

Charles Ran

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EDUCATION

University of British Columbia, Canada

2024-2028 (Anticipated)

Bachelor in Computer Science and Math (Honours with Co-op)

Master in Management (Concurrent Dual Degree), 4.10/4.33 GPA

AWARDS

Top 200 (Top 10 in Canada), Putnam Mathematics Competition	2025
Bronze Medal, British Columbia Collegiate Programming Competition	2024
Champion (1/7000), Canadian Open Mathematics Competition	2024
Champion (1/16805), Canadian Senior Mathematics Competition	2023
National Finalist, IYPT Physics World Cup	2023

Master (Top 1% Global), Codeforces 🏆

Top 1% Global, LeetCode

EXPERIENCE

Director of Technology

Vancouver, BC

UBC Competitive Programming Club

2024-present

- Develop club website icpc.cs.ubc.ca 🏆 using **Cloudflare**, **SvelteKit**, **TailwindCSS**, **ShadCN UI**.
- Manage infrastructure and backend with **Docker** and populate dynamic content in **SQLite** database.

Sponsorships Coordinator

Vancouver, BC

UBC Science Undergraduate Society

2025-present

- Expand external partnerships and Blue Card student program through corporate outreach

CEO and Webmaster

Toronto, ON

Math et. AI Initiative

2020-2024

- Create educational STEM content, activities, and events, gathering **\$200+** in sponsorships with **20+** staff and **300+** members.
- Develop and maintain the main website and tech infrastructure using **React**, **SCSS**, **Figma**, **Svelte**, **Firebase** and **Typescript**.

Chief Technology Officer

Mississauga, ON

Mississauga Community Service Alliance

2022-2023

- Lead the development of organization website and tech infrastructure using **Cloudflare**, **React**, and **Vercel**.
- Collaborate with cross-departmental teams to organize Mississauga Asian Culture Festival with **1,000+** in-person participants.

Hydrodynamics Researcher

Toronto, ON

Canadian Young Physicists Tournament

2022-2023

- Engineer experimental hydrodynamics models using **CAD/CAM** and develop image analysis pipelines using **Julia** and **OpenCV**.

PROJECTS

Virtual Olympiad Judge 🏆

🏆 virtual-olympiad/voly

Massive Science Olympiad Platform and Database

2023-Present

- Develop educational collection of hosted platforms, databases, and tools for the Science Olympiad community.
- Create professional frontends and custom **APIs** using **SvelteKit**, **React**, **TailwindCSS**, **Figma** and **modern design languages**.
- Build dynamic web scraper and parser for math with **Cheerio** and optimize a web **LaTeX** abstraction layer based on KaTeX for storage and full-text search. Index massive **PostgreSQL** database featuring **10,000+** competition problems.

Virtual Olympiad Arena 🏆

🏆 virtual-olympiad/arena

Multiplayer Game Server for Math Olympiads

2022-Present

- Host multiplayer game server through **Websocket** using **Typescript** and **Node.js**. Integrate **PKCE authentication** and **PostgreSQL** databases with self-hosted **Supabase**.
- Maintain robust, scalable infrastructure and automated backups using **Hetzner**, **Coolify**, and **Cloudflare**.

CERXA 3D Engine 🏆

🏆 polarr/cerxa

Volumetric Raytracing Graphics Engine

2020-Present

- Develop custom **WebGL** graphics engine for **pathtracing**, **volumetric raytracing**, and **rasterization**; the engine features Phong shading, shadows, and support for infinite-resolution fractals.

SKILLS

Programming Languages: Javascript/Typescript, C, C++, Assembly, Java, Python, Julia, Bash, GLSL

Software Engineering: HTML/CSS, SvelteKit, React, Next.js, TailwindCSS, SQL, Node.js, Express.js, Websocket, Docker, Cloudflare, Figma, Git, Open/WebGL, AWS, Supabase, Firebase

Data Science/Machine Learning: OpenCV, Jupyter, Pytorch, Tensorflow