

AKSHAY BHATIA

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EDUCATION

University of Waterloo

September 2021 - May 2026

BASc., Honours, Computer Engineering

Waterloo, Ontario

- **Relevant Coursework:** Concurrency (C), Operating Systems (C), Algorithms & Data Structures (C++), Embedded Systems (C), Computer Architecture (RISC-V), Digital Hardware Systems (RTL-Design with Verilog)

EXPERIENCE

Astera Labs

Santa Clara, California

Software Engineering Intern

Jan 2025 - Apr 2025

- Developing tooling to measure PCIe bus latency on Gen5 NVIDIA GPUs under intense LLM workloads using C
- Developing an in-house USB to SPI converter on a Raspberry Pi; estimated to save **\$300** per dev-board

Astera Labs

Vancouver, BC

Software Engineering Intern

May 2024 - Aug 2024

- Developed firmware & SDK utility for **10+** ICs to next-gen boards using **I2C** & **SPI** protocols in **C** & **python**
- Debugged **20+** customer problems for **PCI-e** retimer firmware by identifying and patching interop issues
- Performed **7+** customer Schematic & Signal Integrity reviews; identifying incompatibilities before fab-out
- Automated PCI-e regression tests with **bash** scripts generating structured data; accelerated the process by **3x**

TD Bank Group

Toronto, Ontario

Software Developer Intern

Sept 2023 - Dec 2023

- Developed portfolio dashboards using **Matplotlib** & **React**; enhanced risk assessment with advanced charts
- Engineered **15+** CRUD features for risk analysis tool, integrating MVC architecture with **Django**, **React**, & **SQL**
- Rectified **20+** bug reports for portfolio analysts with targeted fixes; improving the overall stability of the tool

Ford Motor Company Ltd.

Oakville, Ontario

Software Developer Intern

Jan 2023 - May 2023

- Analyzed **27** system crashes & engineered fixes to underlying issues, saving **200+ hours** of computing time
- Captured real-time ECU test results & transformed raw data into meaningful metrics using **Python** scripts
- Leveraged **Google Charts API** to create performance reports, identified fault components with **95% accuracy**

AdPuzl

Ottawa, Ontario

Software Developer Intern

May 2022 - Aug 2022

- Revitalized adpuzl.com with **NextJS**, **Typescript**, & **Tailwind CSS**; improving **SEO** & performance by **146%**
- Engineered an [interactive playground](#) using **VueJS** & **VueX**; increasing user engagement by over **1.8 times**

EXTRA-CURRICULARS

🔗 Research Assistant - SeaHorn | LLVM, MLIR, eBPF, C, Linux Kernel

- Modeled eBPF functions from the Linux kernel & integrated fuzz testing for automated software verification

🔗 RISC-V RTL CPU Design | System Verilog, Verilator, RISC-V, AMD PYNQ-Z2 FPGA

- Designed a fully pipelined RISC-V CPU using **System Verilog** & deployed it on the AMD PYNQ-Z2 FPGA

🔗 Multi-Threaded Web Crawler | C, CURL, pthreads

- Developed a multi-threaded web crawler in **C**, capable of fetching **100** valid PNGs from any website in **3 secs**

SKILLS

Languages: Python, C/C++, JavaScript, Lua, System Verilog, Typescript, VHDL, Dart, SQL, HTML/CSS

Frameworks: React, Vue, Next, Flutter, Node, Express, Django, TensorFlow, MongoDB, StoryBlok, Cohere, jQuery

Developer Tools: Vim, tmux, Bash, Git, Postman, UNIX, Figma, HerokuCLI, Latex, Asana, Confluence, JIRA