

VOONA SRIRAJ

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Professional Experience

Machine Learning Research Intern	August 2024 - December 2024
SRM University AP	Guntur, Andhra Pradesh
<ul style="list-style-type: none">Performed sentiment analysis on Twitter dataset analyzing public sentiment toward COVID-19 vaccinations using Python and machine learning algorithms, achieving high accuracy in sentiment classificationImplemented comprehensive data preprocessing pipeline including text cleaning, tokenization, and feature extraction for social media data analysisDeveloped Logistic Regression model with cross-validation and performance optimization, creating actionable insights for public health communication strategies	

Education

SRM University AP	December 2022 - Present
Bachelor of Technology in Computer Science and Engineering	CGPA: 8.4
Gandhi Public School	2020 - 2022
Intermediate CBSE	Gunupur, Odisha

Technical Skills

- Programming Languages:** C++, Python, SQL, Java, HTML, CSS
- Data Analysis & Visualization:** Pandas, NumPy, Scikit-learn, Matplotlib, Seaborn, SQL, Excel, Power BI, Tableau
- Machine Learning & Deep Learning:** Regression, Classification, XGBoost, Random Forest, ANN, CNN, RNN, Transformers; end-to-end model building and evaluation.
- Generative AI & NLP:** LangChain, OpenAI API, Hugging Face, FAISS, Retrieval-Augmented Generation (RAG), AI Agent Design, Text Preprocessing, Tokenization, Prompt Engineering
- MLOps & Deployment:** Streamlit, Flask, GitHub Actions, Docker
- Cloud Platforms:** AWS (S3, EC2 basics)
- Databases:** MySQL, MongoDB

Technical Projects

- WebAssist RAG-Powered AI Web Assistant** | *Streamlit, LangChain, FAISS, HuggingFace, LLaMA*
- Built Streamlit-based chatbot leveraging LangChain, FAISS vector database, and HuggingFace embeddings for semantic search over C++ documentation with context-aware responses
 - Integrated ChatGroq LLaMA-3 model using Retrieval-Augmented Generation architecture delivering real-time LLM querying with source document visibility
 - Engineered end-to-end ML pipeline including document loading, text chunking, vector storage, and semantic search capabilities for enhanced question-answering performance
- Medical AI Chatbot** | *Flask, Groq (Llama 3.1 8B), Pinecone, LangChain, Sentence Transformers, PyPDF, Docker, AWS*
- Engineered a Retrieval-Augmented Generation (RAG) architecture integrating Groq's Llama 3.1 8B model with Pinecone vector database to achieve contextually accurate medical responses through semantic similarity search.
 - Automated processing of medical PDF documents using PyPDF and LangChain for text extraction, chunking, and embedding generation with Sentence Transformers for semantic search.
 - Developed a clean, responsive chat interface with real-time messaging using Flask and Bootstrap, supporting concise and relevant answers sourced from the medical knowledge base.
 - Deployed scalable cloud infrastructure using Docker containerization, automated CI/CD pipeline through GitHub Actions, and AWS services (ECR, EC2) with environment-based configuration management for production deployment.
- Handwritten Character Recognition using Convolutional Neural Network** | *Python, TensorFlow, Keras, OpenCV*
- Developed CNN model for handwritten character recognition achieving high accuracy on 26 alphabet categories using grayscale 28x28 pixel images with optimized neural network architecture
 - Implemented comprehensive data preprocessing pipeline including image reshaping, normalization, and one-hot encoding for optimal model performance
 - Applied computer vision techniques and deep learning algorithms using Adam optimizer, categorical crossentropy loss, and ReLU activation for robust pattern recognition

Certifications and Training

- Machine Learning and Deep Learning** - IBM SkillBuild
- Natural Language Processing and Computer Vision** - IBM SkillBuild
- A Joy of Learning Python** - NPTEL