

# ■ 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:

[-portfolio-](#)

## ■ 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

- Used **GitHub Actions** for LLM testing automation.
- Dockerized the app for easy deployment and portability.
- Hosted on **AWS EC2**, running continuously 24x7.

## ■ 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>

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## ■ GitHub Actions

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

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## ■ 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.

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## ■ Get in Touch

■ **Portfolio:** [Visit My Portfolio](#) ■ **Email:** [vijaytakbhateportfolio@gmail.com](mailto:vijaytakbhateportfolio@gmail.com) ■ **GitHub:** [vijaytakbhat2002](#) ■ **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.
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■ “AI won't replace recruiters — but recruiters who use AI will replace those who don't.” — Vijay Takbhat