Oromidayo Owolabi *Software Engineer*

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Professional Experience

Center for Genomics and Precision Medicine, University of Ibadan, Dec 2023 – Oct 2024 | Nigeria
Bioinformatician

- Wrote a custom tool for processing 1TB of neuroimaging data in C++, saving hundreds of man-hours
- Developed a custom pipeline to process hundreds of Gigabytes of genomic data for copy number variation analysis
- Performed quality control and copy number variation analysis of genomic databases, using Python, R, and Bash
- Working on an integrated GPU short-read sequence aligner pipeline in C, C++, and CUDA, with an aim to cut compute costs and processing time by over 100%
- Modifying existing applications for performance and functionality gains with C++, increasing productivity by over 10%
- Collaborated in structural biology research by carrying out protein binding simulations and reviewing/critiquing machine learning research methodologies and research ideas

University of Ibadan Design Studio, *Engineering Intern* Apr 2022 – Aug 2022 | Nigeria

- Independently designed and constructed a Solar Powered Weather Station with IoT capabilities
- Deployed a cost-efficient self-retraining Weather Prediction service on AWS Lambda using Python
- Implemented a backend service and a dashboard for station management and data visualization using Python and React.js
- Wrote firmware code for sensor interfacing, power conservation, and configurable WiFi capabilities using C and FreeRTOS
- Ported an I2C Driver for the Si1145 sensor to C and wrote driver code for the GUVA-S12SD sensor

Fireswitch Technologies, *Software Developer Intern* Sep 2021 – Dec 2021 | Nigeria

- Led the frontend development of ReniNotes from scratch using React.js
- Worked with a UI designer and backend engineers to create a functional user interface
- Ported state management to Redux, leading to a 30% increase in code maintainability

Education

B.Eng, Computer Engineering, *Covenant University* 2018 – 2023 | Nigeria
GPA : **4.79 / 5.00** (First Class Honours)

Activities

Open Source Contributor Mar 2024 – present

- Wrote python code, documentation, and tests for the **Humanitarian Open Street Maps** project.
- Wrote a **mobile app generator** using Python/Kivy for their core CLI project with support for logging, eliminating porting time and allowing the application to be used in remote locations
- Wrote **extensive API tests** for their AI mapping project using Python/Django, covering their entire backend
- Worked on **internal features** for the osm-fieldwork project using Python

Recurse Center, *Participant* Mar 2024 – May 2024 | New York, USA

- The Recurse Center is a selective self-directed retreat for programmers who want to learn and grow.
- Worked on a rigid-body physics engine and 3D object renderer in C++/OpenGL
- Worked on a system for extracting context from PDFs for generating flashcards with generative audio and LLMs

Skills

Software: Python, C, C++, Rust, Javascript, Typescript, Java, Bash

Tools: Linux, React.js, Node.js, GraphQL, Flask, PyTorch, Redux, Git, Docker, Redis, Django, AWS, SQL, MongoDB, PostgreSQL

Projects

YugoDB, *Rust* Apr 2024 – present

- Developing a polymorphic database storage engine from scratch in Rust
- Implemented a generic B+ tree index, a concurrent multi-file disk pager with a caching system, and a TCP server
- Wrote abstractions to support document-oriented, relational, row, and column databases, tables, pages, and records
- Created a custom query language and interpreter to support queries and joins across all storage types
- Worked on a vector materialization model for the query executor, and serialization-deserialization methods for records

LightBox, *Python, Flask, React, SQL, WebSockets* Dec 2022 – Jun 2023

- Created a federated queueing platform for GPU processing in AI photo editing applications
- Implemented a GPU Client that runs txt/img2img, inpainting, outpainting, upscaling and removal operations
- Wrote a queueing server which connects GPU clients via WebSockets and handles task scheduling
- Built a frontend photo editing application with a generalization layer to support various models
- Designed a server-server protocol for federation and trust-based priority scheduling to manage bad actors

Cpplox, *C++* Sep 2023

- Wrote a tree-walk interpreter for a dynamically typed language from scratch in C++
- Implemented lexical scoping and resolution, control flow, functions, and closures