integrating a website and Arduino hardware, enabling real-time monitoring and control.
- Built a user-friendly web interface (HTML/CSS/JS) and a robust PHP/MySQL backend to support hundreds of concurrent users.
- Implemented embedded Arduino code for seamless communication with the IoT platform.

TECHNICAL SKILLS

Languages: Python, JavaScript, SQL, HTML, CSS
Frameworks: FastAPI, React
Databases: Microsoft Server, PostgreSQL
Libraries: NumPy, Pandas, Matplotlib, Plotly, PyTorch
Tools: Vite, Git, Docker, VS Code, PyCharm, Postman, PM2
Platforms: Supabase