

# Thomas Assalian

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## EDUCATION

### Concordia University

Bachelor of Computer Science, **GPA: 3.92/4.30** — Dean's List

Montreal, Quebec, Canada

September 2023 – May 2027

## WORK EXPERIENCE

### AI Software Developer Intern

UKG

May 2025 – August 2025

Montreal, Quebec, Canada

- Developed a scalable **agentic RAG** application, achieving **23x faster response times** and **\$200,000 annual compute savings** by optimizing retrieval pipelines, caching strategies, and model orchestration.
- Engineered advanced **Retrieval-Augmented Generation (RAG)** pipelines in **Python** by using **LangChain** and **Google Vertex AI**, improving document query relevance by **52%**.
- Automated ingestion of **10,000+ internal files** on **Google Cloud Platform** by chunking and embedding into **MongoDB** with **MySQL-backed metadata**, streamlining **RAG** document retrieval.
- Built and deployed **15+ task-specific Agents** in **Python** by using **LangGraph** and **LangChain**, orchestrating **REST APIs** and internal tools via **FastAPI** to enable dynamic, goal-driven workflows.
- Refactored the AI agent SDK API for **end-to-end async execution** of agent tool calls; built a custom **async HTTP client** for **REST APIs**, improving tool execution speed by up to **40%**.
- Boosted test coverage to **98%+** by implementing **unit** and **integration tests** across AI agent and RAG services.
- Applied **Object-Oriented Programming** to **RAG** and **Agent** architectures, enabling scalable orchestration, cleaner **API integration**, and more maintainable code.
- Containerized all services with **Docker** and deployed across **Kubernetes clusters**, achieving **99.9%** up time.
- Tested and documented **RESTful APIs** using **Postman** and **Swagger** to validate proper functionality.

### Data Engineer Intern

Alstom

September 2024 – December 2024

Montreal, Quebec, Canada

- Engineered **Python ETL** pipelines (**Pandas/NumPy**) to extract, clean, and structure operational datasets powering **Tableau** dashboards, improving efficiency by **80.2%** and reducing manual reporting work by **95%**.
- Delivered **100%** data accuracy for **30+** stakeholders by building automated validation + reconciliation scripts and **partnering with business analysts** to ensure reliable, decision-ready reporting.

## PROJECTS

### Agentic RAG (UKG Hackathon) | Python, LangChain, MongoDB, Docker, Redis, Google Gemini

June 2025

- Built a containerized **agentic RAG** service with agent orchestration, concurrent multi-tool execution, semantic caching, and MongoDB vector search.
- Improved end-to-end latency by **45%** and retrieval relevance by **30%** via caching + pipeline optimization.

### Employee Management System | Java, Spring Boot, React, AWS, Docker, PostgreSQL

February 2025

- Developed a **full-stack system** enabling secure file uploads for **1,000+** employee profiles, reducing upload failures by **90%** using **S3-backed storage + metadata persistence**.
- Implemented local + cloud storage support with **AWS SDK**, containerized deployment, and IAM access.

## EXTRACURRICULAR & LEADERSHIP

### Lead Machine Learning Engineer – Space Concordia

September 2024 – February 2025

- Led a team of **5**, delivering a **CNN** model achieving **92%** accuracy in aerospace image classification.

## CERTIFICATIONS

### Software Development Life Cycle (SDLC)

June 2025

LinkedIn

## TECHNICAL SKILLS

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

**Libraries/Frameworks:** Spring Boot, React, FastAPI, Next.js, Tailwind CSS, LangGraph, LangChain, SQLAlchemy

**Tools:** GCP, AWS, Docker, Kubernetes, Git, GitHub, Linux/Unix, Redis, MongoDB, SQL, PostgreSQL, Postman