Vijay Takbhate

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Professional Summary

Risk Analyst with hands-on experience in applied machine learning, MLOps, and GenAI systems. Skilled in building, evaluating, and deploying end-to-end ML solutions using Python, MLflow, Docker, and cloud platforms, with strong exposure to risk and decision-focused use cases.

Technical Skills

Programming & Backend: Python, Flask, SQL (MySQL), REST APIs

Machine Learning & Data Science: Regression, Classification, Feature Engineering, Model Evaluation (MAE, RMSE, R^2), Cross-Validation

Generative AI & LLMs: LangChain, LLM Orchestration, Retrieval-Augmented Generation (RAG), Prompt Engineering, GPT Models (GPT-3.5, GPT-4)

Embeddings & Vector Databases: all-MiniLM-L6-v2, ChromaDB, Semantic Search, Chunking Strategies

MLOps & DevOps: MLflow, DVC, DAGsHub, Docker, GitHub Actions (CI/CD), Kubeflow

Data & Analytics: Databricks, Metabase

Cloud & Deployment: AWS EC2, AWS Lambda, Model Deployment, API Hosting

Experience

InCred Financial Services
Dec 2024 – Present

Risk Analyst (ML Systems & MLOps Focus) — *Mumbai, Maharashtra*

- Designed, implemented, and deployed risk decision policies within a **Business Rule Engine (BRE)** production system, supporting large-scale, data-driven decision workflows.
- Built a custom **Python-based simulation and validation framework** to test policy logic against historical data distributions, reducing verification effort by **30%** and improving reliability.
- Collaborated with risk and engineering teams to **validate data inputs, monitor outcome distributions**, and ensure production readiness of decision logic and model-adjacent systems.
- Implemented **CI/CD pipelines** using **GitHub Actions** to automate testing, versioning, and deployment of policies and validation tools into production.
- Utilized **Databricks and SQL** to analyze risk metrics, monitor post-deployment behavior, and support data-driven policy iteration.

Fox Solutions Pvt. Ltd.
Feb 2024 – Oct 2024

Automation Engineer (Intern → Full-time) — *Pune & Nashik, Maharashtra*

- Developed and deployed automated pipelines with a focus on **reliability, monitoring, and reproducibility**, reducing manual intervention in production systems.
- Applied best practices in **version control, system monitoring, and fault handling** to build scalable and maintainable automation workflows.

PROJECTS

AI-Powered Portfolio & Resume Assistant for HR (RAG-based) *Oct 2025 - Present*

- *End-to-end GenAI system enabling semantic search and interactive HR queries over resume and project data.*
- Built an **AI-enabled portfolio platform** allowing recruiters to conduct **virtual HR interviews** via an interactive chatbot powered by **LangChain** and **GPT-5-mini**.
- Enhanced the chatbot backend using **Retrieval-Augmented Generation (RAG)** to answer recruiter queries grounded in **resume content and GitHub project documentation**.
- Converted all GitHub project **README files into PDFs**, generated embeddings using **all-MiniLM-L6-v2**, and stored them in **ChromaDB** for semantic retrieval.
- Implemented a retrieval pipeline that fetches the **top-5 relevant context chunks**, enabling the LLM to generate **accurate, hallucination-reduced responses** about skills and projects.
- Deployed the application using **Flask, Docker, and AWS EC2**, integrated **MLflow** for experiment tracking, and automated workflows via **GitHub Actions (CI/CD)**.
- **Live Demo:** Portfolio Demo — **GitHub:** Repository

Medical Insurance Cost Prediction (SVR Model) *Sep 2025*

- *Supervised machine learning project focused on predicting insurance costs to support pricing and risk assessment decisions.*
- Designed an end-to-end **regression pipeline** to predict medical insurance costs, achieving **R^2: 0.86** and **MAE: 0.034**, demonstrating applicability for premium estimation and risk assessment.
- Performed **data preprocessing** including categorical encoding, feature scaling, and outlier analysis to improve model stability and generalization.
- Evaluated baseline models (Linear Regression, tree-based regressors) and selected **SVR** to capture non-linear relationships among cost-driving features.
- Applied **cross-validation and hyperparameter tuning** to reduce overfitting and ensure robust performance across unseen data.
- Deployed the model via a **Flask** API, containerized using **Docker**, and hosted on **AWS EC2** with **MLflow** for experiment tracking and **CI/CD** automation; integrated **Kubeflow** for scalable ML workflows.
- **GitHub:** Repository

EDUCATION

SVERI's College of Engineering Pandharpur, Maharashtra

B.Tech. & Diploma — Electronics and Telecommunication *May 2024 & May 2021*

LANGUAGES

English **Marathi** **Hindi**