

# MIHIR UMESHKUMAR PATEL

## Lead/Senior Python Developer

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### **Profile Summary:**

Results-oriented Senior Python Developer with over 5 years of experience in backend development, microservices, and data engineering. Adept at designing scalable systems, optimizing performance, and leading cross-functional teams. Proven track record of delivering high-quality solutions for enterprise applications using Python, REST APIs, Kafka, and Kubernetes. Skilled in building ETL pipelines and implementing data-driven architectures for real-time analytics. Passionate about solving complex technical challenges while driving business value.

### **Technical Skills:**

**Programming:** Python, JavaScript, TypeScript, SQL

**Frameworks:** FastAPI, Flask, Django, React, Next.js,

**Databases:** PostgreSQL, MongoDB, Elasticsearch, Redis, SQL Server

**DevOps:** Docker, Kubernetes (EKS/ECS), Jenkins, GitHub Actions

**Data Engineering:** Kafka, Airflow, AWS S3, ETL Pipelines

**Tools:** Grafana, Dynatrace, Netbrain, AWS Glue

**Networking:** Webhooks, WebSockets, REST APIs, GraphQL, gRPC

**GenAI:** LLMs (OpenAI models, Meta models, HuggingFace models), RAG, Fine Tuning, Function Calling, Langchain

**Others:** Shell scripting, CI/CD pipelines

### **Professional Experience:**

#### **Senior Python Developer**

RBC | August 2024 – Present

- Spearheaded the development of a Data Platform MVP, setting up multiple ETL pipelines to extract and transform data from sources like Grafana, PostgreSQL, Elasticsearch, and Dynatrace.
- Implemented streaming solutions using Kafka and automated data workflows with Airflow, loading data into AWS S3 for analytics.
- Designed scalable microservices architecture using FastAPI and deployed them on Kubernetes (EKS).
- Integrated Grafana dashboards to monitor enterprise metrics, ensuring data accuracy and availability for stakeholders.
- Researched and implemented tools for data governance, including AWS Glue Data Catalog and AWS Lake Formation.

- Developed real-time, event-driven systems using Webhooks and WebSockets, optimizing responsiveness for enterprise-level applications.
- Collaborated with cross-functional teams to influence architecture decisions and lead code reviews to ensure best practices.

## **Software Engineer**

RBC | June 2023 – May 2024

- Spearheaded the integration of NLP models to automate and streamline chatbot responses, significantly improving response time and accuracy.
- Successfully decomposed a monolithic chatbot application into 3 scalable microservices.
- Implemented Kafka services to facilitate reliable message exchange between multiple frontends and backend services, ensuring seamless communication and data flow.
- Introduced an effective caching mechanism, significantly reducing response times by serving cached responses, optimizing system performance.
- Built a Retrieval-Augmented Generation (RAG) pipeline using the LangChain framework and Hugging Face to merge LLM knowledge with internal data sources, creating a more versatile chatbot.
- Containerized applications using Docker to ensure consistent environments across development, testing, and production.
- Orchestrated containerized applications using Kubernetes, managing deployments, scaling, and ensuring high availability and reliability.
- Automated deployment processes using Kubernetes, streamlining the CI/CD pipeline and reducing deployment times.

## **Senior Python Developer**

CPPIB | July 2022 – May 2023

- Developed complex backend systems for the capital market using Python frameworks and libraries like Flask, Django, and SQLAlchemy.
- Designed and implemented RESTful APIs and middleware microservices using Python and integrated them with different frontend and backend systems.
- Performed cloud database migration from a physical server to Data Fabric, optimized performance using AWS SDK tools like Boto3, and developed RESTful APIs.
- Developed applications to access JSON and XML from RESTful web services from the consumer side using JavaScript.
- Performed the full workflow of the development life cycle, from code changes to actual development, testing, building pipelines, and deployment on pre-prod for performance testing, and prod servers for client use.
- Deployed applications by leveraging tools like AWS servers via ECS and EC2, and IBM's UrbanCode, including different components of microservice architectures.
- Automated workflows using Python and scheduler tools like Jams to generate daily or weekly reports for users.

- Containerized applications using Docker to ensure consistent environments across development, testing, and production.
- Orchestrated containerized applications using Kubernetes, managing deployments, scaling, and ensuring high availability and reliability.
- Automated deployment processes using Kubernetes, streamlining the CI/CD pipeline and reducing deployment times.

## **Full Stack Developer**

CGI | March 2021 – July 2022

- Automated different workflows, which are initiated manually with Python scripts and Unix shell scripting.
- Developed scripts to handle change data capture for processing incremental records between new arrived and existing data in Relational database.
- Managed datasets using Panda data frames and PostgreSQL, queried PostgreSQL database queries by leveraging Python-PostgreSQL connector then parsed it with XML.
- Worked on Terraform to map more complex dependencies and identify network issues and implement - Terraform key features such as Infrastructure as code, Execution plans, Resource Graphs, Change Automation.
- Developed and tested many features for dashboard using Python, React, Bootstrap, CSS, JavaScript and jQuery.
- Experienced in python, Jupyter, Scientific computing stack (NumPy, SciPy, pandas and matplotlib).
- Clean data and processed third party spending data into maneuverable deliverables within specific format with Excel macros.
- Automated GLUE ETL jobs using S3 events and AWS lambda functions and developed data ingestion modules using AWS Step Functions, AWS Glue and Python modules.
- Performed data loading and scheduling jobs using Airflow. Used Pandas as API to put the data as time series and tabular format for manipulation and retrieval of data.
- Generated various capacity planning reports (graphical) using Python packages like NumPy, matplotlib.
- Deployed YAML template to create a stack in AWS which includes services like Amazon EC2, Amazon S3, Amazon RDS, Amazon Elastic Load Balancing, and other AWS supportive services.
- Implemented CI/CD to deploy the Microservices in Kubernetes Cluster in AWS Cloud.
- Utilized Kubernetes and Docker for the runtime environment of the CI/CD system to build, test deploy.

## **Python Developer**

Kroger | August 2019 – February 2021

- Implemented Data tables to add, delete, update and display patient records and policy information using PyQt.
- Implemented a module to connect and view the status of an Apache Cassandra instance using python.

- Improved the Data Security and generated reports efficiently by caching and reusing data.
- Stored and analyzed client data information using Apache CouchDB (NoSQL) in AWS Linux instance in parallel to RDS MySQL.
- Built end to end CI/CD Pipelines in Jenkins to retrieve code, compile applications, perform tests and push build artifacts to Nexus.
- Used Jenkins for continuous integration and go for continuous delivery/deployment of the applications.
- Managed and automated all aspects of our AWS infrastructure (compute, storage, network, permissions, cost) using configuration management tools like Cloud Formation and shell scripts.

### **Key Projects:**

#### **Enterprise Data Platform MVP**

- Architected a scalable data platform to help enterprises make data-driven decisions.
- Set up ETL pipelines with Kafka and Airflow to extract and transform data from diverse sources, storing it in AWS S3.
- Enabled real-time monitoring and visualization with Grafana dashboards, reducing data access latency.

#### **Real-Time ChatBot System with LLM Retrieval Augmented Generation feature**

- Built real-time chat application on Webex, integrated OpenAI models to get RAG based knowledge from enterprise confluence pages
- Leverage Langchain framework and Vector database to perform embeddings, function calling, and RAG operations
- Built a WebSocket-based system to deliver instant notifications for application users across multiple platforms including Webex and Slack.

### **Education:**

#### **Postgraduate Diploma**

Sheridan College | September 2017 – September 2019

#### **Bachelor of Technology in Electronics Engineering**

Gujarat Technological University | May 2011 – June 2015

### **Certifications**

- AWS Certified Solutions Architect – Associate
- Certified Kubernetes Administrator (CKA)
- Advanced Python Programming (Coursera)
- AWS Cloud Practitioner (CLF-C02)