Bilal Zakaria

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I am a detail-oriented engineer with strong problem-solving skills and expertise in requirements analysis and execution. Organized and adaptable to fast-paced environments, I strive to exceed expectations while continuously advancing in the field, leveraging my Mechatronics and Computer Science background.

**EDUCATION**

**Middle Tennessee State University Murfreesboro, Tennessee**

*Bachelor of Science in Mechatronics Engineering with a concentration in CS* Graduation: **May 2023**

* **Minors:** Computer Science, Mathematics GPA**:** 4.0 / 4.0 (Rank #1)

**Georgia Institute of Technology Atlanta, Georgia**

*Masters of Science in Computer Science* Matriculation: **January 2025**

* **Concentration:** Machine Learning

**WORK & LEADERSHIP EXPERIENCE**

**Markem Imaje (Dover Corp)** **Remote**

*Software Solution Engineer* June 2023 – Current

* Create blueprints and design specifications to ensure project alignment with customer requirements.
* Utilize CoLOS, an internal tool built on Django, to develop dynamic operator pages for efficient label printing.
* Develop with MSSQL and PostgreSQL to write queries, set up tables, and integrate with customer ERP systems (SAP, Oracle), enhancing stored procedures for improved processing times and new features.

**Automation NTH** **LaVergne, Tennessee**

*Controls Engineer Intern* May 2022– August 2022

* Successfully devised the AutoCAD Electrical drawings for a B&R automation panel, which included schematics, footprints, and BOM.
* Programmed a MicroLogix 1100 PLC using an inspection sensor, reject sensor, and reject solenoid via RsLogix 500 to streamline the production process by reducing downtime.
* Successfully troubleshot hardware and software issues with PLCs, HMIs, and networks; increased uptime of intern project via Studio 5000.

**PROFESSIONAL PROJECTS (***open source)*

**Project 4-Sight: Electronic Travel Aid (**[***Link***](https://github.com/sometimesB/4-Sight)***)* August 2022 – May 2023**

*Full Stack & Embedded Engineer*

* Project 4-Sight is a wearable device for the visually impaired, featuring enhanced obstacle detection, extended range, navigation capabilities, and safety sensors. Provides users with haptic feedback and a website interface for navigation and routing management.
* Created an IoT platform with a website and Arduino hardware. It lets users easily manage navigation and keep an eye on the jacket's performance in real-time. The user-friendly interface is designed using HTML, CSS, and JS, while the back end runs on PHP and MySQL.
* I created a robust back-end API using PHP and MySQL for storing user records and PHP to ensure seamless communication between the website and hardware components. Back-end was fully fleshed out to allow for thousands of concurrent jacket users simultaneously.
* Developed embedded code for Arduino to enable communication between the wearable device and the IoT platform.

**NexusFit October 2024 – Current**

* Developed a robust Django backend API to securely manage user accounts and health data, facilitating seamless interactions with a PostgreSQL database.
* Created an intuitive React-based user interface for visualizing health metrics, empowering users to monitor their well-being over time.
* Optimized the platform for high concurrency using TimescaleDB, ensuring efficient data handling and performance, and validated stability with Locust load testing.

**SKILLS, ACTIVITIES & INTERESTS**

**Technical Skills:**

● Python, MSSQL, Postgres SQL, HTML, CSS, React, Django, Docker, REST API Development.