

Jay Navnitbhai Patel

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Professional Summary

Innovative IT Developer with **3 years of Canadian banking experience at TD Bank**, specializing in **AI and automation development**. Led end-to-end delivery of AI-driven solutions, from designing proof-of-concepts to deploying full-scale production systems. Proven ability to align innovative technologies with business goals.

Skills

AI & Machine Learning:

LLMs (GPT, Claude, Gemini), LangChain, LangGraph, Prompt Engineering, RAG, AI Agents, Transfer Learning, CNN, RNN, Transformers, Forecasting, Reinforcement Learning, Scikit-learn, TensorFlow, Hugging Face, Model Evaluation & Metrics, REST APIs

Automation & Data Engineering:

ETL Pipelines, Data Wrangling, Scripting (Python, Bash), CI/CD, Git, Docker, Kubernetes, Apache Airflow, MCP, VBA Automation

Data & Cloud Platforms:

Azure (OpenAI, AI Services, Synapse, Data Factory), Databricks, Spark, Hadoop, Kafka, Power BI, Tableau, Excel (Advanced, Pivot, Macros), SQL (MySQL, PostgreSQL), NoSQL (MongoDB)

Programming & Analysis:

Python, R, Bash, SQL, LangChain, LangGraph, React, Angular

Work Experience

IT Developer, TD Bank, Canada

Sept 2022-Present

- **AI-Powered Mainframe Code Analyzer**

Technology: Azure OpenAI, LangChain, Retrieval-Augmented Generation, FastAPI, React, FAISS

What I Did:

- Led development of an LLM-based tool to analyze COBOL code using RAG architecture with LangChain and OpenAI.
- Built full-stack solution with a React UI and FastAPI backend, enabling users to retrieve human-readable summaries of legacy logic.

Result: Reduced COBOL code understanding time from 3–5 days to under 5 minutes; tool adopted by 3+ modernization teams and showcased at TD's internal Tech Festival.

- **LLM-Based Data Lineage Automation**

Technology: LangChain, Azure OpenAI, FAISS, React, Python

What I Did:

- Created an LLM-powered metadata mapping engine to connect Oracle and TD internal data systems using semantic similarity.
- Added Human-in-the-Loop functionality to improve model accuracy through real-time user feedback.

Result: Improved efficiency by reducing manual efforts by 40% and received approval to transition from POC to enterprise production deployment.

- **"Lawyer Me" – Contract Deviation Detector**

Technology: Azure OpenAI embeddings, Python APIs, React UI

What I Did:

- Contributed to a contract review tool that compared third-party agreements with TD base contracts using LLM embeddings.
- Built deviation detection logic and collaborated with legal teams to refine scoring and reporting.

Result: Reduced legal review time by over 60% and improved consistency in contract compliance evaluations

- **Chart-of-Accounts Report Migration**

Technology: Python (pandas, xlwings, openpyxl), VBA

What I Did (Secondary Resource):

- Developed a rule-based Python module to convert legacy COA reports to the new Oracle format.
- Integrated the module into existing VBA tools and supported finance operations during rollout.

Result: Enabled 500+ automated report transformations and ensured reporting continuity across five finance teams during migration

- **EUC Automation for COA Updates**

Technology: Python (pandas, xlwings, openpyxl), CI/CD

What I Did:

- Led Python scripting of EUC Excel processes impacted by frequent Chart of Account changes.
- Collaborated with finance analysts to automate recurring reports with built-in versioning and scheduling.

Result: Eliminated 70% of manual effort, saving over 15 hours per month for financial analysts and reducing operational risk.

Education

University of Windsor, Windsor, ON, Canada

Master of Applied Computing

Projects

- Medical RAG-based AI Bot** | *Azure Document intelligence, MongoDB, Large Language Models (LLMs), Streamlit* Nov 2024
- Built a Retrieval-Augmented Generation (RAG) system that answers medical queries from both text input and scanned documents (e.g., prescriptions, lab reports) using an intuitive Streamlit interface.
 - Generated semantic embeddings using SentenceTransformer (all-MiniLM-L6-v2) and implemented a custom FAISS retriever to perform similarity search over a curated dataset of real-world medical Q&A from iCliniq.
 - Integrated Groq-hosted LLaMA3 and OpenAI GPT-4o models to generate natural, context-aware responses based on retrieved information, offering first-aid tips, symptom explanations, and references to similar past cases.
 - Used Azure Document Intelligence's Read OCR model to extract structured data like key-value pairs and medical tables from scanned documents, enabling document-aware medical assistance.
 - Implemented emergency detection and feedback logging, including keyword-based urgency scoring for flagging critical health issues, and stored user interactions in MongoDB Atlas to enable future improvement and learning analytics.
- Weather Data Intelligence** | *Azure Data Factory, Databricks, OpenWeather API, Tableau, Python, R* Sep 2024 – Dec 2024
- Built a scalable weather data pipeline that automated ingestion from OpenWeather API and NCEI historical sources using Azure Data Factory.
 - Stored and managed large volumes of raw and processed data in Azure Data Lake Storage (ADLS) with structured partitioning for efficient access.
 - Used Azure Databricks to perform data cleaning, transformation, and feature engineering for forecasting models.
 - Trained machine learning models in Azure ML Studio to predict future weather trends using time-series data.
 - Visualized insights via an interactive Tableau dashboard showcasing real-time weather, trends, and forecasts for actionable decision-making.