

Abhinav Anand

IIIT Nagpur, Maharashtra

+91-7470454162 abhinavxanand1@gmail.com LinkedIn Github LeetCode

Education

Indian Institute of Information Technology, Nagpur

2021 – Present

Bachelor of Technology in Electronics and Communication Engineering

CGPA - 8.0

Experience

TATA Research & Innovation Labs

June 2024 – Nov 2024

AI Research Intern

Mumbai, India

- Designed a multi-agent framework on Autogen for data collection, analysis, coordination, and reporting for efficient Root cause analysis in microservice architecture.
- Coordinated multi-agent interactions/conversations to validate hypotheses, enhancing the accuracy and efficiency.
- Implemented ML algorithms for anomaly detection and pattern recognition in system logs and metrics of microservice architecture.
- Worked on Knowledge Graphs (Neo4j) for query orchestration to provide GenAI based financial solutions.
- Built end-to-end RAG pipeline for Research Assistance tool.

Technical Skills

Languages: Python, Java, C/C++, HTML, CSS, JavaScript, SQL

Developer Tools: Git, VS Code, Google Collab, Jupyter Notebook

Technologies/Frameworks: Linux, MongoDB, Autogen, LLMs, RAG, Neo4j

Libraries: PyTorch, Scikit-learn, Pandas, NumPy, Matplotlib

Soft Skills: Eloquent Communicator, Problem-solving, Team Spirit

Areas of interest: Machine Learning, Generative AI, NLP, Deep Learning

Projects

QueryFusion - Unified Query Processing System | *LLM, Neo4j, sqlalchemy, Pandas*

[Code](#) | **October 2024**

- Designed a proof-of-concept (PoC) system that combines structured data from relational tables and unstructured data from documents using a Retrieval-Augmented Generation (RAG) framework.
- Integrated 3 relational tables and 7 PDF documents into the PoC, demonstrating its capability to process complex queries.
- Built the solution to be scalable, allowing for the inclusion of additional data sources and handling higher query loads as required.

Document Relevance Modelling using NLP | *NLTK, Pandas, Numpy, Joblib*

[Code](#) | **August 2024**

- Designed and implemented a relevance scoring system for a corpus of 1000 documents using Jaccard Coefficient and TF-IDF techniques.
- Applied advanced NLP preprocessing methods and experimented with multiple term frequency weighting schemes to optimize scoring.
- Enhanced document ranking accuracy by identifying the most relevant documents for query-based searches.
- Built a scalable solution for processing large datasets, emphasizing precision in relevance-based ranking.

RAG-Based Transaction Classification System | *Pandas, sklearn, LLM, RAG*

[Code](#) | **July 2024**

- Developed a RAG-based transaction classification system to automate categorization of bank statement transactions.
- Curated a comprehensive dataset of transaction descriptions and categories to enhance model training and accuracy.
- Implemented a retrieval mechanism using TF-IDF for identifying similar transaction descriptions, improving classification relevance.
- Integrated LLM (GPT-3.5) to generate context-aware classifications based on retrieved examples.

Relevant Coursework

- | | | |
|---------------------------|-------------------|---------------------|
| • Artificial Intelligence | • OOPs | • Data Structures |
| • Operating Systems | • Cloud Computing | • Computer Networks |

Achievements / Extracurricular

- * Content Head, Orator Club, IIITN: Led diverse, engaging events, fostering a oration and leadership environment for more than 100 attendee.
- * Chief Media Chairperson, MUN IIITN: Orchestrated Model United Nations IIIT Nagpur, upholding diplomacy and communication standards that comprises 80 delegates.