Abdulquadri Abiru

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EDUCATION

University of Florida ***Gainesville, FL***

- Master of Science (M.S.), Electrical Engineering (GPA: 3.8/4.0) *December 2024*
- Bachelor of Science (B.S.), Electrical Engineering (GPA: 3.6/4.0) *May 2022*

SKILLS

Programming: Python, C/C++, React, JavaScript, Shell (Bash, PowerShell), YAML, HTML, CSS
Software/Tools: Altium Designer, KiCad, LTSpice, Code Composer Studio, Atmel, IAR, Docker, Kubernetes, Flask, GitLab, Jenkins, Apache Kafka, Apache Spark, Grafana
Hardware/Protocols: Raspberry Pi, STM32, MSP430, ESP32/8266, Zigbee RF Radios, Oscilloscopes, Function Generators, Logic Analyzers, I2C, SPI, UART, CAN, TCP/IP
Technical Skills: Cloud Providers (AWS, GCP), Infrastructure-as-Code, CI/CD, Distributed Data Processing, Real-time Data Streaming
Certifications: AWS Certified Cloud Practitioner

EXPERIENCE

Software Engineering and Network Support Intern June 2024 – August 2024
21st Century Technologies Ltd | Lagos, Nigeria

- Revamped IP Management System by collaborating with the commercial department to clean and validate outdated Excel IP data, ensuring accuracy and relevance.
- Automated the migration of IP data from Excel to MySQL by developing a Python script, facilitating efficient data transfer.
- Engineered and deployed a Docker-based solution on a company server, hosting MySQL, Metabase for analytics, Adminer for database management, and Nginx with SSL for secure traffic routing.
- Supported the network team by configuring Cisco switches (IP, Subnetting, VLAN) and developed a Python SNMP script for network device inventory automation, addressing gaps in physical records.
- Created a Python application for streamlined IP database updates, distributed via PyInstaller, and implemented secure user authentication with bcrypt.

Research and Development Co-op September 2022 – December 2022
Ethicon Inc. | Cincinnati, OH

- Collaborated with a cross-functional team to design and implement a test fixture for tracking medical device components.
- Engineered a C-based sensor driver using CubeMX and IAR to facilitate SPI communication with a magnetometer. Developed STM32 firmware for UART data streaming and automated data handling/storage using a custom Python script
- Collaborated with an external team to create a multi-threaded Python application that delivered real-time visualization of medical device data, significantly improving device functionality and analytical insights.
- Presented insights from extensive sensor testing, supporting product development; performed hardware debugging using standard electrical equipment to aid team decision-making.

Software Engineering Intern June 2022 – September 2022
F5 Networks | Seattle, WA

- Engineered a data pipeline for the Digital Twin initiative within Docker, leveraging OpenTelemetry for data transmission and automating configurations with YAML for Prometheus, Kafka, and Grafana.
- Deployed the data pipeline as a Cloud Native Application Bundle (CNAB) on Google Cloud Platform, enhancing deployment efficiency and securing the Docker ecosystem with NGINX.
- Delivered critical insights on OpenTelemetry's effectiveness to senior engineers, influencing strategic decisions and contributing to the project's direction.

PROJECTS

Real-time Server CPU Utilization Monitoring | C++, WebSockets, Grafana, Docker **August 2024**

- Built a C++ application to stream real-time CPU utilization data over WebSockets to Grafana for visualization.
- Used Boost Asio & Boost Beast for WebSocket connections and data transmission.
- Implemented multithreading to handle multiple WebSocket clients.

Circuit Analysis Tool | C++, Vectors, Stack, Queue **April 2024**

- Engineered a circuit analysis tool in C++ for computing currents, voltage potentials, and voltage drops, utilizing Gaussian elimination.
- Attained 96% accuracy and robustness for analyzing both simple and complex circuit netlists

UF Wireless Lab IoT Research Project | Python, Bash Scripting, PCB Design, AWS **May 2023**

- Engineered a multi-protocol IoT gateway leveraging Python on Raspberry Pi, slashing device overhead and cutting costs by 75%, streamlining sensor data transmission for real-time monitoring.
- Designed 5 custom ESP32-based PCBs for remote sensor deployment, optimizing hardware integration and field performance.
- Automated gateway initialization with Bash scripting, reducing startup time by 46%, improving system deployment efficiency.
- Orchestrated a real-time data pipeline utilizing AWS IoT Core, TimeStream, and Grafana, automating cloud infrastructure with AWS CloudFormation, enhancing data visibility and decision-making capabilities.

Reverse Polarity Protection Circuit | PCB Design, Circuit Design, Documentation **March 2022**

- Advanced organization knowledgebase by calculating and documenting automotive power consumption through datasheet analysis.
- Improved system reliability and integrity by 8% by designing and prototyping a reverse polarity protection circuit utilizing a smart diode and NMOS transistor.

UF Hydro Patrol Project | PCB Design, Circuit Design **March 2022**

- Enabled miniaturization by using given specifications to layout and route custom PCBs for sensor nodes
- Reduced interference and improved signal integrity by incorporating MOSFET switches to isolate sensor probe signals
- Performed continuity testing and assembled the PCB using surface mount soldering techniques