

CAPSTONE PROJECT

AI Interview Trainer Using IBM Watson

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OUTLINE

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PROBLEM STATEMENT

Fresh graduates often struggle during job interviews due to lack of structured practice, real-time simulations, and personalized feedback. This results in low confidence, underperformance, and missed opportunities. To address this, an AI-powered Interview Trainer Agent is proposed using IBM Watsonx and Granite foundation models. The system leverages Retrieval-Augmented Generation (RAG) to simulate realistic interviews tailored to the user's job role and experience level. It provides targeted questions, evaluates responses, and offers improvement tips. Backed by IBM Cloud services, the agent ensures scalable performance tracking and role-based training, enabling users to build communication, technical, and behavioral skills effectively.

TECHNOLOGY USED

IBM cloud lite services

Natural Language Processing (NLP)

Retrieval Augmented Generation (RAG)

IBM Granite model

IBM CLOUD SERVICES USED

- ❓ IBM Cloud Watsonx AI Studio
- ❓ IBM Cloud Watsonx AI runtime
- ❓ IBM Cloud Agent Lab
- ❓ IBM Granite foundation model

WOW FACTORS

- **Resume-Based Personalization**

Automatically generates domain-specific questions tailored to the user's resume or job title.

- **Dynamic Feedback & Scoring**

Provides personalized feedback on clarity, confidence, and technical accuracy using AI analysis.

- **Retrieval-Augmented Generation (RAG)**

Pulls the most relevant Q&A from a knowledge base, ensuring contextually rich and varied questions.

END USERS

- ❑ Academic Researchers
- ❑ Research Institutions and Universities
- ❑ Industry R&D Teams
- ❑ Educators

RESULTS

Projects / LibraryAgen / Library Agent

Share feedback Autosave on New agent + Deploy

Build

Model: granite-3-3-8b-instruct

Framework: LangGraph Architecture: ReAct

Instructions [Advanced configuration](#)

Generate notes, and offer personalized recommendations. If a requested item is unavailable, the agent should suggest alternatives or offer to reserve or waitlist the book. After presenting results, the agent should confirm any user actions (like reservations) and offer help with additional topics if needed. It should conclude each session politely by saying something like, "Happy studying! Feel free to ask anytime you need help."

Knowledge

Tools


[Add a tool](#) [Create custom tool](#)

Added tools (5)

Google search

Retrieve information from the Internet with the Google search engine.

Agent preview



Sample questions

"Suggest books for my semester 3 electronics subjects." →


"Suggest reference books for computer networks." →


"Are there any available books on Python programming?" →

"Can you recommend books for machine learning?" →


Type something...

RESULTS


 Agent preview

 You: 11:20 PM


name of the file

 watsonx Agent 11:20 PM

Hi, I am watsonx.ai agent. How can I help you?
▶ How did I get this answer?

 You: 11:20 PM

What inspired you to apply for this position?



 watsonx Agent 11:20 PM

I am inspired to apply for this position because I am passionate about helping freshers become interview-ready. I understand that many freshers struggle with a lack of practice, personalized feedback, and access to real-time simulations, which can lead to anxiety, underperformance, and missed job opportunities.

To address this problem, I propose building an AI-powered Interview Trainer Agent using IBM Watson and IBM Granite foundation models. This agent will simulate real interview scenarios and provide personalized feedback, adaptive difficulty, and domain-specific questions via a RAG (Retrieval-Augmented Generation) pipeline.

The technical stack for this solution includes:

- IBM Watsonx.ai (for fine-tuned LLMs)

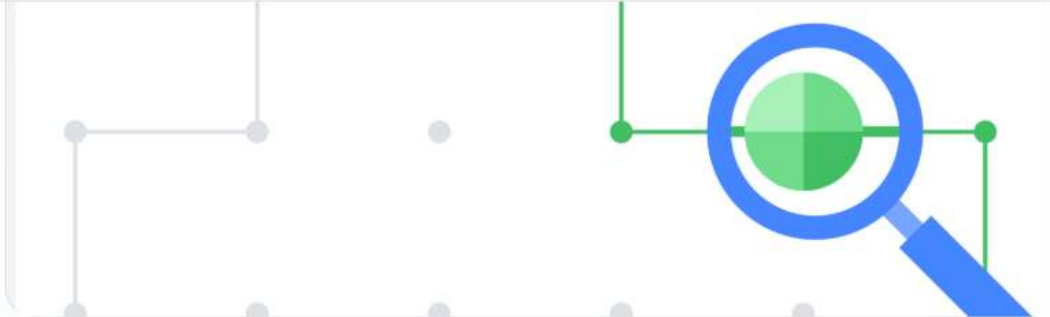


QUICK START QUESTION PREVIEW

[Upgrade](#) [?](#) [shrikant zambre's Account](#) [London](#) [SZ](#)

[Share feedback](#) [β](#) [New agent](#) [+](#) [Deploy](#) [✈](#) [✎](#) [i](#)

[<](#) Agent preview



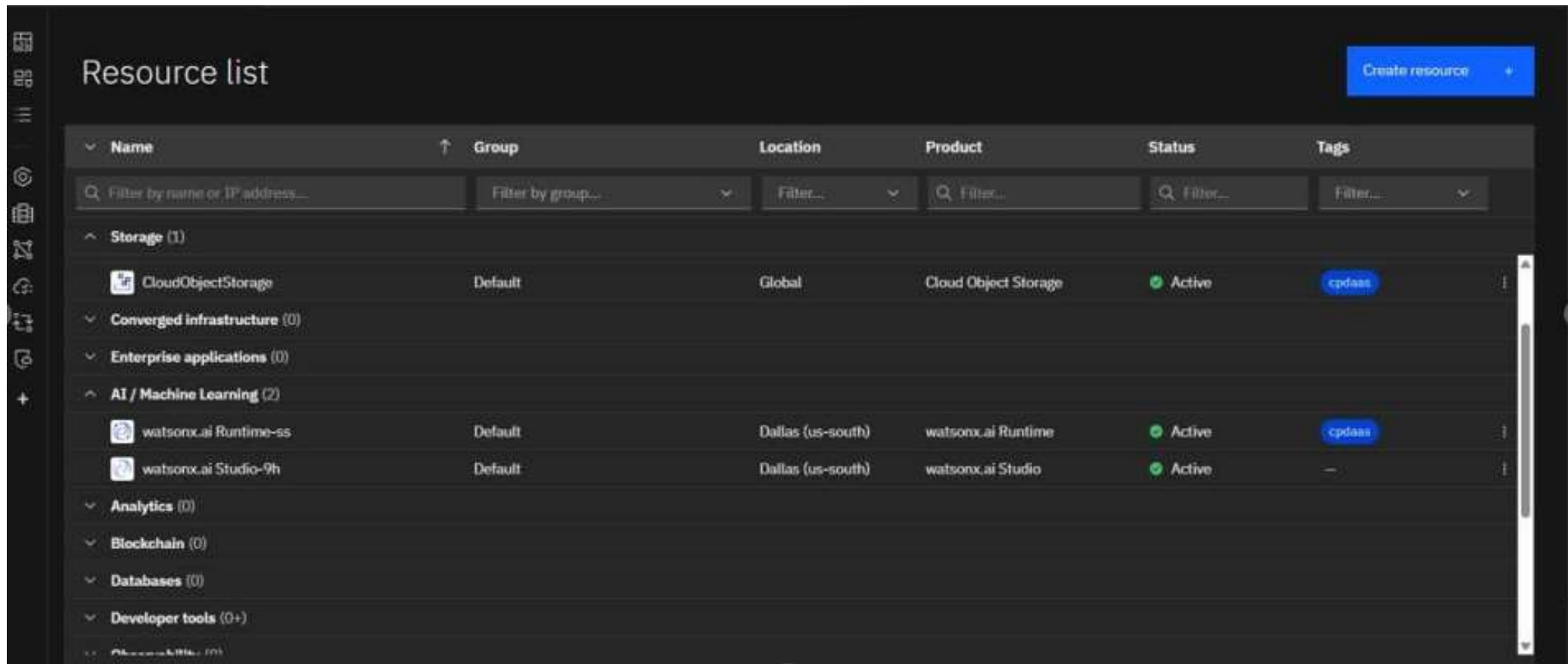
Sample questions

I'm in Boston, MA. I have chicken breast, bell peppers, onions, and rice in my fridge. What are some recipe ideas I can make with these ingredients? [→](#)

I'm looking for a quick dinner idea using ground beef, tomatoes, and pasta. Can you suggest a few options? [→](#)

Type something... [✎](#) [▶](#)

RESOURCES LIST



The screenshot shows a web application interface for managing resources. On the left is a vertical sidebar with icons for various resource categories. The main area is titled 'Resource list' and features a 'Create resource' button in the top right. Below the title is a table with columns: Name, Group, Location, Product, Status, and Tags. The table includes filter input fields for each column. The resources are grouped into expandable sections: Storage (1), Converged infrastructure (0), Enterprise applications (0), AI / Machine Learning (2), Analytics (0), Blockchain (0), Databases (0), Developer tools (0+), and OpenStack (0). The 'AI / Machine Learning' group is expanded, showing two resources: 'watsonx.ai Runtime-ss' and 'watsonx.ai Studio-9h'. Both are in the 'Default' group, located in 'Dallas (us-south)', and are 'Active'.

| Name | Group | Location | Product | Status | Tags |
|---------------------------------|---------|-------------------|----------------------|-----------|-----------|
| Filter by name or IP address... | | | | | |
| Filter by group... | | Filter... | Filter... | Filter... | Filter... |
| Storage (1) | | | | | |
| CloudObjectStorage | Default | Global | Cloud Object Storage | Active | cpdaas |
| Converged infrastructure (0) | | | | | |
| Enterprise applications (0) | | | | | |
| AI / Machine Learning (2) | | | | | |
| watsonx.ai Runtime-ss | Default | Dallas (us-south) | watsonx.ai Runtime | Active | cpdaas |
| watsonx.ai Studio-9h | Default | Dallas (us-south) | watsonx.ai Studio | Active | — |
| Analytics (0) | | | | | |
| Blockchain (0) | | | | | |
| Databases (0) | | | | | |
| Developer tools (0+) | | | | | |
| OpenStack (0) | | | | | |

CONCLUSION

- The project solves a real challenge by helping freshers become interview-ready through AI-driven simulations.
- It uses IBM Watsonx and Granite LLMs with RAG to generate role-specific, adaptive interview questions.
- The system provides personalized feedback on technical and soft skills to improve candidate performance.
- User progress is tracked with IBM Cloudant, enabling continuous improvement and learning analytics.
- Designed as a scalable, cloud-native solution, it prepares users confidently for real-world job interviews.

FUTURE SCOPE

- **Voice-Based Interview Simulation**

Integrate Speech-to-Text and Text-to-Speech APIs for fully verbal mock interviews.

- **Multi-Language Support**

Extend language coverage to help regional and international candidates practice in their native languages.

- **Mobile App Integration**

Build an Android/iOS app for on-the-go interview practice with push notifications and progress tracking.

- **Mentor/Recruiter Dashboard**

Provide real-time access for mentors or HRs to review user progress and offer targeted advice.

- **Automated Resume Parsing**

Use AI to analyze uploaded resumes and auto-generate relevant interview questions and skill assessments.

IBM CERTIFICATIONS

In recognition of the commitment to achieve
professional excellence



SHRIKANT ZAMBRE

Has successfully satisfied the requirements for:

Getting Started with Artificial Intelligence



Issued on: Jul 21, 2025

Issued by: IBM SkillsBuild

Verify: <https://www.credly.com/badges/04652792-77f9-43e4-bb91-c2162f403c03>



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Journey to Cloud: Envisioning Your Solution



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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

GITHUB LINK

□ Github Link :- <https://github.com/202301070019-create/interview-traineragent>



THANK YOU