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: Docker, Kubernetes, Terraform, Flask, GitLab, Jenkins, Apache Kafka, Apache Spark, Grafana, MySQL, MongoDB
Technical Skills: Cloud Providers (AWS, GCP), Infrastructure-as-Code, CI/CD, Container Orchestration, Distributed Data Processing, Real-time Data Streaming, API Development, IoT System Development
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- Revamped IP Management System by collaborating with the commercial department to clean and validate outdated Excel IP data, ensuring accuracy and relevance.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

Self-Hosted Web Server | Docker, Cloudflare, NGINX, DNS Management **August 2024**

- Manage and host web applications on a personal server, utilizing Docker containers for efficient deployment and management.
- Configured a Cloudflare tunnel to securely expose apps to the internet, enhancing accessibility while maintaining security measures.
- Employed Cloudflare for DNS management and updates, ensuring reliable domain resolution and streamlined access.
- Implemented Nginx as a reverse proxy to provide an additional layer of security ensuring reliable and secure user access.

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.
- Processed CPU metrics from `/proc/stat` and calculated utilization percentages.
- Implemented multithreading to handle multiple WebSocket clients.

Distributed Data Processing Pipeline | Apache Spark, Kafka, EC2, Flask, cURL, Python **May 2024**

- Deployed 3-node distributed data pipeline on AWS using EC2, Apache Kafka, and Apache Spark.
- Monitored and optimized resource usage, dynamically scaling nodes based on CPU load.
- Developed Flask API for managing data streams and querying results, secured with token-based auth and HTTPS.
- Documented setup, source code, and validation results in comprehensive project report.

Cloud Cluster Management with Kubernetes | Docker, Kubernetes, Python **August 2023**

- Orchestrated a 3-node Kubernetes cluster using kubeadm, kubectl, and kubelet in a CloudLab Linux virtual environment.
- Monitored system resources using Kubernetes Metrics Server and Python SDK scripts.
- Implemented first-order linear models with local and global PI controllers to achieve 80% CPU utilization through pod allocations.
- Developed Flask server REST APIs for node management, job assignment, node tasks (cordon/restore), and system state retrieval.

Automated Trading Bot | Python, Pandas, API Integration **May 2023**

- Engineered a Python trading bot leveraging the Robin Stocks API to automate trading on the Robinhood platform.
- Utilized Pandas for technical analysis of 50-day and 20-day simple moving averages (SMA) to identify market signals.
- Designed and implemented diversified portfolio algorithms for three stocks, incorporating risk management protocols with expenditure caps of $150 to mitigate financial risk.