

# Tirth Patel

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## Technical Skills

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**Languages:** Python, Go, JavaScript, Java, SQL, Bash

**AI/ML:** LLMs, RAG, Agentic Frameworks, Vector Databases (pgvector), Prompt Engineering, Model Evaluation & Selection, LLM Observability, Langchain, NumPy, Pandas, Scikit-learn

**Data & Databases:** PostgreSQL, ElasticSearch, Firebase, Amazon S3

**Frameworks:** React, Spring Boot, FastAPI, Node.js

**Tools & Infrastructure:** Docker, Kubernetes, OpenShift, Jenkins, Git, ArgoCD, OpenTelemetry, IBM Instana

## Experience

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### AI Software Developer

2024 - 2025

IBM

Markham, Ontario

- Architecting and developing AI solutions for IBM Concert, an IT resilience product, delivering a conversational assistant enabling enterprise users to query data, access documentation, and automate vulnerability remediation workflows through natural language, providing **intuitive chat-based access to agentic operations**.
- Engineered proactive diagnostic agents powered by **LLM-driven root cause analysis** and dependency mapping to autonomously detect cascading non-functional violations across enterprise systems and **generate prioritized remediation strategies** - reducing mean time to resolution and improving operational reliability.
- Built an **extensible plugin framework (Golang)**, enabling enterprises to customize product workflows by registering custom GenAI providers and integrating proprietary systems via API endpoints.
- Implemented **LLM observability** infrastructure to evaluate model performance through token usage, latency, response quality, and cost metrics—enabling data-driven model selection, regression tracking, and process optimization across production deployments.
- Collaborated with distributed teams worldwide to design system architecture and integration patterns covering UI, backend, and database layers—aligning technical standards and ensuring smooth data flow across multiple product components.

### Software Developer

2021 - 2022

IBM

Markham, Ontario

- Engineered end-to-end **MLOps evaluation pipelines** in **Python** to benchmark 5+ AI algorithms within Watson AIOps.
- Implemented **automated regression detection** infrastructure using Argo CronWorkflow for weekly model performance monitoring, reducing manual testing overhead by 5+ hours per cycle and enabling continuous quality assurance.
- Developed automated **time-to-value metric collection system** with **visualization dashboards** in Redash and React, providing real-time insights into algorithm performance and deployment efficiency for cross-functional stakeholders.
- Established comprehensive testing framework using **Pytest** for algorithm validation and API integration testing.

### Full Stack Developer

2020 - 2021

Tenders2Bid

Markham, Ontario

- Developed full-stack features for global bidding platform using **React** and **Python**, implementing real-time data interactions, responsive UI components with asynchronous data handling, and conducting code reviews to enhance platform reliability.

## Education

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**BSc (Hons), Computer Science Co-op** - Ontario Tech University

2018 - 2023

## Projects

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### HireVis

- AI-powered job search tool developed to streamline the process of finding relevant job postings
- Built using SpringBoot (Spring Controller, JPA, Hibernate), LLM (OpenAI), MySQL, Web Scraping (JSoup)
- <https://github.com/dev-tirth14/HireVis>

### Rendezvous

- Social media app for Android, specifically for event finding/creating
- Built using Flutter, Firebase, and Google Maps Platform
- <https://github.com/TirthPOnTechU/Rendezvous>