Guhan Iyer

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Skills

Languages: C, C++, Java, Python, VHDL, Verilog/SystemVerilog, MATLAB, RISC-V Assembly
Libraries & Tools: FreeRTOS, Django, Git, CMake/Make, Valgrind, GBD, Quartus Prime
Technologies & Protocols: STM32, Hercules (Texas Instruments), I^2C, UART, TCP/IP

Experience

Systems Software Engineering Co-op May 2024 – Aug. 2024
NCR Voyix *Waterloo, ON*

- Designed and maintained internal tools on the systems engineering team.
- Utilized **Python** to integrate a core query tool into a newly-initiated patch management project.
- Individually developed a service to validate device compliance data for use organization-wide.
- Developed a patch verification utility with **Django** to serve over **10,000** devices across several platforms.
- Refactored task-scheduled scripts to update internal documents with current user information.

Firmware Developer July 2023 – Present
UW Orbital — University of Waterloo Satellite Design Team *Waterloo, ON*

- Developed a **C**-based thermal monitoring system and essential functions for command & data handling.
- Leveraged **FreeRTOS** to create an event handler for fatal over-temperature shutdowns.
- Integrated logging and stack overflow handling in **all** interrupt services, improving system resiliency.

Electrical and Telemetry Lead Sept. 2022 – June 2023
Laurel Heights Secondary School Electric Vehicle Club *Waterloo, ON*

- Designed, assembled, and maintained the electrical systems of student-built electric vehicles.
- Implemented a telemetry system by interfacing a radio frequency module with **Arduino**.
- Competed in the Waterloo Electric Vehicle Challenge, placing **1st** in the 24-volt category.

Projects

Maze Solving Firefighter Robot | *BASIC, PIC Microcontrollers*

- Built a robot to solve complex mazes where it must locate and extinguish a lit candle.
- Utilized proprietary **BASIC** to manage sensor readings and allow for autonomous operation.
- Calibrated robot to be capable of **sub-five second** solves in standard competition mazes.

Neural Cellular Automaton | *Java, Processing*

- Created a cellular automaton that simulates the formation and operation of a biological neural network.
- Designed and documented a finite state machine and path-finding algorithm.
- Implemented ruleset with **Java**, visual output with **Processing**.

Education

University of Waterloo Waterloo, ON
Candidate for Bachelor of Applied Science in Computer Engineering *Sept. 2023 – Present*

- Relevant Coursework: Algorithms & Data Structures (C++), Digital Circuits (VHDL), Digital Computers (RISC-V Assembly), Numerical Methods (MATLAB)