

EVE GAGNON

Montreal, Quebec

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Software engineer focused on scalable backend systems, search infrastructure, and end-to-end product development.

Education

Concordia University

B.Eng. Computer Engineering — also completed B.Sc. Biology (2018-2021)

Jan. 2022 – May 2026 (expected)

Montreal, QC

Experience

Software Developer Intern

May 2023 – August 2024

MHI RJ Aviation ULC

Boisbriand, QC

- Modernized a company-wide document search platform used across 10+ departments; optimized ingestion and query layers to handle **100k+ documents** and **thousands of queries/day**, reducing page-load latency from 60s → <1s and CSV exports (100k rows) from 5 min → <30s
- Redesigned and implemented the full UI with advanced filtering, accessibility features, and streamlined workflows based on direct collaboration with the product owner
- Built secure authentication and role-based access logic ensuring correct cross-department permissions and reliable end-to-end flows
- Strengthened system resilience by implementing ingestion state tracking (uploaded → processing → ready → failed) with automated recovery for corrupted or incomplete data

Full-Stack Developer (Contract)

October 2022 – September 2023

Independent Contractor

Ottawa, ON

- Developed a POS platform using Flutter, React, Flask, MySQL, and Docker, improving server-to-kitchen communication speed by 35%
- Built and deployed a REST API handling 5,000+ daily data points with consistent sub-100ms responses
- Designed a normalized MySQL data model supporting 200+ menu items, fast lookup queries, and reliable synchronization

Projects

AI Document Intelligence Platform | *FastAPI, Postgres/pgvector, React, OpenAI*

Fall 2025

- Built an end-to-end RAG system with structured chunking, pgvector search, and grounded LLM answers with source citations
- Engineered a scalable embedding and retrieval pipeline supporting **30k-50k embeddings**, achieving <50ms vector search latency (pgvector) and ingestion throughput of **5-10 docs/sec**
- Designed and tuned chunking + retrieval heuristics (heading-aware segmentation, page locality, RR fusion) improving semantic relevance and grounding accuracy
- Developed a full-stack benchmarking playground to evaluate retrieval quality across **10+ chunking strategies**, enabling systematic tuning of accuracy vs. latency trade-offs

Peer-to-Peer Auction System | *Python, UDP/TCP*

Winter 2025

- Built a real-time distributed auction system combining UDP for low-latency bid propagation and TCP for reliable replication and settlement
- Handled concurrent bidders with correct delivery guarantees and reduced bid-propagation latency by **30%** through optimized UDP messaging
- Implemented replay-safe messaging, fault-tolerant transaction flows, and consistency mechanisms ensuring correctness under packet loss and retries

Technical Skills

Languages: Python, C/C++, TypeScript/JavaScript, SQL, Java

AI/ML: embeddings, vector search (pgvector), retrieval-augmented generation (RAG)

Backend & Infrastructure: FastAPI, Flask, Node.js, PostgreSQL, Redis, Docker, Linux

Cloud & DevOps: Azure, GCP, CI/CD, containerized deployment

Concepts: distributed systems, event-driven architecture, caching, data modeling, system design, authentication, observability/monitoring

Frontend: React, Flutter