OM M. PATEL

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Vector AI Scholarship recipient and York University MSc (AI) student with hands-on experience shipping ML solutions for real-world and business applications. Skilled in generative AI methodologies, prompt engineering, RAG and autonomous agents.

EDUCATION

Master of Science in Computer Science, with AI Specialization

York University, Ontario, Canada   **Sept 2025 - 2027**

Relevant Courses: Data Mining, Probabilistic Model and Machine Learning, Fairness and Bias in AI, Machine Learning Theory, Robotics, Data Analysis and Visualization.

Bachelor of Technology in Computer Engineering (GPA: 3.47/4)

Pandit Deendayal Energy University, Gandhinagar, India   **Nov 2021 - May 2025**

SKILLS

Languages	Python, JavaScript, HTML+CSS, SQL
ML/DL Libraries	Pytorch, Scikit-learn, TensorFlow, NumPy, GeoPandas, Pandas, Langchain, Flask
Tools	Docker, ROS2, AWS EC2, Azure, Streamlit, MongoDB, Firebase, GitHub, Jira, Postman
Areas of Interest	Generative AI, Agentic Workflows, NLP, Prompt Engineering, Computer Vision

TECHNICAL EXPERIENCE

Backend & Data Engineering Intern   **Dec 2024 — Aug 2025**

Sharperly, Nigeria(Remote)

- Designed Airflow-powered **ETL pipelines** for geospatial datasets (GeoPandas, Python), increasing throughput by around **25%**.
- Containerized services on **Render** and **Azure** via **CI/CD pipelines**, ensuring consistent performance.
- Optimized **MongoDB** schemas and indexing for real-time lookups used by downstream ML components.
- **Collaborated with teams** to implement ML models into production APIs and iteratively improved algorithm performance post-deployment.

Data Science Intern   **Mar — July 2024**

Sharperly, Nigeria(Remote)

- Developed geocoding APIs with **Python** (**Flask**, **Geopandas**) to reduce dependency on GMaps API and cutting costs by upto **45%** (approx 350 USD) monthly.
- Scraped and pre-processed **20k+** addresses to create robust training datasets, producing versioned datasets for ML training.
- Trained and evaluated models (RNNs, K-Means, GNNs, Autoencoders) to predict user behaviour, optimize routes and detect anomalies.

PROJECT

LLMs for Optimization : Job Shop Scheduling Optimization (JSSP)   **Sept 2025 - Dec 2025**

- Built a **GNN-augmented LLM pipeline** for scheduling by converting JSSP instances into disjunctive graphs (**PyTorch Geometric**) and serializing constraints into structured prompts for generation.
- Pre-processed the noisy **STARJOB** dataset (~130k to **9,525** usable instances), reducing fine-tuning runtime from **70h to 11.5h** using **4-bit LoRA** (Unsloth) on an NVIDIA **RTX A6000**.

GreenArm : *Vision Guided Robotic Waste Sorting*   **Sept 2025 - Dec 2025**

- Co-led a 5-member team to deliver **ROS2** based **perception-to-manipulation system** to detect, classify, and pick waste using **YOLOv8**.
- Integrated **OpenCV-based** pixel-to-robot coordinate transformation for the Kinova Gen3 arm.
- Implemented **ArUco-based workspace calibration** with cached transforms, improving positioning accuracy to **0.5-1cm** precision under a fixed camera setup.

Legal Clarity : *Simplifying Legal Documents*   **Aug 2024 - Nov 2024**

- **Fine-tuned** advanced transformer models (**Pegasus**, **T5**, **IndicBARTSS**) with **PyTorch** for translation and summarization of complex multilingual legal texts.

ChatPdf AI : *Chat with Your PDF*   **Dec 2023 - Feb 2024**
- Built a RAG-based document QA system using LangChain and FAISS,
- Integrated **OpenAI Agents SDK** for agentic workflows in document querying and response generation, resulting in **80%** accuracy on manual test set(N<=50 queries); deployed on **Streamlit**,

Autograder : *Precision in Every Grade*   **Sept - Nov 2023**
- Led a 6-person team to build an auto-grading pipeline (BERT-uncased, SpaCy, PyTesseract) with React front-end and Flask backend, enabling semi-automated grading for handwritten and typed responses

LINKS & QR

- *github/Patelom925*

- *LinkedIn/om-m-patel*

- *kaggle/iamommpatel*

E-Resume (clickable Links)

CERTIFICATIONS

- **Generative AI with LLMs** — Coursera.
- **LangChain: Chat with your Data** — Coursera Project.
- **LLMs: RAG with LlamaIndex & Azure OpenAI** — CredsVerse.
- **Applications of AI/ML in Biomedical Signal Processing & CV** — (PDEU).
- **Understanding Incubation & Entrepreneurship** — NPTEL.

EXTRACURRICULARS

- Vector AI Scholarship Recipient, York University   May 2025
- Published Research Paper: *"Automated Sleep Stage Classification using Machine Intelligence Techniques"* at ADCIS 2024, BITS Pilani.   Sept 2024
- Top-10 rank Indian weather prediction at Kaggle ML Olympiad   April - May 2024
- AI/ML Mentor: Mentored 10+ students on projects including Autograder and Legal Clarity
- Volunteered at Vardaan Foundation: Taught essential digital literacy to empowering underprivileged students   June - Jul 2022