
CAPSTONE PROJECT

FACULTY DIGITAL PROFILE BUILDER (RAG- BASED)

Presented By:
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Elphinstone College

OUTLINE

- Problem Statement
- Proposed Solution
- System Development Approach(Technology Used)
- Result
- Conclusion
- Future scope
- Reference
- IBM Certifications

PROBLEM STATEMENT

Faculty members across higher education institutions are often required to maintain comprehensive academic profiles for accreditation (e.g., NAAC, NBA), research collaboration, promotions, and visibility. However, manually compiling, updating, and formatting data related to qualifications, publications, FDPs, patents, grants, and achievements is time-consuming, error-prone, and inconsistent.

PROPOSED SOLUTION

- **AI-powered Faculty Digital Profile Builder Agent**, developed using IBM Watsonx and Granite LLMs, that automatically generates and updates faculty profiles from scattered academic documents.
- This agent uses **Agentic Retrieval-Augmented Generation (RAG)** and **vector indexing** to extract structured information such as education, publications, FDPs, patents, and achievements from:
 - CVS
 - Certificates
 - Academic Results
 - Research or Project Documents

TECHNOLOGY USED

- IBM Cloud Lite Service
- Retrieval-Augmented Generation (RAG)
- IBM Granite Model
- Vector Indexing

IBM CLOUD SERVICES USED

- IBM Cloud Watsonx.ai Studio
- IBM Cloud Watsonx.ai Runtime
- IBM Cloud Agent Lab
- Embedding Model
 - all-minilm-16-v
- IBM Granite
 - Foundation Model : Granite-3-3-8b-instruct

RESULTS

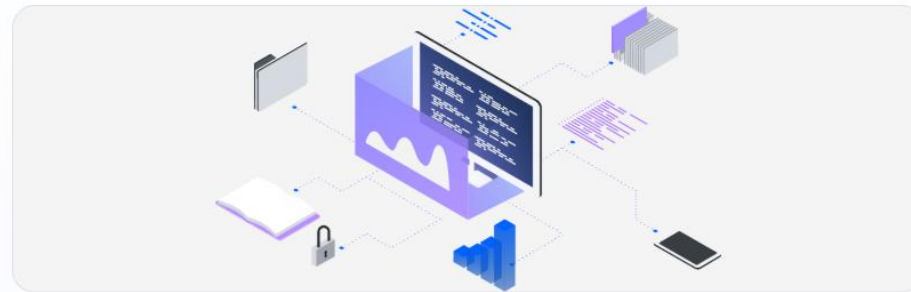
Agent preview



FDA Agent 12:26 PM

Welcome to FDA Agent






Faculty Profile Builder Agent








Type something...




RESULTS


[Upgrade](#)   Aman Varma's Account  Dallas  AV 

[Share feedback](#)  Unsaved   New agent  [Deploy](#) 

Agent preview

 You: 01:39 PM

Build Profile of @AmanVarma

 FDA Agent 01:39 PM

Based on the provided documents, here's a digital profile for Aman Varma:





Name: Aman Varma

Contact Information:

- Phone: 955-506-3197
- Email: amanvarma0486@gmail.com

Education:

- **Higher Secondary School Certification**
 - School: S.H.Jondhale Vidya Mandir
 - Percentage: 78.60%
- **Secondary School Certification**
 - School: Guru Nanak Khalsa College of Arts, Science & Commerce, Matunga
 - Percentage: 47.83%






RESULTS






[Upgrade](#) ⓘ 🔔 Aman Varma's Account ▾ Dallas ▾ AV ⋮

[Share feedback](#) β Unsaved 📁 ▾ [New agent](#) + [Deploy](#) 🚀

Type something... 🔍 🗑️ ➡️

RESULTS

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Agent preview

Projects:






- 1. Mobile Price Prediction**
 - Model: Xgboost
 - Accuracy: 0.92
- 2. Lung Cancer Detection**
 - Model: Logistic Regression
 - Accuracy: 0.80
- 3. Animal Classification**
 - Model: EfficientNetB0 (Loaded & Fine-Tuned)
 - Training: 50/50 Epoch






Skills:

- Programming Languages: Python, C++ (Basic), HTML
- Web Development: Flask
- Data Analysis & Visualization: Pandas, Seaborn, Matplotlib, EDA, Feature Engineering, Data Preprocessing
- Machine Learning: Model Training, NLP
- Core Competencies: Problem Solving, Data-Driven Decision Making, End-to-end ML Pipeline

RESULTS

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Agent preview


- Core Competencies: Problem Solving, Data-Driven Decision Making, End-to-end ML Pipeline Development



Certifications:

1. **Getting Started with Artificial Intelligence** (PLAN-E624C2604060)
 - Completion Date: 17 Jul 2025 (GMT)
2. **Lab: Retrieval Augmented Generation with LangChain** (ALM-COURSE_3824998)
 - Completion Date: 24 Jul 2025 (GMT)
 - Learning Hours: 20 mins
3. **Journey to Cloud: Envisioning Your Solution** (PLAN-32CB1E21D8B4)
 - Completion Date: 20 Jul 2025 (GMT)

This profile is based on the provided certificates and educational documents. For a more comprehensive profile, additional information such as personal statements, resumes, or LinkedIn profiles would be beneficial.

► How did I get this answer?



Type something...  

RESULTS

Deployed AI Agent

IBM watsonx

Upgrade ?

Aman Varma's Account

Dallas

AV


Deployment spaces / FDA_AI_Agent / FDA Agent /

FDA Agent Deployed Online

API reference Test **Preview**

FDA Agent 01:59 PM

Welcome to FDA Agent
Faculty Profile Builder Agent



Type something...

About this deployment

Name
FDA Agent

Description
Faculty Profile Builder Agent

Deployment Details
Deployment ID: 15d5a259-a4a3-4a...
Serving name:
No serving name.
Software specification:
runtime-24.1-py3.11
Hardware specification:
Extra extra small: 1 CPU and 2 GB RAM
Copies:
1
Tags
wx-agent
Associated asset
FDA Agent
da0ba755-e8ee-48fb-b8b9-67acf7353fdd

CONCLUSION

- The Faculty Digital Profile Builder Agent provides an intelligent, automated, and scalable solution to a common problem faced by academic institutions. By leveraging IBM watsonx, Granite LLMs, and RAG-based architecture, this system efficiently compiles and updates faculty profiles from diverse document sources with minimal manual effort.
- It not only saves time and reduces errors but also ensures that institutions can maintain accurate, standardized, and accreditation-ready profiles — making it a valuable tool for academic excellence and digital transformation.

REFERENCE

- This project was developed using IBM watsonx.ai, Granite LLMs, and IBM Cloud Lite services. Documentation and guidelines were referred from IBM SkillBuild resources, official IBM Watsonx documentation, and insights from the Agentic RAG project structure. Sample academic documents (CVs, certificates, and results) were used to demonstrate real-world applicability.

FUTURE SCOPE

- **Institution-Wide Integration**
Extend the system across departments to build a centralized faculty database for the entire institution.
- **Automated Document Ingestion**
Enable real-time syncing with research repositories, HR portals, or Google Drive for continuous updates.
- **NAAC/NBA Compliance Reports**
Auto-generate formatted reports aligned with accreditation body requirements for audits and submissions.
- **Multilingual Support**
Add support for regional languages to accommodate diverse faculty profiles across Indian institutions.
- **Secure Role-Based Access**
Implement secure logins for faculty and administrators to update or verify their own profiles.

IBM CERTIFICATIONS

- Screenshot/ credly certificate(getting started with AI)



IBM CERTIFICATIONS

- Screenshot/ credly certificate(Journey to Cloud)



IBM CERTIFICATIONS

RAG LAB certificate

IBM SkillsBuild

Completion Certificate



This certificate is presented to

Aman Varma

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