Bilal Zakaria

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EDUCATION

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

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

EXPERIENCE

Software Solution Engineer   June 2023 – Present
Markem-Imaje   Nashville, TN
- Developed RESTful APIs using .NET and SQL Server to manage data from Manufacturing ERP systems..
- Built full-stack web applications with .NET, Python, SQL Server, and Docker for data analysis and reporting, reducing process processing time drastically.
- Optimized manufacturing processes through software automation and SQL-based data reporting, increasing production efficiency by 25% and reducing downtime by 20%.

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.

Controls Engineer Intern   May 2022 – August 2022
Automation NTH   LaVergne, TN
- Developed and implemented vision-based automation systems using inspection sensors and reject sensors to optimize production processes.
- Programmed a MicroLogix 1100 PLC with computer vision-based feedback loops for real-time defect detection, reducing downtime and improving accuracy.
- Integrated and troubleshot vision systems (PLC, HMIs, and networks), enhancing system performance and increasing uptime for project operations.

PROJECTS

Cryptocurrency Arbitrage Bot | *Python, Selenium*   Jan 2023 – May 2024
- Developed a real-time arbitrage detection bot that scans multiple cryptocurrency websites for price differences and sends instant notifications via Discord.
- Implemented efficient arbitrage strategies to identify and capitalize on profitable opportunities.
- Used Python and batch scripts, leveraging Selenium for data scraping and open-source APIs for real-time pricing information.

Project 4-Sight | *HTML, CSS, MySQL, PHP, Git*   May 2018 – May 2020
- Developed Project 4-Sight, 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, allowing users to manage navigation and monitor jacket performance in real-time.
- Designed a user-friendly web interface using HTML, CSS, and JS, with a robust back-end API built with PHP and MySQL to handle hundreds of concurrent users.
- Developed embedded code for Arduino to enable seamless communication between the wearable device and the IoT platform.

TECHNICAL SKILLS

Languages: Javascript, Python, SQL, JavaScript, HTML/CSS
Frameworks: React, FastAPI
Developer Tools: Git, Docker, Google Cloud Platform, VS Code, PyCharm, Postman
Libraries: NumPy, Matplotlib, Keras, PyTorch
Data Formats: JSON, XML, SOAP