

# Vividh Mahajan

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## TECHNICAL SKILLS

**Languages:** Python, C++, Typescript, HTML, CSS, SQL, Git

**Developer Tools:** Docker, Terraform, Azure, Google Cloud, AWS, Pinecone, LinuxCLI, GitHub, REST APIs

**Libraries & Frameworks:** Pytorch, FastAPI, Langchain, Huggingface, Numpy, React.js, Next.js, MongoDB, Postgres

## EDUCATION

### University of Waterloo

Waterloo, ON

*Bachelor of Mathematics in Combinatorics and Optimization, minor in Computer Science*

Sep. 2023 – Present

Presidents Scholarship Recipient, Computer Science Club Syscom Engineer, Tech+ Club Backend Engineer

**Coursework:** Object-Oriented Software Development, Linear Programming, Optimization

External Courses: Deep Learning Specialization - DeepLearning.AI (**125 hours** [↗](#))

## EXPERIENCE

### Software Engineering Intern

Sept. 2025 – Dec. 2025

*Manulife - GenAI Team*

Toronto, Canada

- Owned backend orchestration and reliability for a production AI-driven incident triage system used by 1,000+ employees and **reducing average triage time from 2 hours to 5 minutes**.
- Re-architected backend infrastructure after identifying scaling bottlenecks, introducing Redis caching, connection pooling, and Terraform-managed infrastructure to reliably support **10k+ daily requests**.
- On-call during production deployments, diagnosing live failures and driving the design and implementation of an observability layer (latency metrics, structured logging, execution metadata), improving agent debugging.

*Tech: Python (FastAPI), React.js, Azure, Redis, Terraform, LLM APIs*

### Software Engineering Intern

May 2025 – Aug. 2025

*GOQii*

Mumbai, India

- Owned the design and development of a medical assistant enabling doctors to query 50k+ patient records, reducing information lookup time from **5 minutes to 30 seconds**.
- Redesigned the unstructured data ingestion pipeline for medical reports, reducing parsing errors by **40%**.

*Tech: Python, Langchain, RAG, Vector Databases, Data processing, AWS*

### Machine Learning Engineer Intern

Dec. 2024 – Feb. 2025

*The Innovation Story*

Remote, Canada

- Designed and implemented a lightweight, graph-based recommendation algorithm optimized for deployment in a mobile education application.
- Owned model development and evaluation for a custom computer vision system, **achieving 94.3% mAP@0.5 with 206 ms CPU** inference and reducing lab setup time by **67%**.

*Tech: PyTorch, Computer Vision, Graph Algorithms*

### Software Engineering Intern

Sep. 2024 – Dec. 2024

*Electron Online*

Mumbai, India

- Owned backend development for an analytics platform processing **10,000+ social media posts per month**, enabling automated sentiment and performance reporting for client businesses.
- Designed and built a large-scale data ingestion and processing pipeline handling **100GB+ of data per week**, improving sentiment analysis accuracy by **15%** and increasing reliability of downstream reports.

*Tech: Python, React.js, Google Cloud, LLM APIs*

## PROJECTS / OSS CONTRIBUTIONS

### Agentic Personal Assistant [\[Repo\]](#) | Python, Langchain, Pinecone, AWS, Docker, GoogleAPI Jan. 2025 – Present

- Built a multi agentic personal assistant that consumes contextual signals (email, calendar, location) to infer user intent and proactively trigger actions, such as detecting missed commitments and proposing reschedules.
- Designed and implemented the agentic system architecture [↗](#) and decision flow to combine long-term context with real-time inputs.

### Open Source Contributions | Python, Typescript, Rust

- Convex:** [\[get-convex/convex-backend, PR#311\]](#) Added support to the Convex CLI to enable setting multi-line environment variables.
- Convex:** [\[get-convex/convex-backend, PR#310\]](#) Improved backend error handling for self-hosted deployments.
- InsForge:** [\[InsForge/InsForge, PR#698\]](#) Fixed backend role-based authorization logic to properly enforce admin vs user access boundaries.