

Raj Kumar Konka

Software Developer

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Objective

Software Developer with over 2 years of experience building and maintaining **Full-stack, APIs, and data-driven applications**. Strong backend foundation in **Java, Python, and RESTful services** with hands-on experience integrating databases. Proficient in building responsive **front-end interfaces**, and deploying production systems using **Docker** and **Git**. Strong foundation in data structures, algorithms, and system design principles with a hands-on approach to problem-solving and debugging in production environments.

Education

University of Houston
Engineering Data Science

August 2023 – May 2025
Houston, Texas

Profile Summary

- Built and supported **backend-focused web applications** in **Java** and **Python**, contributing across **API design**, data access, and **UI integration layers**.
- Extended and maintained **RESTful services**, troubleshooting issues and improving existing functionality over time.
- Designed RESTful backend services and integrated them with responsive **front-end interfaces for production use**.
- Worked hands-on with **MySQL** and **PostgreSQL** for schema design, query tuning, and day-to-day data operations.
- Performed debugging, refactoring, and code reviews to improve code quality and system reliability.
- Used **Docker** and **Git** to support repeatable **deployments** and collaborative development workflows.
- Operated in **Agile environments**, balancing feature work, **bug fixes**, and production support responsibilities.
- Designed and implemented **RESTful APIs** to handle user requests and data interactions, integrating both **SQL (PostgreSQL)** and **NoSQL (MongoDB)** databases to support dynamic, large-scale applications.
- Implemented end-to-end features spanning **API design**, data integration, and **front-end visualization** using **modern frameworks**.

Experience

Vantive Inc.

AI/ML Engineer

July 2025 - Present

Houston, Texas

- Worked on **NuroStudio**, a **workflow orchestration** and **decision-logic platform**, designing rule-based flows, conditional execution paths, and scoring logic using structured configurations, **REST-based integrations**, and **cloud-deployed backend services**.
- Contributed to end-to-end workflow development by **configuring UI-level workflow components**, defining execution logic, and validating outputs across different system states.
- Collaborated closely with the NuroStudio design team to **refine workflow layouts**, usability, and data flow visibility for operational users.
- Partnered with core platform engineers (NuroCore)** to improve workflow execution behavior, **routing logic**, error handling, and output consistency in **production environments**.
- Assisted in integrating workflow logic with **backend services** and **data sources**, validating **request/response handling and system interactions**.
- Contributed to the development of **AI-driven decision workflows** by integrating model outputs, **confidence scores**, and rule-based thresholds into executable workflow logic.

- Assisted in configuring and validating how AI/ML model signals were consumed by workflows, ensuring correct routing, **fallback behavior, and explainable decision outcomes**.
- Authored technical documentation detailing workflow behavior, **AI/ML integration points, execution logic**, and configuration standards to **support maintainability and onboarding**.
- Supported **enterprise-scale** data validation and reconciliation for **SAP IS-U migrations**, identifying data quality gaps and defining remediation strategies.

University of Houston

Research Assistant

August 2024 – August 2025

Houston, Texas

- Built modular Python services for simulating connected and autonomous vehicle (CAV) behavior, with APIs to handle geospatial data and trigger routing logic dynamically.
- Designed and implemented backend components to process map and traffic data using **OSMnx, NetworkX**, and **CARLA**, enabling real-world simulation of vehicle interactions.
- Developed routing algorithms and implemented logic for Intelligent Driver Models (IDM), optimizing vehicle paths based on traffic congestion and road conditions.
- Designed and deployed **distributed microservices** handling real-time data ingestion and processing with Python and Java.
- Created dynamic visualizations like traffic heatmaps and live route maps using **Folium** and **Matplotlib**, improving understanding of vehicle behavior under network load.
- Implemented **low-latency APIs** integrated with AWS Lambda and RDS to optimize backend responsiveness.
- Integrated alert systems to simulate real-time events (e.g., roadblocks or accidents) and coded recovery logic to reroute vehicles based on system state.
- Collaborated with researchers to explore **cybersecurity vulnerabilities** in traffic systems and proposed software-based mitigation strategies using data modeling.

NTT DATA

Software Developer

July 2022 – July 2023

Hyderabad, India

- Built and maintained **backend services in Java** and **Python** for internal business platforms used to process and expose operational **data through REST APIs** consumed by **web applications and reporting tools**.
- Worked on **implementing new API endpoints** to support features such as **usage tracking and metrics calculation, handling request validation, business logic execution, and structured JSON responses**.
- Designed and modified relational database schemas (**MySQL/PostgreSQL**) to support new application features, optimized queries for frequently accessed endpoints, and resolved performance issues observed under higher traffic.
- Participated in debugging production issues related to **API failures and data inconsistencies** by analyzing logs, reproducing problems in staging environments, and deploying fixes through **CI/CD pipelines**.
- Contributed to event-driven components that consumed messages from **Kafka topics** and processed them using **Spark Streaming** to update downstream systems, focusing mainly on integration reliability and error handling.
- Supported batch data workflows that transformed raw system data into structured formats used by dashboards and internal tools, collaborating with data engineers when schema or pipeline changes were required.
- Containerized backend services using **Docker** and assisted with **Jenkins-based deployments**, ensuring configuration consistency across development and production environments.
- Collaborated closely with **frontend developers, QA engineers, and DevOps teams** during feature releases, participating in sprint planning, code reviews, and post-deployment monitoring.

Wipro (StackRoute)

Data & Software Engineer

Feb 2022 – Jul 2022

Hyderabad, India

- Designed and developed a full-stack **COVID-19 tracking application**, enabling users to view global case statistics and maintain a personal country-wise watchlist.
- Built the **frontend interface** using HTML, CSS, and JavaScript, allowing dynamic user interaction and real-time updates on pandemic data.
- Developed and maintained **responsive front-end interfaces** using JavaScript, HTML, and CSS, ensuring seamless API integration.
- Implemented **front-end to backend integrations** for user data flows, debugging and optimizing data handling logic.
- Developed the **backend services** using Python (Flask) and SQL to fetch, store, and expose COVID-19 data via RESTful APIs.
- Integrated third-party public health APIs to retrieve real-time case updates and visualized trends using charts and tables.
- Implemented secure user management features and persistent storage for customized country tracking preferences.

- Deployed the application using **Docker** for containerization and Git for version control; followed agile development cycles with weekly feature rollouts.
- Collaborated on building dynamic dashboards for **customer data visualization** with RESTful APIs and React-like components.
- Additionally, automated internal reporting tasks and developed Power BI dashboards for organizational KPIs.
- Automated key reporting flows using SQL and Python, reducing delivery cycles by 40% and improving data reliability.
- Developed and deployed analytical dashboards using **Power BI** and **Excel**, enabling clear visibility into KPI trends for stakeholders.
- Conducted data profiling, cleaning, and normalization to ensure consistency across cross-functional systems.
- Collaborated with software engineers and business analysts to implement frontend-to-backend integrations for reporting automation and insight generation.

Technical Skills

Languages: Java, Python, SQL, C++, JavaScript

Backend & APIs: RESTful APIs, Spring Boot, Flask, Request/Response Handling, Business Logic Design

Frontend: HTML, CSS, JavaScript (API-driven UI, workflow-based interfaces)

Cloud Platforms (Basic to Intermediate): AWS (EC2, S3, RDS, Lambda), Docker, CI/CD (Jenkins)

Databases: MySQL, PostgreSQL, MongoDB

Data & Streaming (Working Knowledge): Apache Kafka, Spark Streaming, Batch Processing

AI/ML Systems (Applied): Model Output Integration, Scoring & Decision Logic, Workflow Orchestration

Development Practices: Agile/Scrum, Code Reviews, Debugging, Refactoring, Documentation

Monitoring & Visualization: Power BI, Tableau, Matplotlib, Folium

Tools & IDEs: Git, GitHub, IntelliJ IDEA, VS Code

Projects

Intelligent Chatbot with RAG and LLaMA2 on AWS

Built a Retrieval-Augmented Generation (RAG) pipeline integrating AWS services with boto3 and LLaMA2 on AWS Bedrock for inference. Implemented data ingestion, chunking, and embedding using ChromaDB for vector storage and cosine similarity/MMRbased retrieval. Integrated multiple LLMs (OpenAI, Hugging Face, LLaMA) to generate responses. Optimized the entire pipeline for scalability and seamless deployment on AWS infrastructure.

Scalable Face Recognition System on AWS Cloud

Deployed a real-time face recognition solution using cost-optimized EC2 instances in the Web Tier and auto-scaled App Tier using AWS Lambda containers in ECR. Integrated SQS for inter-service messaging and S3 for data storage. Designed a multi-stage video analysis pipeline, reducing processing time to ~80 seconds for 100 concurrent requests, with dynamic scaling and fault tolerance.

Predictive Analytics for Student Graduation using Neural Networks

Developed a classification model using MLP and Bidirectional LSTM to predict student graduation outcomes. Improved accuracy from 85% to 92% by adding derived features. Used SHAP for interpretability and visualized influential factors in Tableau, providing insight into high-impact variables for academic outcomes.