

OM NATHWANI

CANADIAN CITIZEN

☎ 905-484-2893 ✉ nath9119@mylaurier.ca in LinkedIn ↗ Github ↗ Portfolio ↗

Education

University of Waterloo & Wilfrid Laurier University
BCS & BBA, Computer Science and Business Administration (Co-op)

Waterloo, Ontario
2024 - 2029

- **GPA:** 3.7/4.0
- **Relevant Coursework:** Object-Oriented Programming, Optimization, Elementary Algorithm Design and Data Abstraction
- **Extra-curricular:** Dual-Varsity Athlete in Cross Country and Track
- **Awards/Scholarships:** President's Gold Scholarship (95-100% entry average) - **\$4,000 per year**

Technical Skills

- **Languages:** Java, Python, Racket, JavaScript, TypeScript, HTML, Lua, CSS, C#, C, TailwindCSS
- **Libraries/Frameworks:** Flask, FastAPI, Express.js, Node.js, Next.js, React.js, Pytorch, TensorFlow, Pandas, NumPy, MediaPipe, Librosa, FFmpeg, Langchain, ChromaDB, CLIP, pdfplumber, Pytesseract, OCR, Psycopg2, PyMuPDF, SciKitLearn
- **Developer Tools:** Vercel, Visual Studio Code, Git, Github, Github Actions, Cron, AWS, QuickBooks, Excel, Roblox Studio

Experience

Software Engineer Intern

May 2025 – August 2025

Covalense Digital | Python, FastAPI, CLIP, pdfplumber, Pytesseract, PostgreSQL, Psycopg2, ChromaDB, Ollama, OCR, Git

- Built a full working **autonomous AI agent MVP** from scratch, which was **demoed to senior executives**.
- Wired internal tools with **FastAPI** and **MCP queues** by building a secure ingestion and search backend, which allowed employees to query indexed content through **RBAC filtering** and handled over **500** documents and **1,000+** images.
- Integrated **CLIP** and base64 encoding with vector search by adding **image embedding and retrieval**, which enabled users to surface exact image chunks.
- Prioritized performance and safety by researching **50+ libraries** to select **MIT-compliant** tools like **pdfplumber** and **Chroma**.
- Refined search flows, tuned latency, and customized query outputs by optimizing for internal business usage, making the platform responsive and usable in **real-time**.

Software Engineer

Sept. 2024 – May 2025

Wat.AI | Python, AWS, RESTful APIs, OpenAI, RAG

Waterloo, Ontario

- Defined **ML pipeline structure** by researching Retrieval-Augmented Generation and Agentic AI using **30+** papers and UWaterloo databases, which informed backend decisions.
- Optimized prompt handling and response logic by caching inputs and improving **API** efficiency, which cut latency by over **50%**.

Projects

Bollyguess ↗ | Next.js, Node.js, TailwindCSS, React, Python, PostgreSQL, Supabase, Docker, GitHub Actions, Vercel July 2025

- Launched a daily Bollywood song guessing game using **Vercel** by building and promoting the app through social channels, hitting over **200+ plays** in the first week.
- Wrote data cleaning and seeding scripts in **Node.js**, to scale **PostgreSQL** database with **2,400+ songs** and **7,500+ artists**.
- Randomized daily games using **Python** and many-to-many logic in **PostgreSQL**, which delivered **fresh gameplay every day**.
- Displayed **daily leaderboards** by tracking scores in **Supabase** and connecting it through **Next.js API routes**, which encouraged **competition**.
- Created a smooth and responsive gameplay experience using **Next.js**, **TailwindCSS**, **React Hot Toast**, and **Lucide React**, for styling, feedback, and UI components.
- Set up **automated daily updates**, eliminating manual work post-launch, using **GitHub Actions** and **cron** jobs.

Audio Segment Classifier ↗ | Python, PyTorch, TensorFlow, Librosa, FFmpeg, Pandas, SciKitLearn

July 2025

- Trained a **4-layer feedforward neural network** with a final sigmoid output using **PyTorch** to **dynamically** label clips as good (1) or bad (0) for a user to guess a full song from it, automating ideal segment selection.
- Extracted features like MFCCs, chroma, tempo, and pitch using **Librosa** by building a preprocessing pipeline, which gave the model reliable input vectors.
- Validated performance with an **85% F1-score** and **confusion matrix** by testing against labeled data, confirming readiness.
- Ran the classifier on **2,400+** segments by **integrating it with Bollyguess**, improving Bollyguess' clip accuracy by over **90%**.

LearnETF ↗ | Python, Plotly, Pandas, NumPy, Yfinance, React.js, Flask RESTful API, OpenAI RESTful API

January 2025

- **Sun-Life Case Winner @ GeeseHacks 2025**
- Developed an **AI-powered financial literacy platform** using **React.js** and **TypeScript**, along with a **Flask-powered backend**, to help young adults build the confidence to invest.
- Integrated **OpenAI models** to classify user input, and tailor education modules, enabling a customized learning experience.
- Engineered an **interactive simulation tool** using **Plotly**, **NumPy** and **historical market data integrated via YFinance's RESTful API**, allowing users to visualize potential trade returns in real time.