

IBM HACKATHON PROJECT

RESEARCH AGENT AI

Presented By:-

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OUTLINE

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PROBLEM STATEMENT

Research Agent

Researchers, students, and professionals often struggle to stay updated with the rapidly growing volume of academic publications, technical articles, and datasets. Manually reviewing and synthesizing this data is time-consuming and inefficient.

Proposed Solution:

An AI-powered Research Agent that leverages Natural Language Processing (NLP) and Retrieval-Augmented Generation (RAG) to:

- Summarize research papers
- Identify research gaps
- Generate hypotheses
- Recommend datasets, collaborators, and more

TECHNOLOGY USED

- IBM Watsonx.ai Studio – for building the agent
- IBM Granite Foundation Model – core reasoning and generation model
- Retrieval-Augmented Generation (RAG) – for grounded document-based responses
- Natural Language Processing (NLP) – to understand academic queries
- IBM Cloud Object Storage (Lite) – for storing research papers
- Watsonx Agent Builder – no-code interface for agent creation

IBM CLOUD SERVICES USED

- - IBM Watsonx.ai Studio
- - IBM Watsonx Runtime
- - IBM Cloud Object Storage (Lite)
- - IBM Granite Model (13B)
- - Watsonx Agent Builder (No-code)

WOW FACTORS

Automates literature reviews and research drafting

Semantic search across uploaded papers and documents

Auto-summarization of technical content

Identifies research gaps and trends

Collaboration mapping for co-author suggestions

Citation influence tracking

END USERS

- Academic Researchers
- Research Institutions and Universities
- Industry R&D Labs
- Educators and Ph.D. Guides

RESULTS

eu-gb.dataplatform.cloud.ibm.com/ml-runtime/deployments/73b272ba-4a12-4965-906f-25feb80c8e8a/chat?space_id=f880cd0a-d07b-4c33-970a-b57685f86068&context=wx&flush=true

IBM watsonx Upgrade Swayam Sharma's Account London SS

Deployment spaces / Swayam_AI_ / Sous Chef /

Sous Chef Deployed Online

API reference Test **Preview**

New chat +

S You 11:38 PM
hey , what is edunet foundation?

Sous Chef 11:38 PM
Edunet Foundation is an organization dedicated to bridging the skill deficit in India by leveraging the potential of the country's youth. They focus on creating educational networks that promote employability and entrepreneurship. The foundation offers various programs and initiatives, such as the "Fundamentals of Web Development" and the "Skills4Future Program," which aim to equip students with essential skills using technologies like Data Analytics and AI.

Edunet Foundation has a strong online presence, with profiles on LinkedIn and Instagram, where they share updates about their programs and participants' success stories. They also collaborate with other organizations, like IBM SkillsBuild, to provide free digital platforms for skill development.

For more detailed information, you can visit their official website: [Edunet Foundation](#).


► How did I get this answer?




Type something...



RESULTS

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Sous Chef

 Deployed 

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

[New chat](#) +

 You 12:01 AM

what is the weather outside?

 Sous Chef 12:01 AM

Sure, I can help with that. Could you please share your location?

 You 12:02 AM

Vadodara , Gujarat , India

 Sous Chef 12:02 AM

The current weather in Vadodara, India is as follows:

- Temperature: 27°C
- Rain: 0mm
- Relative humidity: 90%
- Wind: 10.5km/h

Given the warm and humid weather, I suggest some light and refreshing recipes. Could you please share the ingredients you have on hand?

► [How did I get this answer?](#)



Type something...



RESULTS

IBM watsonx

Upgrade

[Deployment spaces](#) / [Swayam_AI_](#) / [Sous Chef](#) /

Sous Chef ✓ Deployed Online

API reference

Test

Preview



You 12:03 AM

top 10 research institution in India



Sous Chef 12:03 AM

Here are the top 10 research institutions in India:

1. Indian Institute of Science, Bengaluru
2. Indian Institute of Technology Madras
3. Indian Institute of Technology Delhi
4. Indian Institute of Technology Bombay
5. Indian Institute of Technology Kanpur
6. Indian Institute of Technology Kharagpur
7. Indian Institute of Technology Roorkee
8. Indian Institute of Technology Guwahati
9. Jawaharlal Nehru Centre for Advanced Scientific Research
10. Tata Institute of Fundamental Research

These institutions are renowned for their excellence in research and have made significant contributions to various fields of science and technology.

► How did I get this answer?



live something

CONCLUSION

The Research Agent AI assists with literature review, drafting, citation management, and hypothesis generation. It improves research quality, saves time, and fosters interdisciplinary work. The agent enhances both academic and industrial research workflows using AI.

GITHUB LINK

- GitHub Link: https://github.com/swayam1604/research-agent-ai_ibm

FUTURE SCOPE

- Multilingual support for regional researchers
- Voice-activated research interaction
- Real-time collaboration dashboard
- Automatic BibTeX citation exports
- Research topic suggestion & gap detection
- AI-assisted full paper drafting

IBM CERTIFICATIONS



IBM SkillsBuild

Completion Certificate



This certificate is presented to

Swayam Sharma

for the completion of

**Lab: Retrieval Augmented Generation with
LangChain**

(ALM-COURSE_3824998)

According to the Adobe Learning Manager system of record

Completion date: 18 Jul 2025 (GMT)

Learning hours: 20 mins



THANK YOU