Semilore Kayode

Canadian Citizen | Design Portfolio
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Education

Dalhousie University **Sep. 2020 – Current**
Bachelor of Electrical and Computer Engineering *Halifax, Nova Scotia*

Co-op Status: Available for a four-month co-op term starting May 2025.

Relevant coursework: Analog Electronics, Communications Systems, Communication Networks, Signal Analysis, Digital Signal Processing, Digital and Modern Control Systems

Experience

Surrette Battery Company Ltd. **Sept 2024 – Dec 2024**
Engineering Assistant *Springhill, Nova Scotia*

- Engineered a repair station to recover broken lead battery grids, mitigating material waste and delivering projected annual savings of $4M.
- Developed quality assurance documents detailing correct welding procedures for battery terminals, designed to prevent defects that could lead to critical issues such as acid leaks, short-circuiting, and potential fire hazards.
- Effectively insulated metal-bodied lead furnaces, which operate at temperatures up to 1000°F, to reduce heat loss, enhance workplace comfort, and decrease propane consumption by 30%.
- Implemented air quality and noise level testing protocols, improved emergency signage visibility, and ensured safety standards compliance to protect employee health and safety.

Dugo Systems **Jan 2024 – Apr 2024**
Product Manager Intern *Halifax, Nova Scotia*

- Streamlined validation protocols, collaborating with technical experts to achieve 15% higher accuracy in battery conductance calculations, directly improving product reliability.
- Optimized database structures for rectifiers and DC plant controllers, reducing query response time by 20% and improving operational efficiency.
- Presented technical insights and project results to stakeholders, ensuring clarity and adoption of solutions.

Projects

Dehumidifier Cluster | *Python, C++, Sensor Integration, IoT Communication, Microprocessors* **Sept 2024 – Present**

- Designed and implemented a distributed dehumidification system in my home using MQTT for real-time communication between room-specific ESP32/ESP8266 sensors and a central Raspberry Pi 5.
- Implemented low-power mode on ESP32 WROOM boards, extending operational life by 30% and minimizing energy consumption.
- Optimized data transmission protocols to reduce latency by 20%, ensuring timely and accurate environmental monitoring across multiple locations.
- Developed algorithms to dynamically adjust dehumidifier operations based on room conditions, enhancing energy efficiency and user comfort.

Autonomous Robot Design | *Python, ROS2, Sensor Integration, Planning Algorithms* **May 2024 – Aug 2024**

- Led the development of an autonomous robot for obstacle navigation and item collection in a competitive environment.
- Created robust ROS2 launch files, initializing all essential nodes and coordinating topic subscriptions for smooth system operation.
- Designed and implemented waypoint navigation and mapping, ensuring efficient path planning and obstacle avoidance through LiDAR and IMU integration. This involved configuring the SMAC2D planner to dynamically adjust to obstacles, maintaining accuracy in diverse terrain.

Volunteering

Safe Harbour Research & Technologies **Mar 2024 – June 2024**
Engineering Project Volunteer *Emera IdeaHub*

- Installed and configured solar panels and charge controllers for underwater technologies at Safe Harbour Technologies, enhancing the sustainability and efficiency of energy systems.
- Evaluated and enhanced safety protocols for underwater equipment, focusing on innovative heat release methods to ensure operational safety and compliance with industry standards.
- Optimized Python code for advanced underwater technology applications, improving script readability and system performance, which facilitated more efficient project development and deployment.