Murtaza Hussaini

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### ****Summary****

Recent Computer Engineering graduate from York University with 3 years of software development experience, seeking an Embedded Software Engineer Co-op position. Eager to contribute to real-time embedded systems development through hands-on experience with C/C++, RTOS (VxWorks/Linux), and debugging low-level software-hardware interfaces. **Fully available for full-time work.**

### ****Highlights of Skills and Qualifications****

* **Programming:** Proficient in C (POSIX, VxWorks RTOS), C++ (STL, Boost), Python (scripts, PyTest), Bash, Perl
* **Embedded Systems:** Experience with real-time OS (VxWorks, Embedded Linux), memory-mapped I/O, and low-level hardware debugging
* **Networking & Telecom:** Familiar with OSI Model, TCP/IP, DWDM, SONET/SDH, OTN, Ethernet, MPLS
* **Debugging Tools:** GDB, Valgrind, Wireshark, logic analyzers, JTAG
* **Tools & Methodologies:** Git, Bitbucket, Gerrit, Jira, Agile Scrum, Confluence
* **Testing & Validation:** Unit testing with Google Test, PyTest; Integration testing; automated CI pipelines
* **Hardware Integration:** Read and interpreted hardware datasheets, timing diagrams, and schematics

### ****Education****

**Master of Engineering, Software Engineering**  
Ontario Tech University – Oshawa, ON - **Fully available for full-time work.**

**Bachelor of Engineering (B.Eng) in Computer Engineering**  
**York University**, Toronto, ON — Graduated: April 2025  
Relevant Courses: Real-Time Operating Systems, Embedded Systems, Computer Architecture, Digital Logic Design, Software Design Patterns, Data Structures & Algorithms

### ****Work Experience****

#### ****Redline Communications (Became part of Aviat Networks)****

**Embedded Software Developer** – Toronto, ON  
Jan 2023 – April 2023

* Developed and maintained embedded C firmware on Linux-based wireless networking hardware, ensuring low-latency communication with FPGAs and proprietary ASICs
* Built and debugged device drivers using VxWorks RTOS for power management, temperature sensors, and FPGA registers (SPI/I2C interface)
* Integrated system-level diagnostics and fault detection logic to support predictive maintenance and alarm management systems
* Collaborated with hardware engineers to implement UART-based communication protocol for radio diagnostics, reducing field debugging time by 25%
* Used GDB and logic analyzers to troubleshoot race conditions and interrupt handling issues in multi-threaded kernel modules
* Worked within Agile Scrum environment, contributed to bi-weekly sprints using Jira and Confluence for task tracking and documentation

**Key Accomplishment:**  
Reduced firmware boot time by 18% by optimizing initialization sequences and memory access routines

#### ****RBC Bank****

**Software Developer** – Toronto, ON  
Jan 2022 – Dec 2022

* Developed internal automation tools in **Python (with Flask)** and **Java (Spring Boot)** to streamline testing of financial data pipelines
* Built CI/CD scripts using Jenkins and Bitbucket Pipelines to auto-deploy nightly test builds on staging environments
* Implemented RESTful APIs for performance monitoring dashboards to help back-office teams track SLA violations
* Conducted unit testing using PyTest and integration testing across systems with various upstream services

**Key Accomplishment:**  
Improved test automation coverage by 40%, reducing manual QA hours by over 10 hours/week

**UNIVERSITY PROJECTS**

**Automated Vacuuming Intelligent Device (AVID)|** **C, Embedded Linux, GDB, GCC, UART, Bluetooth (HC-05)|** [**GitHub ↗**](https://github.com/murtazahussainii/AVID) | [**Demo↗**](https://youtu.be/iHhO0eXAKVE?si=WyXZjk0c5TSzPdTJ)  Feb 2024

* Programmed C-based real-time obstacle avoidance system with sub-50ms sensor response time.
* Used GDB to debug navigation logic on Embedded Linux, reducing field crashes by 75%.
* Implemented UART-based Bluetooth communication and non-blocking state machine control.

**Sphere Movie | Java (Spring Boot), React, MongoDB, JWT|** [**GitHub ↗**](https://github.com/hvpham-yorku/project-group_3/tree/main) **|** [**Demo ↗**](https://www.youtube.com/watch?v=MWdJC19PmD0&t=2s&ab_channel=MurtazaHussaini)May 2023

* Built secure full-stack app for browsing trailers using Spring Boot REST API and React UI.
* Enabled JWT-based login with lazy-loaded components; load time improved by 31%.

### ****Volunteer & Extracurricular Activities****

**IEEE YorkU – Hardware Club Member**  
2022 – 2024

* Contributed to building IoT-based sensor networks using ESP32 and Arduino for real-world data acquisition
* Mentored junior students on embedded C basics, circuit wiring, and using debuggers like GDB and J-Link

**Hack the North 2023 – Participant**

* Created a real-time home automation dashboard using Raspberry Pi, Python, and MQTT
* Won “Best Embedded Hack” mention among 100+ teams

### ****Certifications & Awards****

* **Embedded Systems Specialization** – Coursera (University of Colorado Boulder)
* **Linux Kernel Development Micro-Certification** – edX
* **Dean’s Honour Roll** – York University (2023, 2024)