# 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)