

MADHUSUDAN RAI

Data & AI Engineer | ETL & BI Systems | RAG / LLM Automation | Analytics Engineering
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EXECUTIVE SUMMARY

AI Engineer focused on Generative AI, Agentic AI, RAG systems, and multi-agent orchestration. Skilled in Python, LLM integration, vector databases, hybrid search, document intelligence, AI workflow automation, and Microsoft Azure, with a focus on building scalable AI solutions and solving real-world business problems.

WORK EXPERIENCE

Associate Trainee | Brickred System *Sep 2026 – Present*

- AI-Powered Code Review Automation: Developed event-driven AI agents using Microsoft Foundry, Azure DevOps MCP, and Azure Logic Apps to analyze pull requests for code quality, security vulnerabilities, and maintainability, generating automated inline feedback.
- RAG-Based BRD Generation: Built Retrieval-Augmented Generation (RAG) pipelines using Azure AI Search, Azure OpenAI, and Azure Blob Storage to transform unstructured project notes and transcripts into traceable, validated Business Requirements Documents (BRDs).
- Multi-Agent Workflow Orchestration: Implemented autonomous multi-agent workflows using Python and Microsoft Agent Framework, integrating Azure DevOps and Microsoft Graph APIs to aggregate, classify, and summarize engineering progress.
- Enterprise Security and Governance: Implemented SHA-based duplicate detection using Azure Table Storage and enforced Role-Based Access Control (RBAC) through Microsoft Entra ID and Managed Identities for secure, zero-trust agent execution.

AIML Trainee | NorthCorp Software *Jun 2026 – Aug 2026*

- Hybrid Search and Retrieval Optimization: Engineered RAG pipelines combining dense vector embeddings and BM25 keyword search to improve enterprise information retrieval, reduce context retrieval latency, and minimize hallucinations.
- Document Processing and Vector Indexing: Built document intelligence and ETL pipelines using LlamaParse and Docling to process unstructured documents, generate searchable chunks, and index vector embeddings in Pinecone for semantic search and real-time inference.
- Multi-Agent AI Automation: Developed autonomous multi-agent workflows using CrewAI and Python to automate data processing, task delegation, and end-to-end workflow execution.
- Database Integration and Data Engineering: Integrated MongoDB and SQL pipelines to support data extraction, schema mapping, structured data processing, and reliable information retrieval across enterprise workflows.

Data Analyst Intern | Senpiper Technologies Pvt. Ltd. *Jul – Sep 2025 | Gurgaon*

- Developed interactive Power BI dashboards and KPI reports to support operational monitoring, performance analysis, and data-driven decision-making.
- Worked on SQL and Python-based ETL workflows for data cleaning, validation, reporting automation, and cross-functional analytics support.

PROJECTS

Hybrid RAG System | *Python, Pinecone, LlamaParse, Docling, Vector Search, Keyword Search, Git*

- Built a hybrid RAG pipeline combining semantic vector search, keyword retrieval, and result re-ranking to improve retrieval accuracy.
- Developed document ingestion and parsing workflows for heterogeneous files, using Pinecone for vector storage and keyword indexing for hybrid search.
- Implemented a RAG-based question-answering system with evaluation scripts to assess retrieval quality and answer accuracy.
- Repository: github.com/Madhusudanrai706/Hybrid_RAG_System

Ollama-Powered Intelligent Lead-Generation Chatbot | *Python, Streamlit, Ollama, Llama3, Pandas, State Management*

- Developed a state-driven Streamlit chatbot with a multi-step pipeline to automate user onboarding, capture user profiles, and log structured data using Pandas.
- Integrated local LLMs via Ollama to deliver contextual responses tailored to user domain interests.

TECHNICAL SKILLS

Languages: Python | SQL | HTML5 | CSS3 | VBA (Visual Basic for Applications) |

Libraries / Frameworks: Pandas | NumPy | Power Query | DAX | Streamlit |

Cloud & Databases: Microsoft Azure | SQL Server | MySQL | MongoDB | Azure Devops | MCP

Data & BI / Data Engineering: Power BI | Tableau | Advanced Excel | ETL Pipelines | Data Engineering | Star-Schema Modeling | Scalable BI | KPI Design | Data Integrity | Data Validation

AI / LLM / GenAI Tools: RAG | CrewAI | Docling | LlamaParse | Pinecone (Vector DB) | Semantic Search | Hybrid Search | ChatGPT API | Claude API | Gemini | Prompt Engineering | Token Optimization | BERT | NLP Pipelines | Agentic AI | AI workflow | Azure AI foundry | Workflow Automation

Platforms & DevOps: Git | Jupyter Notebook | VS Code | PyCharm | Agile

EDUCATION

B.Tech — CSE (AI & ML), Noida Institute of Engineering & Technology, AKTU

Senior Secondary — Class XII (PCM), Shah Faiz Public School, CBSE 2022

Secondary — Class X, Shah Faiz Public School, CBSE 2020

CERTIFICATIONS

Python for Data Science & AI — IBM | Artificial Intelligence — IBM | ReactJS Development — Infosys Springboard | Human-Centered Design for Inclusive Innovation — University of Toronto | Azure AI Fundamentals — Microsoft