Aaron Ye

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Education

University of Waterloo — Waterloo, ON
Bachelor of Mathematics, Honours Mathematics — *2025 - Present*
- **Relevant courses**: Designing Functional Programs, Elementary Algorithm Design & Data Abstraction (Advanced Level)
- **GPA**: 3.94/4.0 (92%)
- **Awards**: 12x hackathon winner (Hack the North 2025 & 2024 Finalist, JAMHacks 2025 1st place & more)

Experience

Software Engineering Intern (Incoming) — May 2026 – Aug 2026
Otto Labs — *Toronto, Canada*

Fullstack Developer ↗ — Sep 2024 – April 2025
EurekaHACKS | JavaScript/TypeScript, Next.js/React, PostgreSQL, AWS, TailwindCSS — *Remote, Canada*
- Built the application portal for Canada's **largest** high school hackathon with Next.js and **PostgreSQL** serving 400+ applicants, implementing authentication system with **AWS** SES email verification, OAuth (Google/GitHub), password reset flows, and JWT session management
- Built an RSVP system requiring confirmation after acceptance with automated emails, reducing no-show rate by **76%**
- Developed user-friendly application portal with form validation and error messaging, serving **32,000+** platform views
- Implemented QR code-based check-in system that scans attendee codes to verify registration, mark attendance, and track meal distribution, reducing check-in and food service times by **84%**

Freelance Software Engineer — Mar 2023 – Mar 2024
Freelance | JavaScript/TypeScript, discord.js, Node.js, Docker, MySQL, SQLite — *Remote, Canada*
- Developed Discord bots for cryptocurrency communities using discord.js and Node.js, integrating blockchain **REST APIs** to automate 600+ tipping transactions with MySQL/SQLite transaction logging across servers serving **3,100+** users
- Implemented role-based command permissions and rate limiting to restrict bot access by roles and prevent API abuse
- Deployed production Discord bots using **Docker** with persistent **MySQL/SQLite** storage, structured application logging, and crash-handling mechanisms to ensure data integrity and service reliability

Technical Projects

Dime Defender (Hack the North 2024 Finalist) ↗ | *JavaScript, SvelteKit, Plasmo*
- Built a Chrome extension that launches an Ace Attorney courtroom debate between AI lawyers to help users decide on purchases, intercepting Shopify and Amazon checkout pages to extract cart data (items, prices, quantities)
- Designed audio streaming pipeline with prefetch queue that downloads the next dialogue clip while current one plays, eliminating gaps between AI-generated voice lines to maintain continuous debate flow with <**100ms** transitions

Mr. Goose (JAMHacks 2025 First Place) ↗ | *TypeScript, ElysiaJS, AWS, Docker*
- Built a VS Code extension that teaches coding through interactive AI questioning rather than passive tutorials, monitoring workspace file saves to track user progress and dynamically update conversation context based on code changes
- Designed a state machine supporting multiple learning modes (fill-in-blanks, hints, validation) that generates targeted questions based on current code state and adapts difficulty as users progress through challenges

DocQa | *TypeScript, Next.js, LangChain, PostgreSQL*
- Built a **RAG**-powered document Q&A application using **LangChain** with custom PgVectorRetriever for semantic search, enabling natural language queries across uploaded documents with source citations and page references
- Developed batch embedding pipeline processing **50** documents per batch with OpenAI's embedding API, optimizing throughput while maintaining chunk-level metadata for precise source attribution

Technical Skills

Languages: Java, Python, Go, C++, SQL, JavaScript, TypeScript
Libraries/Frameworks: React, Next.js, SvelteKit/Svelte, Flask, FastAPI
Other: Git, Docker, Linux, PostgreSQL, MySQL, AWS, Node.js