

# Vijay Takbhate

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## PROFESSIONAL SUMMARY

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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

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**Programming & Backend:** Python, R, 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

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### InCred Financial Services

Dec 2024 – Present

*Risk Analyst (ML Systems, BRE Development & Experimentation)*

*Mumbai, Maharashtra*

- Develop and maintain credit risk decision policies inside the **Experian PowerCurve Strategy Management (BRE)** production system for large-scale automated decision workflows.
- Design and execute **A/B tests** to evaluate policy changes and measure business impact before production rollout.
- Built an internal **Python-based policy simulator** to validate implementations by comparing historical vs updated policy outcomes using aggregations and flow-level counts, enabling precise impact analysis.
- The simulator highlights affected customer segments and summarizes behavioral shifts, helping business stakeholders understand expected decision impact prior to deployment.
- Developed a centralized validation framework allowing any developer to test policy updates reproducibly, reducing verification effort by **30%**.
- Implemented **CI/CD pipelines (GitHub Actions)** for packaging, testing, and versioning the simulator repository to ensure reliable and standardized validation workflows.
- Analyze outcome distributions using **Databricks and SQL** to 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

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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 R²: 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

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SVERI's College of Engineering

B.Tech. & Diploma — Electronics and Telecommunication

Pandharpur, Maharashtra

May 2024 & May 2021

# LANGUAGES

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English

Marathi

Hindi