

Abdulquadri Abiru

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EDUCATION

University of Florida Gainesville, FL

- Master of Science (M.S.), Electrical Engineering (GPA: 3.7/4.0) December 2024
- Bachelor of Science (B.S.), Electrical Engineering (GPA: 3.6/4.0) May 2022

Relevant Coursework: Cloud Computing Systems Management, Cloud Computer Systems and Applications, Computer Communications, Advanced Systems Programming, IoT Security and Privacy, Wireless and Mobile Networks, Computer Programming Using Java, Programming for ECE 1 & 2, Microprocessor Applications

SKILLS

Programming Languages: Python, C/C++, Shell, JSON, YAML, JavaScript

Platforms: Windows, macOS, Linux (Ubuntu, Raspberry Pi OS)

Software: Docker, Kubernetes, Terraform, Flask, REST

Certifications: AWS Certified Cloud Practitioner

WORK EXPERIENCE

UF Wireless and Mobile Systems Lab

Gainesville, FL

Graduate Research Assistant, IoT Acres Project

January 2023 – Present

- Spearheaded the development and implementation of an IoT system for sensor data transmission on a construction site
- Achieved a 75% reduction in device overhead and costs via development of a multi-protocol IoT gateway using Python on Raspberry Pi
- Automated gateway initialization with shell scripting achieving a 46% reduction in startup time, enhancing efficiency and operations.
- Optimized network infrastructure for enhanced data reliability and minimized latency through rigorous testing and troubleshooting
- Facilitated remote sensor deployment by designing and routing 5 custom printed circuit boards for ESP32-based MCUs.
- Improved data accessibility and decision-making by enabling real-time data streaming, visualization, and storage in a NoSQL database using AWS IoT Core, AWS TimeStream, and AWS Grafana; automated backend configuration using AWS CloudFormation

Ethicon Endo-Surgery

Cincinnati, OH

Research and Development Co-op

September 2022 – December 2022

- Collaborated on a cross-functional team of 6 to devise and execute a test fixture for medical device component tracking
- Developed a sensor driver in C using CubeMX and IAR to enable SPI protocol communication with a magnetometer sensor
- Created STM32 firmware for microcontroller data streaming to PC via UART, with data reception and storage handled by a Python script
- Presented insights from extensive experimentation, enhancing team decision-making with comprehensive sensor precision insights.
- Enhanced productivity by creating a multi-threaded Python program for real-time medical device data visualization, aiding 2 external teams.
- Advanced product development through proficient operation of standard electrical equipment and rigorous hardware debugging.

F5 Networks

Seattle, WA

Software Engineering Intern

June 2022 – September 2022

- Advanced a Digital Twin initiative by orchestrating a Docker-based data pipeline, facilitating seamless data transmission via OpenTelemetry.
- Communicated insights on OpenTelemetry's suitability for a digital twin to senior engineers, shaping strategic choices.
- Automated the configuration of a Prometheus, Kafka, and Grafana backend using YAML files, resulting in improved operational efficiency.
- Collaborated with a senior engineer to deploy the pipeline as a Cloud Native Application Bundle (CNAB) on Google Cloud Platform
- Implemented NGINX to enhance visibility, network monitoring, and security within the Docker ecosystem.
- Demonstrated adept proficiency in version control and collaborative development using GitLab, highlighting DevOps competencies

PROJECTS

Dynamic Cluster Management in Kubernetes Ecosystem | Docker, Kubernetes, Python

- Led a team of 4 in the orchestration of a 3-node Kubernetes cluster using kubectl, kubelet, and kubeadm in a Linux virtual environment
- Monitored system resources through the deployment of a Metrics Server and scripted tracking with Kubernetes Python SDK
- Designed first-order linear models with local and global PI controllers to manage pod allocations, achieving a targeted 80% CPU utilization
- Developed Flask server REST APIs for node management, handling job assignment, cordon/restore node tasks, and system state retrieval

Cloud Hosted Resume with Automated Infrastructure Deployment and DevOps Integration | <https://resume.quadriabiru.com>

- Deployed a resume website on AWS with Route 53, S3, and ACM for TLS/SSL security.
- Leveraged AWS DynamoDB to store website view counts and utilized AWS Lambda functions to dynamically update the view counter
- Implemented GitHub Actions for CI/CD, ensuring automated system updates and adhering to DevOps principles for efficient delivery
- Streamlined infrastructure setup through Infrastructure-as-Code using Terraform, significantly enhancing operational efficiency

F5 Hackathon: Foodbank Food App | Python, JSON

- Led a team of 3 interns in the development of the first-place-winning application in a company Hackathon
- Engineered the "Foodbank Food App," a web application streamlining donations to nearby foodbanks
- Programmed middleware utilizing a Python script and the Google Maps SDK and API to retrieve foodbank information.
- Implemented data extraction methodologies to fetch precise details including foodbank names, locations, and contact numbers, prioritizing proximity to end users