■ AI-Powered Portfolio & Resume Assistant for HR

Python `3.x` Flask `2.x` LangChain `Integrated` Docker `ready` CI `CD` MLflow `Tracking` AWS `EC2`

■ Project Overview

This project is an **AI-powered interactive portfolio** integrated with a **smart HR assistant**.
It allows HR professionals to **interview me virtually** — the AI can understand, categorize, and answer HR questions directly from my resume using **LangChain + GPT-5-mini**.

The system is designed to **save recruiters' time** by conducting quick **pre-screening interviews**, analyzing answers for accuracy and relevance, and providing metrics for each response.

■ Live Demo:
■ http://ec2-52-21-78-219.compute-1.amazonaws.com:5000/

■ Workflow & Architecture

1. **Question Categorization (LLM 1)**

   The first LLM predicts which part of the resume is relevant:
   `["project", "experience", "personal", "education", "soft_skills", "others"]`

   Context-Aware Answering (LLM 2)

4. Based on the predicted category, the assistant extracts **only that section** of the resume and combines it with the HR's question.

   This **smart prompting** reduces token usage and cost while maintaining contextually correct answers.

   Response Validation (LLM 3)

   A third LLM validates each generated answer using **MLflow** metrics:

   - ■ **Relevancy**
   - ■ **Faithfulness**
   - ■ **Correctness**

   Tracking & Monitoring

   All metrics are logged in **MLflow**, hosted on an **AWS EC2 instance** for live tracking and analytics.

   Portfolio Integration

   The AI chatbot is embedded directly into my personal **one-page portfolio website**, allowing HR to chat and review my details seamlessly.

   Automation & Deployment

13. Used **GitHub Actions** for LLM testing automation.
14. Dockerized the app for easy deployment and portability.
15. Hosted on **AWS EC2**, running continuously 24×7.

■ Tech Stack

Layer	Technologies Used
■ AI Assistant	LangChain, GPT-5-mini
■ Backend	Python, Flask
■ Tracking	MLflow, AWS EC2
■ CI/CD	GitHub Actions
■ Containerization	Docker
■■ Deployment	AWS EC2 (Ubuntu)
■ Communication	SMTP (Email integration)

■■ Setup Instructions

1■■ Clone Repository

```
git clone https://github.com/vijaytakbhate2002/portfolio-support-quick-hr-interview-bot.git
cd portfolio-support-quick-hr-interview-bot
````


2■■ Install Dependencies

```bash
pip install -r requirements.txt
```

3■■ Create `.env` File

Create a `.env` file in the root directory and add:

```
OPENAI_API_KEY=sk-dummyapikey
EMAIL_USER=vijaytakbhateportfolio@gmail.com
APP_PASS=dummypassword
```

4■■ Run the Application

```
python app.py
```

Visit: ■ `http://localhost:5000`

■ Run with Docker

Pull the Image

```
docker pull vijaytakbhate1/portfolio-support-quick-hr-interview-bot:latest
```

Run the Container

```
docker run -d \
  -p 5000:5000 \
  -e OPENAI_API_KEY=sk-dummyapikey \
  -e EMAIL_USER=vijaytakbhateportfolio@gmail.com \
  -e APP_PASS=dummypassword \
  vijaytakbhate1/portfolio-support-quick-hr-interview-bot:latest
```

Visit your app at: ■ `http://localhost:5000`

■ GitHub Actions

Integrated **GitHub Actions** to automatically test LLM responses and maintain model accuracy before deployment.

■ Future Plans

- Integrate **Grafana & Prometheus** for real-time metrics ■
- Develop a **dashboard for HR analytics**
- Expand AI memory for longer, context-aware interviews ■
- Enhance Docker orchestration with **Kubernetes**
- Deploy a multi-service pipeline via **Kubeflow**

■ Application Demo

■ About This Project

This AI-powered assistant showcases how **AI can simplify HR workflows** — enabling recruiters to understand a candidate's fit before an actual interview.

It's more than just a chatbot — it's an intelligent **AI-driven hiring assistant** integrated into a personal portfolio.

■ Get in Touch

■ **Portfolio:** Visit My Portfolio ■ **Email:** vijaytakbhateportfolio@gmail.com ■ **GitHub:** vijaytakbhate2002 ■ **LinkedIn:** My Linkedin

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■ Future Plans

- ■ **Integrate Prometheus & Grafana** for real-time server performance monitoring and visualization.
- ■ Expand AI capabilities for **longer, context-aware conversations** across multiple HR sessions.
- ■■ Implement **Kubernetes (K8s)** orchestration for better scalability and fault tolerance.
- ■ Strengthen application security with HTTPS, authentication layers, and environment isolation.

> ■ *"AI won't replace recruiters — but recruiters who use AI will replace those who don't."* — Vijay Takbhate