**MY WORK**

1. ***CERTIFICATIONS***

I am attaching drive link with all my following listed certificates: [Certificates](https://drive.google.com/drive/folders/1KB9fht4yHjMUJmatziHppHgLp-49sgrm?usp=sharing)

* ***Internship Completion Certificates***

1. Oil & Natural Gas Corporation Ltd.

This project focuses on developing a Revenue Accounting System using SAP ABAP to enhance the efficiency and automation of revenue management processes. It includes creating database tables for managing production, sales, and tax details in the oil and gas sector, along with designing a user-friendly interface for data entry and reporting. The system streamlines revenue data collection, processing, and reporting, automating complex calculations for tax and revenue to improve accuracy and reduce manual errors. Additionally, it leverages SAP's capabilities for scalability and robust data handling, while ensuring ease of use for future enhancements. *Due to confidentiality, specific project code cannot be shared.*

1. Open Health Systems Laboratory

This project involves building a Question and Answer (Q&A) assistant (RAG) using NLP and Large Language Models (LLMs). It integrates Hugging Face transformers and Langchain for embedding and language processing, with document indexing via VectorStoreIndex for efficient query retrieval. The system processes documents, embeds content using sentence-transformers, and uses the LLaMA-2 model to generate accurate responses to user queries. *Due to confidentiality, I am unable to provide the project code for reference.*

* ***Course Certifications***

1. Python For Data Science by NPTEL IIT Madras
2. Career Essentials in Generative AI by LinkedIn & Microsoft

* ***Participation Certificates***

1. Flipkart GRiD 6.0 Software Development Track
2. SUSTAINATHON 2024 Sustainability Hackathon by Indian Oil Corporation Ltd.
3. Data, ML, and AI in Google Cloud by Google Cloud Computing Foundations, Badge
4. Introduction to Gen AI by Google Cloud, Badge

* ***Social Service Certificate***

1. Apnelog NGO
2. ***PROJECTS***

* ***Small Prototype of RAG***

When I started learning about Retrieval-Augmented Generation (RAG), I developed a small prototype to practice and understand its core components. The prototype integrates two key models: DPR (Dense Passage Retrieval) for retrieving relevant context based on a given query and BART (Bidirectional and Auto-Regressive Transformers) for generating answers based on the retrieved context. I used a simple set of example passages and encoded them into context embeddings. For a query, the system retrieves the closest matching context using DPR's dot product similarity, and then BART generates an answer by combining the query and the retrieved context. This prototype allowed me to get hands-on experience with how RAG systems work and helped deepen my understanding of retrieval and generation tasks.

I have uploaded the prototype on drive: [**Small Prototype**](https://colab.research.google.com/drive/1CZld2BCbajlY6a4V3pKU_fI3mQwmWS-T?usp=sharing)

* **Wikipedia Page Web Scrapper**

This project involves developing a Python-based web scraper that extracts detailed information about the members of the 17th Lok Sabha from a Wikipedia page and stores the data in a structured format. Utilizing `requests` for HTTP requests and `BeautifulSoup` for parsing HTML content, the script navigates through the table of members on the Wikipedia page and extracts key information, including Constituency, Name, Party & a hyperlink to each member's profile. The script efficiently handles variations in the table structure, such as rows with merged cells or vacant entries, ensuring accurate data collection. Once the data is extracted, it is stored in a CSV file, allowing for easy access and further analysis. The CSV file includes headers for the key attributes of each member, providing a structured and organized dataset for future use. This project demonstrates the application of web scraping techniques and data processing for collecting publicly available information and converting it into a usable format.

I have uploaded the code on drive: [**Web scrapper**](https://drive.google.com/file/d/1lCZJYX6IJzpRlStd6zYWiwnEV-MNZ3Gn/view?usp=sharing)

* **Dataset Extraction from Pubmed Central**

This project is a Python-based automation tool designed to retrieve and process research articles from PubMed Central (PMC) using the NCBI E-utilities API. It efficiently queries articles based on a user-defined search term, extracts essential details such as titles, links, article types, and supplementary datasets, and saves the information in a structured CSV format. Additionally, the tool filters articles to highlight those containing supplementary materials, making it highly useful for researchers seeking to automate the collection of relevant publications and associated datasets for further analysis and research.

I have uploaded the code on drive: [**Pubmed Scrapper**](https://colab.research.google.com/drive/1wOlwfvZbkeDK8Lxby-4WTT5hGGRhXuf8?usp=sharing)

* ***AnimArt: From Hand Waves to Animated Wonders****"* **(IN PROGRESS)**

This project integrates computer vision with AI to create an interactive platform for generating and editing animated content. Using the Air Canvas module for hand gesture recognition, users can draw images that are then processed through an image cartoonification feature to create cartoon-style visuals. The platform allows users to either generate images via hand gestures, apply cartoonification to existing images, or use both features together. Additionally, OpenAI is integrated to generate animated videos based on the system's output or direct user input, such as descriptions or hand gestures. The platform also includes editing tools, enabling users to customize the images and videos, offering a dynamic and user-friendly media creation experience.

I have successfully completed one-fourth of the project, having fully implemented the Air Canvas module for hand gesture recognition. Additionally, I have written a review paper documenting the research and techniques I have explored so far, which has helped guide the project's development and future direction.

I have uploaded both Air Gesture and the review paper on drive: [**Air Gesture project & Review paper**](https://drive.google.com/drive/folders/13ZN862wLN61FMHKTHjY3Fnh9A9mr2Cf5?usp=sharing)

1. ***RESEARCH WORK***

[Virtual Reality](https://drive.google.com/file/d/1EZ0ZGzJ_smrrsD0TGT7dtTXEw60kWJmJ/view?usp=sharing)