SERENA NICHOLSON

Hardware Engineering Student

OBJECTIVE

Enthusiastic Hardware Engineering student with a passion for designing and optimizing electronic systems. Experienced in circuit design, PCB layout, and embedded systems, with a strong foundation in microcontroller programming and FPGA development. Eager to contribute technical expertise and problem-solving skills to innovative hardware projects while gaining practical experience in real-world applications.

CONTACT

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EDUCATION

Bachelor of Applied Science in Engineering Science

University of Toronto, Toronto, Canada

2023 - Present | GPA: 3.8/4.0

SKILLS

- **Embedded Systems:** C, ARM Cortex, STM32, ESP32, Arduino
- **Hardware Description Languages:** Verilog, VHDL
- **Hardware Debugging & Testing:** Oscilloscope, Logic Analyzer, Multimeter
- Problem-Solving & Critical Thinking
- Teamwork & Collaboration

EXPERIENCE

Hardware Engineering Intern | Company Ltd

May 2024 – Aug 2024

- Developed and tested FPGA-based hardware acceleration modules using VHDL/Verilog.
- Assisted in prototyping and troubleshooting circuit boards for high-speed data applications.
- Collaborated with software engineers to optimize hardware-software integration.
- Conducted signal integrity analysis and verified hardware performance under different conditions.

Undergraduate Research Assistant | University of Toronto

Jan 2024 – May 2024

- Assisted in designing and testing embedded systems for low-power IoT applications.
- Conducted PCB layout and schematic design using Altium Designer and KiCad.
- Performed hardware debugging using oscilloscopes, logic analyzers, and multimeters.
- Documented findings and presented research progress in weekly lab meetings.

PROJECTS

Custom FPGA-Based Signal Processing System | Company Ltd

May 2024 - Aug 2024

- Designed and implemented a real-time signal processing system on an FPGA using Verilog, optimizing performance for low-latency applications.
- Developed and tested a digital filter module to remove noise from sensor data, improving signal accuracy by 30%.
- Integrated the FPGA with an ARM-based microcontroller for efficient data transfer via SPI, ensuring seamless communication between hardware components.
- Simulated and validated the design using ModelSim before deploying it on a Xilinx FPGA, reducing debugging time by 40%.