Guhan Iyer

(226) 505-7658 g2iyer@uwaterloo.ca guhansiyer guhansiyer guhaniyer.com

Skills

Languages: C, C++, Java, Python, VHDL, Verilog, SystemVerilog, MATLAB, RISC-V Assembly
Libraries & Tools: FreeRTOS, Git, CMake, Make, Valgrind, GDB, Quartus, Apio, Yosys, Icestorm
Technologies & Protocols: FPGA, ARM (STM32, TI), I2C, UART, SPI, TCP/IP, CAN

Work Experience

Security Software Intern Jan. 2025 – Apr. 2025
Ford Motor Company *Waterloo, ON*

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Systems Software Engineering Intern May 2024 – Aug. 2024
NCR Voyix *Waterloo, ON*

- Designed and maintained various internal tools for R&D teams across the company.
- Utilized **Python** to integrate a core query tool into a newly-initiated patch management project.
- Developed a patch verification utility to serve over **10,000** devices across **10+** device platforms.

Student Design Teams

Embedded Software Developer July 2023 – Present
UW Orbital — University of Waterloo Satellite Design Team

- Developed a **C**-based thermal monitoring system and essential functions for command & data handling.
- Designed an **I2C** driver to manage readings from digital temperature sensors and create telemetry data.
- Leveraged **FreeRTOS** to create a hysteresis handler, effectively managing over-temperature events.
- Integrated logging and stack overflow handling in **all** interrupt services, improving system resiliency.

Selected Projects

MIRA: Minimalistic RISC Architecture | *FPGA, Verilog, Apio, Yosys, Icestorm*

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Maze Solving Firefighter Robot | *BASIC*

- Built a robot to solve complex mazes where it must locate and extinguish a lit candle.
- Designed autonomous operation software in **BASIC** with sensor-based path planning algorithms.

Open Source Contributions

@zephyrproject-rtos/zephyr | *C*

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@InfiniTimeOrg/InfiniTime | *C, C++*

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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 Systems (VHDL), Digital Computers (RISC-V Assembly), Numerical Methods (MATLAB)