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# CAPSTONE PROJECT

## INTERVIEW TRAINER AGENT

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**Department : B.Tech in Computer Science { AI & ML specialization }**

# OUTLINE

- Problem Statement
- Technology used
- IBM Cloud services used
- Wow factor
- End users
- Result
- Conclusion
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- IBM Certifications

# PROBLEM STATEMENT

## ➤ Challenge:

Preparing for job interviews can be overwhelming, especially when candidates lack exposure to real-world expectations, domain – specific roles , and structured guidance . There is a need for a smart , interactive assistant that helps users-especially students and job seekers-practice and enhance their interview skills.

## ➤ Proposed Solution:

Build an AI Interview Trainer Agent that leverages:

RAG (Retrieval-Augmented Generation) to generate personalized interview questions based on the user's job role and domain.

IBM Granite models to power accurate and natural AI responses.

NLP to analyze user inputs (e.g., answers, resumes) and provide relevant feedback.

IBM Cloud for hosting and deployment

# TECHNOLOGY USED

- ❖ IBM cloud lite services : Used to deploy and manage the AI Interview Trainer Agent with scalability, security, and easy integration with IBM services.
- ❖ Natural Language Processing (NLP) : Helps in analyzing user answers, parsing resumes, evaluating soft skills, and generating personalized feedback.
- ❖ Retrieval Augmented Generation (RAG) : Combines information retrieval from a knowledge base with LLM-generated responses to deliver accurate, context-aware interview simulations.
- ❖ IBM Granite model (LLMs) : Enterprise-grade Large Language Models used to generate realistic interview questions, understand user inputs, and enable natural conversations.

## IBM CLOUD SERVICES USED

- IBM Cloud Watsonx AI Studio : This is the core development environment where you build, train, and manage AI models. In your project, it is used to integrate IBM Granite models, develop the interview logic, and manage workflows. It supports data preparation, prompt engineering, and model deployment.
- IBM Cloud Watsonx AI runtime : Once your AI models are ready, this service is used to deploy and serve the models in real-time. It allows your AI Interview Agent to interact with users dynamically, handling inputs like resumes and answers on the fly.
- IBM Cloud Agent Lab : A powerful tool for building, testing, and managing AI agents. In your case, it helps design the conversational interface of the Interview Trainer—guiding the user, asking questions, and giving feedback based on inputs.
- IBM Granite foundation model : Granite is the LLM backbone of your system. It powers features like - Generating personalized interview questions , Interpreting resumes and answers , Giving smart, context-aware suggestions .Granite ensures that your agent provides natural, human-like interaction and relevant content.

## WOW FACTORS

This agent will significantly improve interview preparation quality, boost candidate confidence, and make career readiness more accessible—especially for students in rural or underserved areas. It offers an interactive, personalized experience that mimics real-world interviews.

Unique features include :

- Personalized question generation based on user's resume, role, and domain.

- Real-time feedback on both technical and soft skills using NLP.

- Role-specific HR guidelines and behavioral scenarios powered by RAG.

- Instant resume parsing to identify strengths and improvement areas.

- Natural conversations enabled by IBM Granite foundation models.

- Cloud-based deployment for scalable access and easy integration.

- Progress tracking with adaptive difficulty to match user growth.

## END USERS :

- College Students & Fresh Graduates: Preparing for campus placements or entry-level job interviews.
- Job Seekers: Looking to improve their interview skills for specific roles/domains.
- Training & Placement Cells: Can use it as a tool to train students and assess interview readiness.
- Educational Institutions: Especially in rural or under-resourced areas, to provide equal career support.
- Career Guidance Centers & NGOs: Helping underprivileged or first-generation learners prepare for jobs.
- Upskilling Platforms & EdTech Companies : To integrate AI-based interview practice into their learning ecosystem.

## RESULTS

- ❑ Successfully developed and deployed an AI-powered Interview Trainer Agent using IBM Watsonx.ai Studio.
- ❑ The agent was able to simulate real-time interview scenarios and generate domain-specific questions.
- ❑ Provided personalized feedback based on user responses, helping users improve confidence and communication.
- ❑ integration with Watsonx Prompt Lab allowed seamless interaction with large language models like Granite-13B-chat.
- ❑ End-users experienced improved preparation quality through mock interviews and realistic simulations.

AI Interview Trainer Agent ✓ Deployed Online

API reference

Test

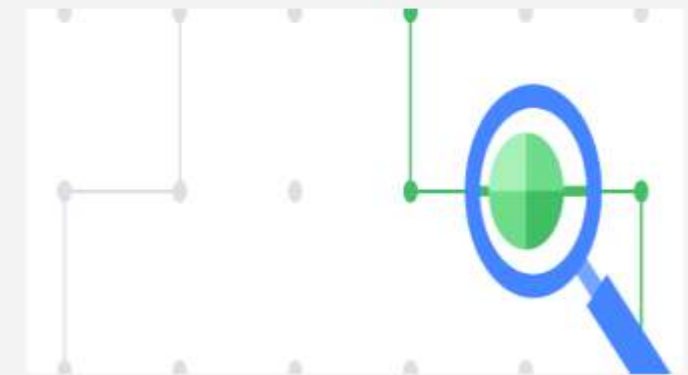
Preview



AI Interview Trainer Agent 12:25 PM

Welcome to AI Interview Trainer Agent

An Interview Trainer agent is a personalized application for interview training sessions using AI-driven logic.





# RESULTS

- ❖ Model successfully deployed on IBM Watsonx with live API access and testing interface.
- ❖ Provides API endpoints and language-specific code snippets (Python, Java, etc.) for easy integration into applications.

## AI Interview Trainer Agent ✓ Deployed Online

### API reference

### Test

### Preview

#### Public endpoint

[https://eu-gb.ml.cloud.ibm.com/ml/v4/deployments/2973ab76-aefa-4f1d-8900-e4528acbc73c/ai\\_service?version=2021-05-01](https://eu-gb.ml.cloud.ibm.com/ml/v4/deployments/2973ab76-aefa-4f1d-8900-e4528acbc73c/ai_service?version=2021-05-01)

[https://eu-gb.ml.cloud.ibm.com/ml/v4/deployments/2973ab76-aefa-4f1d-8900-e4528acbc73c/ai\\_service\\_streaming?version=2021-05-01](https://eu-gb.ml.cloud.ibm.com/ml/v4/deployments/2973ab76-aefa-4f1d-8900-e4528acbc73c/ai_service_streaming?version=2021-05-01)

[Learn more](#) about the 2021-05-01 version query parameter

### Code snippets

#### cURL

#### Java

#### JavaScript

#### Python

#### Scala

# NOTE: you must set \$API\_KEY below using information retrieved from your IBM Cloud account (<https://eu-gb.ml.cloud.ibm.com>)

export API\_KEY=<your API key>

```
export IAM_TOKEN=$(curl --insecure -X POST --location "https://iam.cloud.ibm.com/identity/token" \
--header "Content-Type: application/x-www-form-urlencoded" \
--header "Accept: application/json" \
--data-urlencode "grant_type=urn:ibm:params:oauth:grant-type:apikey" \
--data-urlencode "apikey=$API_KEY" | jq -r '.access_token')
```

# TODO: manually define and pass values to be scored below

```
curl -X POST -H "Content-Type: application/json" -d '{"text": "I am a developer"}' https://eu-gb.ml.cloud.ibm.com/ml/v4/deployments/2973ab76-aefa-4f1d-8900-e4528acbc73c/ai_service?version=2021-05-01
```

# RESULTS


## Deployed AI Agent

[Deployment spaces](#) / [AI Interview Trainer Agent](#) / [Sous Chef](#) /


### AI Interview Trainer Agent

🟢 Deployed Online

[API reference](#) [Test](#) [Preview](#)


 You 12:23 PM

HI, my name is arya . I am a btech 2nd year student. can u help me with my interview preparation

 AI Interview Trainer Agent 12:23 PM

Based on the search results, here are some tips for interview preparation for a BTech 2nd year student:

1. Practice answering common interview questions, such as "Why do you want to work for this company?" or "What are your strengths and weaknesses?"
2. Review your resume and make sure it is up-to-date and tailored to the job you are applying for.
3. Prepare to talk about your projects and experiences, and be ready to answer questions about your skills and knowledge.
4. Learn about the company and the position you are applying for, and be ready to ask questions during the interview.
5. Practice your communication skills, such as speaking clearly and confidently, and making eye contact.
6. Consider taking online courses or attending workshops to improve your skills and knowledge in areas relevant to the job.



# CONCLUSION

The AI Interview Trainer Agent is a smart, scalable solution designed to transform how candidates prepare for interviews. By harnessing advanced IBM technologies, the project delivers a personalized and realistic interview experience.

Key Takeways :

- Provides a smart, AI-driven solution for personalized interview preparation.
- Leverages IBM Granite, RAG, Watsonx AI, and NLP for accurate, role-specific guidance.
- Offers real-time feedback, resume-based question generation, and skill analysis.
- Ensures accessibility and scalability through IBM Cloud deployment.
- Empowers users—especially rural youth—to become interview-ready and confident . Has strong potential for future integration with voice input, job platforms, and multilingual support .
- It saves time by automating repetitive tasks like citation management and data extraction.
- Research Agents enhance efficiency, accuracy, and innovation in both academic and industrial R&D.

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## GITHUB LINK :

<https://github.com/Aryacode20/Al---Interview-Trainer->

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# FUTURE SCOPE

- Multilingual Interview Support
- Voice-Activated Interview Simulation
- Real-Time Performance Analytics
- Emotion and Sentiment Analysis
- Resume Based Question Customization
- Company -Specific Interview Mode

# IBM CERTIFICATIONS :

In recognition of the commitment to achieve professional excellence



Arya nandini

Has successfully satisfied the requirements for:

Getting Started with Artificial Intelligence



Issued on: Jul 06, 2025  
Issued by: IBM SkillsBuild

Verify: <https://www.credly.com/badges/538d57c7-32c4-42f3-b0cd-b9b5b4003dca>



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Journey to Cloud: Envisioning Your Solution



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Issued by: IBM SkillsBuild

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# RAG LAB CERTIFICATE :

IBM **SkillsBuild**

Completion Certificate



This certificate is presented to

Arya nandini

for the completion of

## **Lab: Retrieval Augmented Generation with LangChain**

(ALM-COURSE\_3824998)

According to the Adobe Learning Manager system of record

**Completion date:** 24 Jul 2025 (GMT)

**Learning hours:** 20 mins



**THANK YOU**