

Joshua Zheng

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Education

University of Waterloo

Bachelor of Software Engineering, Honours

September 2024 - Present

- 92% CGPA / 3.9 GPA, President's Scholarship of Distinction

Experience

Quantified Health

Software Engineer Intern

May 2025 - August 2025

Toronto, ON

- Transformed legacy manual booking workflow into automated **GraphQL/Prisma** platform featuring intelligent payment routing, real-time provider availability with buffer logic, and **Stripe webhook** integration.
- Integrated bookings with a **Next.js** EMR with support for conversations, notes and prescriptions serving **12+ providers** and **1000+ patients**, guarded with **Supabase RLS** policies and directives.
- Automated the handling of **Stripe** payment intents, EMR appointment creation, and abandoned cart emails by deploying custom **TypeScript** workflows on **Upstash**, reducing admin workload by **15+** hours/week
- Migrated product marketplace from external API calls to scheduled local **FTP** processes integrated with indexed **GraphQL** queries, reducing product search times by over **10x**.

Waterloo Reality Labs

Software Developer

September 2024 - April 2025

Waterloo, ON

- Worked in **Agile** teams to create **Unity** software packages that integrate VR tracking into humanoid robotics and produce real-time textual summaries of virtual environments in real time.
- Built **WebSocket** authentication backend for hand data transmission, implemented with pairing tokens with support for multiple clients and time-sensitive connections.
- Developed interactive demo scenes using **Meta XR SDK** and **Interaction SDK** for custom user interactions in **virtual reality** for team-wide testing and development.
- Built **C#** application to process and aggregate information from **4+ virtual user interactions** with **GameObjects**, implemented as an extension of an **abstract base class** for string aggregation.

Projects

Pianowise | TensorFlow, Next.js, React, VexFlow, Tailwind | *GenAI Genesis 2025 Winner*

- Designed and implemented a **computer vision** and generative AI powered piano tutor, using **TensorFlow** to track hand movements to simulate a virtual piano.
- Leveraged **Gemini 2.0 Flash** model to provide real-time feedback for users and **Cohere Command A** to generate sheet music of suitable difficulty, rendered on a **Next.js** frontend using the **VexFlow** API.

Scholar Market | Next.js, TypeScript, Solidity, PyTorch | *Hack the North 2025 Winner*

- Developed prediction market platform using **Ethereum smart contracts** in **Solidity**, enabling students to place bets on academic outcomes with automated resolution and payout systems, integrated with **Next.js** frontend.
- Built **Express.js** backend API handling smart contract deployment and bet processing, with **MongoDB** for user profiles, bet history, and contract address management, integrated with **Auth0** authentication.

Honours & Awards

USA Computing Olympiad Platinum Division

December 2023

American Invitational Mathematics Examination (AIME) Qualifier

November 2023

Canadian Computing Competition (CCC) Honour Roll

February 2023

Intercollegiate Poker Association (IPA) Champion

May 2025

Skills

- **Languages:** Python, C, C++, C#, JavaScript, TypeScript, Scala, Solidity, SQL, Bash, LaTeX, VHDL
- **Technologies:** GraphQL, MongoDB, Next.js, Prisma, React, PostgreSQL, Selenium, Stripe, Supabase