Guhan Iyer

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Skills

Languages: C, C++, Java, Python, Scala, VHDL, Verilog, ARM Assembly
Libraries: FreeRTOS, Django
Tools & Technologies: Git, CMake, Makefile, I^2C, UART, SPI, TCP/IP, Intel Quartus Prime

Experience

Incoming Research Assistant Sept. 2024 – Dec. 2024
University of Waterloo *Waterloo, ON*

- Developing a **Scala**-based **Verilog** synthesizer for cryptographic hardware applications.

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

- Designed and maintained various systems to support critical infrastructure organization-wide.
- Created an internal tool with **Django** to verify patch compliance information for over **10000** devices.
- Refactored **Python** scripts to periodically update internal documents with correct user information.

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

- Developed a thermal monitoring system and essential functions for command & data handling.
- Leveraged **FreeRTOS** to develop an event handler for fatal over-temperature shutdowns.
- Integrated interrupt service logging and stack overflow handling, 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* Sept. 2022 – Jan. 2023

- Built a robot to solve complex mazes in which it must locate and extinguish a lit candle.
- Developed an embedded system to manage sensor readings and allow for autonomous operation.
- Calibrated robot to be capable of **sub-five second** solves in standard competition mazes.

Neural Circuit Cellular Automaton | *Java, Processing, Git* Oct. 2022

- 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 Computers (ARM Assembly)