KETHAVATH KARTHEEK

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PROFILE

- Motivated computer science student passionate about full-stack development, applied AI, and building scalable, data-driven products. Strong understanding of LLMs and Retrieval-Augmented Generation (RAG) systems with hands-on experience in cloud deployment and backend engineering. Competitive programmer skilled in Python, Java, and JavaScript with a solid foundation in CS fundamentals.

- **Keshav Memorial Institute of Technology** **2022-2026**
  B.Tech in Computer Science and Engineering (AI-ML) , CGPA : 7.54 Hyderabad, Telangana

- **Narayana Junior College** **2020-2022**
  Intermediate (Physics,Chemistry,Maths), Percentage: 92.3 Hyderabad, Telangana

- **Kendriya Vidyalaya Sangathan(CBSE)** **2020**
  Secondary Education, Percentage: 88.4 Miryalaguda, Telangana

SKILLS

Languages: Python, Java, JavaScript, C++

Frameworks: Node.js, Flask, Express.js

Tools & Concepts: REST APIs, WebSockets, Git, Zustand, Postman

ML/AI: LangChain, Gemini API, RAG systems, Prompt Engineering

PROJECTS

CheXNet with Attention-based Medical Report Generation **Source Code**

(TensorFlow | CNN + RNN | GRU | Bahdanau Attention | Beam Search | BLEU Score | Medical NLP | Python)

- Designed a **custom CNN encoder** and **GRU-based recurrent neural network (RNN) decoder** to process medical images and generate descriptive textual reports.
- Integrated a **Bahdanau attention mechanism** within the decoder, enabling the model to focus on salient image regions for accurate report generation.
- Employed **beam search decoding** to enhance the quality and coherence of the generated medical reports.
- Evaluated model performance using BLEU scores (BLEU-1 to BLEU-4), demonstrating high-quality image-to-text generation.
- Processed large-scale NLMCXR data, including custom tokenization and sequence padding, for optimized model training.

- Utilized Google Colab for training, implementing model checkpointing and ReduceLROnPlateau callbacks to improve model robustness and convergence.
- Visualized attention maps and model predictions to provide interpretability, supporting transparent AI-driven healthcare solutions

Smart PDF Chat – (LangChain | FAISS | Python | MongoDB | Streamlit) **Source Code** Demo

- Built a **Retrieval-Augmented Generation (RAG)** chatbot that enables users to query uploaded PDFs using natural language.
- Integrated **LangChain** with **FAISS** vector store and **Gemini 1.5 Flash** for real-time semantic search and context-based answer generation.
- Parsed and split large PDFs into text chunks, embedded them using **Google Generative AI embeddings**, and stored vectors locally for low-latency retrieval.
- Designed a dynamic Streamlit UI with session memory, chat interface, and conversation history download feature.

EAMCET College Predictor . (Python | Flask | Pandas | HTML/CSS) **Source Code** Demo

- Developed a Python-Flask web application to predict suitable colleges based on user rank and category using TS EAMCET data.
- Parsed large CSV datasets with Pandas for efficient college prediction logic and dynamic filtering.
- Built a Flask backend with server-rendered templates, deployed on a lightweight stack.
- Designed a clean, intuitive UI ensuring smooth user interaction and data-driven responses.

TECHNICAL ACTIVITIES

- **Developed a Video Summarizer Web App** at **CBIT Hacktoberfest Hackathon 2023** , organized by CBIT Open Source Community; generated concise summaries from YouTube videos using transcript analysis.
- **Achieved Top 26% on LeetCode** by consistently solving algorithmic and data structure challenges, demonstrating strong problem-solving skills.
- **Finalist at HASCKAVVY Hackathon** hosted by MGIT College; participated in a national-level competition, building and pitching innovative tech solutions under time constraints