

Jake Zhang

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EDUCATION

University of Toronto

Bachelor of Science, Specialist in Computer Science

Sept. 2023 – May 2027

EXPERIENCE

Software Developer Intern

May 2025 – Present

Northbridge Insurance

Toronto, ON

- Rebuilt the data layer and UI/UX of a legacy .NET batch testing tool, replacing row-by-row queries with SQL stored procedures to cut full-run time by 90% and enable self-service QA testing.
- Built a Manuscript Versioning .NET/C# app that helps underwriters quickly find and update the correct version of policy documents, reducing the risk of using outdated information.
- Built an automated Azure pipeline using MSCop to detect malformed manuscripts, replacing a manual 5-hour validation process with a 10-minute automated workflow, reducing runtime by 30x.

Junior Full Stack Software Engineer

June 2023 – Aug. 2024

C-Quence Insurance

Remote

- Independently built the Angular frontend for Batch Quoting, enabling brokers to upload spreadsheets and receive quotes for multiple risks instead of entering risks one-by-one, and integrated it with backend quoting APIs.
- Built a Python semantic search engine to find relevant clauses across policy documents by meaning rather than keywords, using SBERT and Nomic AI embeddings, MongoDB vector search, and a FastAPI REST API.
- Containerized and packaged the semantic search service with Docker and Poetry, creating a deployable retrieval pipeline that returned ranked policy clauses from natural-language queries.

PROJECTS

Companion0 | *Tauri, Rust, Cloudflare, Firebase, Stripe, OpenTofu, GitHub Actions*

Aug. 2026 – Present

- Building an always-on-top AI companion for Windows that watches on-screen activity and starts conversations unprompted, shipped as a signed .msi with auto-updates.
- Designed an event-driven Stripe webhook pipeline on Cloudflare Workers and Queues, using per-customer Durable Objects for ordered updates and a dead-letter queue for failed events.
- Made delivery safe under retries and duplicates through idempotent, event-ID-keyed writes, and validated it with chaos tests covering duplicate, out-of-order, and failed events.
- Defined all infrastructure in OpenTofu, automated plan-on-PR and deploy-on-merge with GitHub Actions, and added Grafana dashboards with a dead-letter alert.

Chromajam (EmberHacks 2026) | *JavaScript, Node.js, Express, Vite, Tone.js, Gemini API*

Sept. 2026

- Built a web app that generates playable music (exportable as .mid/.mp3) from a text prompt and renders it as a live canvas where each instrument gets a colour and shape, so deaf users can follow separate voices visually.
- Split the work between a slow semantic layer, where Gemini returns one schema-validated JSON plan per run, and a real-time layer, where Web Audio FFT and Canvas 2D drive the visuals per frame.

Fileverse Personal Cloud (Google Drive Clone) | *React, Next.js, AWS*

December 2025 – January 2026

- Built a personal cloud storage web app where a user signs in, uploads files to their own private storage, and browses, downloads, or deletes them from the browser; effectively a scaled-down Google Drive.
- Implemented it fully serverless on AWS: Cognito for authentication, Lambda to issue S3 presigned URLs so transfers go straight from the browser to S3, and DynamoDB for per-user file metadata.

TECHNICAL SKILLS

Languages: Java, Python, C/C++, C#, TypeScript/JavaScript, SQL, Rust, HTML/CSS

Frameworks: React, Next.js, Angular, Node.js, Express, NestJS, .NET, FastAPI, Tauri

Cloud & Infra: AWS, Azure Pipelines, Cloudflare, Firebase, Docker, OpenTofu, GitHub Actions

Data & Tools: SQL Server, Duck Creek, MongoDB, Firestore, Git, Grafana, Poetry, Vite

AI Tools: Claude Code, ChatGPT, GitHub Copilot, Cursor, Antigravity, Muse

AI/ML: PyTorch, Sentence-Transformers, LangChain, MCP, RAG, Agent Skills, Hyperparameter Optimization