

# ■ 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://ec2-54-167-49-203.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 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=dummyspassword
```

### 4 Run the Application

```
python app.py
```

Visit: <http://localhost:5000>

## Run with Docker

### Pull the Image

```
docker pull vijaytakbhatel/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=dummyspassword \
  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**

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## ■ Application Demo

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## ■ 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:** [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.

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