

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
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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](#)  | [Demo](#) 

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](#) | [Demo](#) 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%.
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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
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Certifications & Awards

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