

Charles Ran

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EDUCATION

University of British Columbia, Canada

2024-2028

4.33/4.00 GPA, Combined Bachelors in Computer Science and Math & Master of Management Dual Degree

Oakville Trafalgar High School, Canada

2020-2024

High School Diploma, 4.0/4.0 GPA

- Co-President of the Math, Computer Science, and Physics Clubs. AP Scholar with Distinction (12 AP exams).

AWARDS

Top 200, William Lowell Putnam Mathematical Competition

2025

Bronze Medal, ICPC British Columbia

2024

International Champion (1/7000), Canadian Open Mathematics Competition

2024

National Champion (1/16805), Canadian Senior Mathematics Competition

2023

National Finalist, IYPT Physics World Cup

2023

Top Quartile, Canadian Mathematical Olympiad

2022

EXPERIENCE

Founder and Fullstack Web Developer

Ontario

Math et. AI Initiative

2020-Present

- Found and manage an educational STEM nonprofit organization with 20+ staff and a community of 300+ members.
- Develop and maintain the main website and organization-wide tech architecture using Svelte, Typescript, and BulmaCSS.
- Create Math, Physics, Chess contests, YouTube lessons, and written educational STEM content, gathering \$200+ in sponsorships.

Lead Software Developer

Mississauga, ON

Canadian Innovative Community Service Alliance

2022-2023

- Lead the development of organization homepage and tech architecture using Cloudflare, Vercel, and Svelte with 1,000+ users.
- Collaborate with cross-functional teams to consolidate project logistics for charity events and large public culture festivals.

Executive of Mathematics and Educational Coordinator

Toronto, ON

Ontario Competitive Mathematics Committee

2023-2024

- Create and quality control math problems for province-wide competitions with 10+ participating schools and 200+ contestants.
- Monitor student growth in math enrichment summer camps, grading homework and providing feedback for 10 students.

Hydrodynamics Researcher

Toronto, ON

Canadian Young Physicists Tournament

2022-2023

- Produce novel research concerning fractal-like fluid phenomena governed by the Saffman-Taylor instability using hydrodynamics, multivariable calculus and linear algebra modelling.
- Engineer experimental models using CAD/CAM and develop image processing pipelines and algorithms using Julia and OpenCV.

PROJECTS

Virtual Olympiad Platform

🔗 virtual-olympiad/voly

Massive Science Olympiad Platform, Database, APIs, and Tools

2021-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, 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 10000+ competition problems.
- Host multiplayer WebSocket server using Typescript and Node.js. Integrate PKCE authentication and create complex PostgreSQL project structures 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

2020-2022

- Develop WebGL raymarching engine from scratch, featuring Phong shading, shadows, and distance-estimated fractal support.

SKILLS

Spoken Languages: English, Chinese

Preferred Tech Stack: Javascript/Typescript, C++, Python, SvelteKit, React, TailwindCSS, PostgreSQL, Node.js, Cloudflare

Soft Skills: Strong Intrapersonal Skills, Management, Logistics, Teaching, Collaboration, Problem Solving