ZINAL RAVAL

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Professional Summary

AI Engineer and Backend Developer with experience in designing and deploying enterprise-grade AI systems. Skilled in building end-to-end pipelines, from data preprocessing to production-ready APIs. Hands-on expertise in NLP, Generative AI, Computer Vision, and MLOps, with experience in robotics projects funded under SSIP.

Education

B.Tech. Artificial Intelligence & Data Science (Major)
Minor in Robotics — SSIP-funded robotics projects (Robotic Nurse, Robotic Arm)
A.D. Patel Institute of Technology, Anand, Gujarat (CVM University) - Graduation: 2025
Higher Secondary Education
P. P. Savani Vidyabhavan, Surat, Gujarat — Completed: 2021

Technical Skills

- **Programming & Development**: Python, C/C++, SQL, FastAPI, REST APIs, GraphQL, Authentication
- **Databases**: PostgreSQL, MongoDB, SQLite, Redis
- **Machine Learning / AI**: TensorFlow, PyTorch, Keras, Scikit-learn, XGBoost, GANs, CNNs, RNNs, Transfer Learning
- **NLP & LLMs**: Hugging Face Transformers, GPT, LLaMA, Mistral, SBERT, LangChain, RAG Pipelines, FAISS, Pinecone, ChromaDB
- **Computer Vision & Speech**: OpenCV, Image Segmentation, Face Recognition, MediaPipe, Tesseract OCR, Whisper
- **MLOps & DevOps**: Docker, Docker Compose, Kubernetes, MLflow, DVC, GitHub Actions, Jenkins, Prometheus, Grafana
- **Cloud & Deployment**: AWS (EC2, S3, Lambda), GCP, Azure (basic), Vercel, Streamlit, Render, ngrok
- **Testing & QA**: Pytest, unittest, Test-Driven Development, CI/CD automation
- **Automation & AI Agents**: LangChain Agents, AutoGen, CrewAI, n8n workflows
- **Data Science & Analytics**: Pandas, NumPy, Matplotlib, Seaborn, Feature Engineering, PyMuPDF, pdfplumber
- **Tools**: Git, GitHub, VS Code, Jupyter, Postman

Projects

AI-Powered Autonomous Research & Decision System (AR-DMS)
- Built a FastAPI-based AI research assistant to process PDFs, web content, and images using OCR, semantic search (FAISS), summarization, and NLP tools (LangChain, Hugging Face).

Text-to-SQL Generator (CodeT5 + RAG)
- Fine-tuned a CodeT5 model with RAG for generating SQL queries from natural language, including multi-table joins and schema-aware responses.

Material Estimation from Architectural PDFs
- Used Groq + LLaMA 3 with PyMuPDF and pdfplumber to extract structured room-wise data and generate CSV-based material takeoff reports.

AI-Powered GPT-4 Text Rewriting Tool
- Rewriting system using GPT-4 (OpenRouter) to humanize technical text; validated tone and semantic similarity with SBERT.

LinkedIn Scraper & Business Insights Tool
- Automated professional data scraping using Selenium + SerpAPI with AI-based business classification, proxy rotation, and JSON output.

HistoriAI – Multilingual AI Travel Assistant [text to speech – MMS]
- Tourism chatbot powered by LLaMA 3, LangGraph, and ChromaDB supporting English, Gujarati, and Hindi with RAG-based search.

Experience

1. AI/ML Developer — Prodev Infotech | Jan 2025 - Present
2. Core Team Member — MooRopan INDIA PVT. LTD. | Oct 2022 – May 2023
- Assisted in the development of an AI-based device for mastitis detection in cows.

Achievements

- Winner – **Reckon 4.0** National Hackathon: 1st Place for developing an AI solution with real-world impact.
- SSIP India Funding Recipient: Secured funding for **Robotic Nurse** and **Robotic Arm** projects.
- SSIP Hackathon 2022 Regional Selection: Recognized for innovative tech solutions.