

Venkatalakshmi Kottapalli

AI/ML Engineer

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SUMMARY

Results-driven **AI/ML Engineer** with **4+ years** of experience designing and deploying scalable **AI solutions**, including **AI agents**, **LLM applications**, **RAG pipelines**, and **machine learning pipelines**. Proficient in **Python**, **SQL**, **Azure**, **REST APIs**, and **MLOps** practices, with expertise in **deep learning**, **NLP**, **statistical modeling**, and **vector database**-powered retrieval. Skilled at transforming data into measurable business impact through model development, optimization, and deployment.

EDUCATION

Master's in Artificial Intelligence | Yeshiva University, New York, USA | GPA: 4.0/4.0 | Jan 2024 - Dec 2025

Bachelor's in Mathematics | Adikavi Nannaya University, Rajahmundry, India | GPA: 3.8/4.0 | Jun 2015 - May 2018

TECHNICAL SKILLS

Programming Languages: Python, SQL, R, Cypher, OOP (Object-Oriented Programming)

Databases: PostgreSQL, MySQL, Neo4j, FAISS, ChromaDB, SQLite

AI/ML: Scikit-learn, PyTorch, TensorFlow, Keras, NLTK, spaCy, Classification, Regression, Clustering

GenAI & LLMs: LangChain, LangGraph, Hugging Face Transformers, RAG, AI Agents, Prompt Engineering

MLOps & DevOps: ML Pipelines, MLflow, Docker, Kubernetes, CI/CD, Git, Model Deployment, Monitoring & Logging

Cloud Platforms: Azure (ML Studio, AKS, ACR, DevOps), AWS (S3, RDS, IAM), GCP (Vertex AI)

APIs & Tools: Flask, FastAPI, REST APIs, Postman

Data Visualization: Tableau, Power BI, Matplotlib, Seaborn, Excel

Methodologies: Agile (Scrum), SDLC

WORK EXPERIENCE

Machine Learning Co-op | ZSAnalytics May 2024 - Present

- Designed and deployed an **end-to-end machine learning lifecycle** for email marketing using **MLOps** best practices, achieving **95% accuracy**, **40% ROI improvement**, and **98% customer retention**, directly enhancing campaign efficiency.
- Built **ML pipelines** for ingestion, preprocessing, feature engineering, training, evaluation, deployment, and automated retraining with **Azure ML Studio** and **Azure Kubernetes Service (AKS)**, enabling scalable and repeatable workflows.
- Processed and **analyzed large-scale datasets** using **SQL**, **NumPy**, and **Pandas**, ensuring clean data for downstream modeling.
- Performed exploratory data analysis (**EDA**) and visualizations with **Matplotlib**, uncovering key and hidden insights.
- Applied **feature engineering**, creating **10+ new features** that boosted model **precision by 12%**, leading to accurate targeting.
- Trained predictive models using **linear algorithms** and **ensemble methods** to improve generalization, and evaluated models with **precision**, **recall**, **F1-score**, **ROC-AUC**, and **confusion matrix**, ensuring fairness and reliability across user segments.
- Tracked and compared model performance using **MLflow** for experiment tracking and model selection.
- Implemented **MLOps** pipelines with **Azure DevOps CI/CD**, **REST API** integration, and Azure Monitor for troubleshooting.
- Delivered insights through dashboards in **Power BI**, **Excel**, and **PowerPoint**, enabling data-driven marketing decision-making.

Software Developer AI | Mee Sahayakaari May 2019 - Dec 2021

- Built and deployed a **bilingual AI chatbot** using **Dialogflow**, **Google Translate API**, and **DuckDuckGo**, serving **50K+ users** with a **90%** satisfaction rate.
- Integrated **utility APIs** (PDF conversion, calendar scheduling, calculator) to extend functionality, increasing engagement.
- Developed **cross-platform applications** for the chatbot, reducing onboarding time by **40%**.
- Published on the **Google Play Store**, expanding accessibility to the audience and driving adoption among non-technical users.
- Configured **REST API integrations** for real-time query handling, ensuring faster response times and smooth interaction.
- Collected and analyzed **user interaction data** using Google Analytics, led iterative improvements that boosted retention by **20%**.
- Conducted **A/B testing** on conversation flows and utilities, optimizing performance and increasing conversion rates.

PROJECTS

Multi-Agent Conversational AI: Designed and implemented a query-routing system using GPT-4 for RAG, ChromaDB, SQLite for history tracking, and integrated with a CRM system for data management, improving response accuracy by 35%.

GenAI Agent: Developed an automated system for order processing, account management, and inventory management using LLaMA, LangChain, and LangGraph, integrating with SQLite databases and REST APIs to streamline operations, reducing workload by 60%.

RAG-based Chatbot: Built a domain-specific chatbot using the RAG framework, using FAISS embeddings, LLM, and prompt engineering. Integrated knowledge database to provide context-aware responses with 90% accuracy, enhancing information retrieval.

Database Migration: Implemented an ETL pipeline to migrate a relational SQL database to a Neo4j graph database, utilizing Cypher queries to restructure data and optimize graph-based relationships.