

Akarsh Singhal

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EDUCATION

University of Toronto

Toronto, ON

Bachelor of Applied Science (B.A.Sc) in Computer Engineering

Expected 2026

- Intended certificate in Engineering Leadership
- Relevant Courses: Digital Systems, Circuit Analysis, Digital Electronics, Electric & Magnetic Fields, Electrical Energy Systems, Computer Organization, Operating Systems

TECHNICAL SKILLS

Languages: C++, C, Verilog, NIOS II Assembly, Python, Matlab

Developer Tools: Git, Linux, VSCode, Windows OS, ModelSim, Quartus Prime

Other: Microsoft Office (Excel, Powerpoint, Word), Microsoft Power BI

PROJECTS

Pong Game | C++, NIOS II

March 2024 – April 2024

- Developed a two-player Pong game using **C++** and the NIOS II soft processor on the DE1-SoC **FPGA** board, focusing on efficient **software-hardware integration**.
- Integrated PS/2 keyboard with the **FPGA** board for paddle control, improving gameplay responsiveness and demonstrating effective **I/O peripheral interfacing**.

SwiftMap | C++

Jan. 2024 – April 2024

- Led a team of 3 to develop a GIS mapping software like Google Maps, using **C++** and OpenStreetMap API on **VSCode**.
- Utilized **unit tests** to streamline debugging and enhance software reliability.
- Facilitated **AGILE** workflow, leading weekly meetings and keeping the Wiki project page updated.

Adventure Game | Verilog, ModelSim, Quartus Prime

Nov. 2023 – Dec. 2023

- Developed a multi-level third-person adventure game using **Verilog** on the DE1-SoC **FPGA** board, focusing on efficient **RTL design** and implementation.
- Integrated **I/O** peripherals such as the PS/2 keyboard, switches, HEX display, and VGA with the **FPGA** board, enhancing the user interface.

EXPERIENCE

Systems Analyst Intern

June 2024 – Aug. 2024

University Health Network (UHN)

Toronto, ON

- Utilized SAP S/4HANA, QSight, Microsoft Excel to process 30+ purchase requisitions and orders daily, increasing accuracy and speeding up the procurement workflow.
- Worked with different departments to refine SAP S/4HANA workflows, resulting in more efficient processing of financial transactions and fewer data entry errors, while leveraging Power BI to visualize process improvements and monitor performance metrics.

ACTIVITIES

Team Member

July 2024 – April 2025

University of Toronto Formula Racing (UTFR)

Toronto, ON

- Implemented **CPU usage** tracking on a Teensy 4.1 for ACM, RC, and FC **controllers** using **C++**, aiding **firmware optimization** with comprehensive CPU consumption reports over 5-minute intervals.
- Integrated SD card storage with a Teensy 4.1 microcontroller to log real-time CPU performance metrics, facilitating continuous monitoring and system diagnostics for embedded controllers.

Project Manager

June 2022 – April 2022

University of Toronto Robotics Association

Toronto, ON

- Coordinated project timelines, tracked progress across sub-teams, and ensured smooth integration of deliverables.
- Organized meetings, prepared agendas and minutes, and communicated effectively across teams.