Sanjulika Sharma

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Skills

Languages: Python, R, SQL
Libraries: Pandas, NumPy, Scikit-Learn, PyTorch, TensorFlow
Web Frameworks: Flask, FastAPI
Version Control: Git, GitHub, GitLab
Tools Excel, Power BI, Tableau, Streamlit

Deep Learning & Gen AI: Transfer Learning, Fine-tuning, Hugging Face, Transformers, LLMs, LangChain, Stable Diffusion, Retrieval-Augmented Generation (RAG), Multimodal RAG, Agentic RAG
Cloud: GCP, AWS

Experience

GeeksForGeeks **Sep 2023 – Present**
Member of Technical Staff (Data Science)

- Engineered an **AI-powered chatbot** for GeeksforGeeks Premium subscribers, leveraging **OpenAI's GPT-4o-mini** in the backend. **Sentence Transformer** was utilized to enhance semantic search capabilities, making the Y.O.G.I. Bot's responses more relevant and context-aware. This comprehensive setup helped achieve a 20% increase in user engagement among Premium subscribers.
- Developed a premium article summarization feature using a **quantized version of Meta's LLaMA model**, reducing inference latency by 35% and enabling real-time processing on resource-constrained devices.
- Built a **global search system** on the GeeksForGeeks platform, facilitating searches on products through textual queries, while replacing Google's ElasticSearch and reducing costs.
- Designed and optimized the **content recommendation engine**, which personalized article and resource suggestions for users, leading to a 15% improvement in user retention and a 25% increase in click-through rates on recommended resources.
- Developed a generative AI system to create **correct coding solutions** for problems on the portal, reducing manual efforts significantly. Achieved 88% accuracy in solution generation for 5000+ problems within 2 days, compared to 6 months of manual effort
- Developed a **feedback chatbot** to automate the review of submitted articles, reducing review time by up to 50%. The bot uses regular expressions and pattern-matching to verify structural elements like H2 and H3 headers, NLP-based word count analysis, and rule-based checks to detect promotional links and AI-generated content, automating grammar checks, formatting assessments, and error identification. This automation has increased publishing efficiency by 30% and enhanced content quality by enforcing consistent standards.

Isnartech AI **Jun 2023 – Sep 2023**
Artificial Intelligence Intern

- Built a face generation using **GANs** and **StyleGANs** for an attendance-based system to overcome the issue of overfitting that lead to the increase in the test accuracy by 12 %.

Praedico Global Research Pvt. Ltd. **Jan 2023 – Jun 2023**
Neural Network Developer Intern

- Studied the relationship between 10 major stock indexes of the world to forecast the closing price and volume of Nifty50 using **LSTM, GRU, Bi-LSTM, Bi-GRU**.
- Performed hyperparameter tuning using **Grid Search** and **Randomized Search** method. a fuzzy logic model to mimic human-like behaviour to make investment decisions.

Education

Vellore Institute of Technology **2021-2023**
Master of Science in Data Science

Sharda University **2018-2021**
Bachelor of Science in Mathematics (Honours Degree)

Projects

Speech to Speech Model

- Developed a machine translation model for English to Hindi Translation using PyTorch and Hugging Face's Transformer Library.
- Utilized **Helsinki-NLP Opus- MT model** (pre-trained model) and tokenizer for sequence-to-sequence tasks.

- Deployed the trained model using Gradio for interactive text translation.
- Model attained a medium BLEU score of 0.406, indicating that the translations were close to the reference translations.
- **Project link:** Speech-to-Speech Model

Agentic RAG with Langchain and BM25 Retrieval

- Built a **semantic search** tool using BM25Retriever and Langchain, enhancing document retrieval from large text datasets.
- Utilized Hugging Face's Inference API to deploy large language models for real-time text generation and question-answering tasks.
- Created RetrieverTool and integrated **smolagents** to streamline interactions with models and improve query handling in AI workflows.
- **Project link:** Agentic RAG

PDF Chat App with GUI

- Developed a GUI-based chat application enabling interactive querying of uploaded PDF files.
- Utilized Streamlit for frontend development and integrated OpenAI's models for backend processing to extract and respond to information from PDF documents dynamically.
- Enhanced user engagement by implementing a robust document parsing system and real-time natural language processing.
- Achieved seamless integration of complex text analysis and response generation, improving accessibility and interaction with document-based information.