

Ryan Maxin

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SKILLS

Languages: JavaScript, TypeScript, C/C++, Python, Java, HTML/CSS, SASS, Bash, MATLAB, Assembly, VHDL

Developer Tools: Git, Node.js, Jenkins, Hugging Face, PostgreSQL, SQLite, Firebase, Docker, Jira

Libraries: Pandas, Transformers, LlamaCPP, Material UI, React Router, Matplotlib, Chart.js

Frameworks: React, FastAPI, Next.js, Svelte, Tailwind, Bootstrap, Express.js, LangChain, LLVM

EXPERIENCE

Huawei

May 2024 – Present

Compiler Engineer

Markham, Ontario

- Enhanced loop tiling **compiler optimization** using **LLVM** and **C++**, successfully transitioning it from an experimental feature to a standard pass capable of optimizing the complex code structures used in HPC.

WSIB Innovation Lab

Sep 2023 – Dec 2023

Full-Stack Engineer

Waterloo, Ontario

- Spearheaded a **generative AI** initiative to enable conversational interaction with **SQL** databases and presented the success to a **150-person audience** in the CBIA branch.
- Leveraged quantized and fine-tuned Llama-2 and SQLcoder **LLMs** through **LangChain** and **Python** running on **Azure** VMs to achieve **parity with GPT-4** in database QA, effectively addressing OpenAI data privacy concerns.
- Managed **Azure** infrastructure for the lab and configured suitable VMs for **AI** tasks; reduced costs by **66%** through automated shutdowns during VM downtime.

Infinera

Sep 2022 – Dec 2022

Firmware Engineer

Ottawa, Ontario

- Created a CLI API in **C++** using eRPC to enable low-level runtime reconfiguration of digital subcarriers, **eliminating a 10-minute recompile time** for developers.
- Utilized the Atlassian API along with **Pandas** and **Matplotlib** in **Python** to display real-time graphical data on a confluence page of production build data from **Jenkins** CI, allowing the team to identify and fix resource inefficiencies on hardware limited to 32MB of memory.

University of Waterloo

Jan 2022 – Apr 2022

Course and Technical Support Assistant

Waterloo, Ontario

- Engineered a **JavaScript** algorithm to process **1000s** of raw Sentinel-1 arctic satellite RADAR images in Google Earth Engine to determine melt/freeze onset dates for lakes and rivers in Canada.

PROJECTS

Sorting Algorithm Visualizer 🔄🎮

- Developed an interactive visualizer of **six** popular sorting algorithms using **React** and **Material UI**.

Realm Tunes 🎵

- Created a Discord music bot with 17 commands that can play music from various places like YouTube, Soundcloud, Spotify and mp4 files using **Python** and the Discord.py API.
- Deployed Realm Tunes to an **Ubuntu** server, providing on-demand music to **350 users** across **seven servers**.

SYDE 2026 Class Profile 🔄🎮

- Led a software team of **seven** peers to continue the SYDE tradition of creating a class profile website through weekly meetings and mentorship, resulting in the project being finished **two weeks ahead of schedule**.
- Implemented navigation and all five statistic pages using **React** and **Chart.js**, with **Firebase** to store data.

EDUCATION

University of Waterloo

Sep 2021 – Apr 2026 (expected)

Candidate for Bachelor of Computer Science, Coop (**3.9 GPA**)

Waterloo, Ontario