

Daniel W Liu

Computer Science and Finance Student

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EDUCATION

University of Waterloo | *Double Major in Computer Science and Finance* Sept 2025 – April 2029
Bachelor of Computing and Financial Management (Co-op) | **GPA: 3.94/4.0** Waterloo, ON
International Baccalaureate Diploma: 45/45 Perfect Score (Top 0.5% Internationally)

EXPERIENCE

Software Developer Intern May 2026 – Aug 2026
PlayStation (Sony Interactive Entertainment) Waterloo, ON

- Engineered a **34-endpoint** Express.js admin API layer for PlayStation's authorization proxy, enabling platform admins to manage roles, permissions, and access tokens for **2,500+ developers** through GitHub-backed RBAC.
- Eliminated manual database and API edits by launching a React TypeScript portal with **15+ role-gated** workflows granting and revoking developer access, audited by Grafana Loki and **300+ Jest integration tests**.

Software Engineering Intern Jan 2026 – Apr 2026
Wedge (YC S25) San Francisco, CA

- Shipped a full-stack AI voice platform using Next.js, Supabase, and Vapi, meeting weekly with **3** hospital clients to auto-navigate insurance claim calls and extract **45+ structured claim data fields** across **50+ clinical sites**.
- Reduced **server polling overhead by 67%** and resolved race conditions through atomic Postgres operations, while building an Interactive Voice Response engine that auto-maps call flows into **8-node AI decision trees**.

Software Engineering Intern Sept 2025 – Dec 2025
HOSA Canada Toronto, ON

- Engineered a scalable full-stack educational resource sharing platform using Next.js, AWS, and MongoDB, serving **9,000+ Canadian students** competing across **50+ unique associations** spanning North America and Asia.
- Deployed a production MERN workshop sign-up system processing **19,943 registrations** across **347 workshop sessions**, integrating Twilio email notifications, Redis queues, PM2 cron workers, and **457 Jest unit tests**.

Machine Learning Research Intern Jul 2025 – Aug 2025
Pearl Lab Holland Bloorview Kids Rehabilitation Hospital Toronto, ON

- Developed real-time AI object detection systems using OpenCV and pupil-apriltags for *Bootle Blast*, a gamified rehabilitation platform clinically tested at **3+ Canadian hospitals** for children's motor skill rehabilitation.
- Benchmarked ML object detection models using NumPy and pandas against YOLOv8 on a dataset of **250+ unique environments**, improving **mean average precision (mAP)** by **46.8%** in real-world scenarios.

PROJECTS

rainbolt.ai | *Next.js, Three.js, FastAPI, OpenAI CLIP, Pinecone, LangChain, Google Cloud* *Devpost* *GitHub*

- Awarded **Best UI Hack** at UofT Hack the Valley X as **frontend lead**, building an AI geolocation teaching platform with Next.js, Three.js, Zustand, and Gemini for interactive 3D visualizations and geographic reasoning.
- Architected a RAG pipeline with a dataset of **955,199+ images**, integrating OpenAI CLIP, Pinecone, LangChain, and Mapillary API with a FastAPI backend to analyze street-level imagery and generate visual location reasoning.

Multithreaded Voxel Engine | *C++20, OpenGL 4.1, GLFW, GLM, Dear ImGui, FastNoiseLite, CMake* *GitHub*

- Built a multithreaded C++20/OpenGL voxel engine with procedural terrain, shadows, and water, using a greedy meshing algorithm to merge identical block faces and cut GPU triangles **27x** per chunk, sustaining **145 FPS**.
- Engineered a chunk-streaming pipeline with **9 worker threads (940 chunks/sec)**, infinite world streaming with bounded memory, raycast-based block place/break, and **RLE-compressed binary saves (144x compression)**.

VibeTrade | *Next.js, FastAPI, Supabase, LangGraph, Alpaca, Finnhub, ElevenLabs* *Devpost* *GitHub*

- Built an agentic AI trading dashboard that analyzes market data, news, and portfolio context to generate real-time actionable insights and explainable trading rationales, integrating **5 financial APIs** over live WebSocket streams.
- Implemented a customizable 3D AI voice agent with low-latency voice synthesis, background workers for market monitoring, and a FastAPI + LangGraph workflow enabling voice-triggered trade execution and reasoning.

TECHNICAL SKILLS

Languages: Python, C, C++, JavaScript, TypeScript, GLSL, SQL, HTML, CSS

Frameworks: React.js, Next.js, Node.js, Express.js, FastAPI, Tailwind CSS

Cloud and Databases: AWS, Google Cloud, PostgreSQL, MongoDB, Redis, Supabase, Drizzle

Data and Libraries: OpenGL, pandas, NumPy, OpenCV, Matplotlib, yFinance, PyQt5, Three.js

DevOps and Tools: Docker, Git, Linux, CI/CD, Jest, Jenkins, Vercel, GitHub, Unity, Blender