NANDINI RANJAN SINHA

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github.com/nandiniranjansinha

TECHNICAL SKILLS AND INTERESTS

Programming Languages: Python, C++, SQL
Developer Tools and Databases: Git, VScode, Jupyter Notebook, Google Colab, SQLite
Frameworks: Keras, TensorFlow, scikit-learn, Librosa, Matplotlib & Seaborn, Pandas & NumPy, PyTorch, XGBoost, NLTK/Spacy
Areas of Interest: Machine Learning, Deep Learning, Data Science, Computer Vision, Natural Language Processing, Audio Signal Processing, Data Mining & Predictive Analytics

INTERNSHIP EXPERIENCE

Data Science intern at Prasunet   Jun 2024 – Jul 2024 │ Remote
- Conducted precise data visualization and exploratory analysis with Matplotlib and Seaborn, identifying key patterns by resolving missing values and outliers in datasets like age distributions and the Titanic dataset.
- Built and fine-tuned a decision tree classifier to predict customer purchases, improving accuracy and deepening understanding of feature selection and model behavior.
- Investigated traffic accident data to uncover patterns linked to road conditions, weather, and time of day, highlighting opportunities for enhancing road safety through data-driven strategies.

EDUCATION

Bachelor of Technology   Sep 2021 – present │ Chennai, Tamil Nadu, India
SRM Institute of Science and Technology
Computer Science and Engineering - CGPA 9.52 (6 semesters)

UNIVERSITY RESEARCH WORK

An advanced AI Based Healthcare Chatbot System Using Natural Language Processing   Aug 2024 – Oct 2024
(ICOFE - 488)
- Developed an AI-powered healthcare chatbot using Google Gemini-Pro to deliver empathetic, real-time medical guidance via NLP.
- Built a secure, interactive interface with Streamlit, showcasing AI's potential in healthcare.
- Published on the Social Science Research Network (SSRN) website 🔗

ACADEMIC PROJECTS

Credit Card Fraud Detection 🔗
- Preprocessed and explored an imbalanced transaction dataset using Python, Numpy, and Pandas, handling missing values and analyzing fraud distribution.
- Implemented and fine-tuned a Logistic Regression model with scikit-learn, achieving 98.33% accuracy in detecting fraudulent transactions.

Layout Parser 🔗
- Engineered a document layout analysis pipeline with LayoutParser, utilizing COCO annotations for structured text segmentation and bounding box visualization.
- Integrated Detectron2 with pre-trained models (Faster R-CNN) for high-precision classification and visualization of document elements, enhancing layout detection accuracy.

AI Based Healthcare Chatbot Using NLP 🔗
- Designed and deployed a real-time healthcare chatbot using Streamlit, integrating Google Gemini-Pro for generative AI responses powered by a secure API configuration.
- Implemented dynamic user-role translation and session management to enhance AI-driven medical query handling, optimizing chatbot accuracy and interactivity.

PERSONAL PROJECTS

Speech Emotion Recognition 🔗
- Developed a speech emotion recognition model using LSTM and MFCC, optimizing emotion classification accuracy.
- Enhanced feature extraction with Librosa and advanced signal processing, boosting model performance in emotion detection.

Movie Recommendation System 🔗
- Built a collaborative filtering-based movie recommendation system using PyTorch, matrix factorization, and K-means clustering on 100k+ ratings.
- Optimized embeddings and clustering to uncover genre-specific user preference patterns.

Sentiment Analysis - Amazon Reviews 🔗
- Implemented sentiment analysis on Amazon reviews using VADER and RoBERTa, integrating transformer models to classify sentiments with enhanced accuracy.
- Visualized sentiment trends by star ratings with Seaborn and conducted comparative analysis between lexicon-based and transformer-based models.

EXTRACURRICULAR ACTIVITIES AND ACHIEVEMENTS

Gen-Y Events Team (University Club)   Nov 2021 – Jan 2024
Logistics, Sponsorship Head, and Emcee Mentor
- Events Conducted as a Member: Git-Wiser (2021) Learning Through Cohorts (2022) Inspirus Education, Host (2022) See Through C, Host (2022)
- Events Under My Tenure: Stronger with Her, TheMathCompany (2023) Instagram Live with Akshit Sharma, Host (2023) Webinar on Personal Finance by Aswini Bajaj (2023)
- Scripting and Hosting for various events conducted in 2022