

# Ahnaf Shahriar

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## EDUCATION

### University of Waterloo

Waterloo, ON

*Bachelor of Applied Science in Computer Engineering*

*Sept. 2021 – May 2026*

- Recipient of Richard & Elizabeth Madter Entrance Scholarship and President's Scholarship of Distinction
- **Relevant Courses:** Algorithms and Data Structures II, Digital Computers(ARM), Systems Programming and Concurrency, Embedded Microprocessing Systems

## EXPERIENCE

### Digital IP Verification Intern

May 2023 – Sep. 2023

*NXP Semiconductors Canada*

*Kanata, ON*

- **UVM SystemVerilog:** Designed testbench stimulus environment for an IP Block in Dataplane processing.
- **Test Planning:** Created Simulation scenarios for testing IP block features and edgecases.
- **Simulation:** Worked on Simulation Environment programming to reach total functional coverage.

### Software Engineering Intern

Sept. 2022 – Dec. 2022

*Synapse Product Development*

*Seattle, WA*

- **Prototyping:** Leveraged Zephyr RTOS to create a proof of concept on *NRF52 BLE* device.
- **Python APIs:** Developed company specific lab automation software for equipment from *Agilent, Keysight, NI, Tektronik*.
- **Automation:** Streamlined testing and in house procedures using *Python* and *Bash*.
- **Driver Development:** Designed and implemented *drivers* for the controls of PCB testing Device( *I2C, UART* )

### Firmware developer

Jan. 2022 – April 2022

*Ford Motor Company of Canada*

*Remote*

- **Unity/Cmock Test framework:** Lead developer for optimization for unit testing, achieving up to *30% faster* runtime while using *50%* less manually written test cases.
- **Automation:** Improved *Jenkins CI/CD* pipelines to support unit testing automating using *Python* for Linux server.
- **Embedded Trace Debugging:** Tested logging and interrupt algorithms and debugged on hardware test benches through CAN and Serial.
- **Automotive Design:** Maintained *AUTOSAR* standard design with *ISO26262 safety design* using *Davinci Configurator*.

### Firmware Team Member

Sept. 2021 – Present

*UW Midnight Sun Solar Rayce Car Team*

*Waterloo, ON*

- **Macro Functionality:** Helped in abstracting RTOS functionalities through macros for ease of use in embedded programming.
- **Testing:** Programmed smoketesting firmware in C for *STM32* processors in Linux virtual machine using Vagrant Virtual Box.
- **CAN API autogeneration:** Implemented C file autogeneration using input yaml files through Python and Jinja2.

## PROJECTS

**Game Of Life:** Cellular Automata Simulation in C++ visualized using 2D OpenGL Rendering

**LC VM:** A C functional approach to implement an educational ISA. Improves on online design using Python data logging.

**Cube Solver:** A Program that can solve any Rubix Cube you scramble. Optimized for bitwise operations.

## TECHNICAL SKILLS

**Languages:** Python, C/C++, Tcl, Bash scripting, ASM, VHDL, SystemVerilog/Verilog

**Tools:** Quartus, Git, Linux, Qemu, LLDB/GDB, Docker, WireShark, UVM, Matlab

**Hardware:** Oscilloscopes, Logic Analyzer, Multimeters, Spectrum Analyzer

**Protocols:** TCP/IP, JTAG, Serial, Ethernet, CAN/CAN-FD, LIN