Renu Sankhla

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Education

Indian Institute of Technology (IIT) Jodhpur, India — CGPA: 7.05/10.0
Bachelors of Technology in Artificial Intelligence and Data Science — 2021 - 2025

Shiv Jyoti Senior Secondary School — RBSE: 86.00%
Subjects : Maths, Physics, Chemistry, English, Hindi — 2020

Balika Adarsh Vidya Mandir — RBSE: 84.00%
RBSE: Rajasthan Board of Secondary Education — 2018

Publications

Analysis and Advancement in Domain-Specific Templated Question Answering
Accepted at 5th International Conference on Semantic & Natural Language Processing (SNLP 2024)

Experience

Large Language Models for Biometrics — **IIT Guwahati**
Under the guidance of Dr. Chiranjib Sur (Assistant Professor, IIT Guwahati) — May 2024 - July 2024

- Explored Llava model for face recognition, gender detection, and age estimation tasks in biometric applications
- Developed strategic prompting techniques to evaluate Llava's biometric capabilities while considering data sensitivity
- Conducted experiments using LFW and AgeDB datasets to benchmark Llava's performance against established models

INTER IIT TECH MEET 2023 — **IIT Madras**
Machine Learning & Artificial Intelligence| High Prep Problem Statement — Nov 2023 - Dec 2023

- Developed AI Agent 007 for domain-specific question answering with a Language Model and specific tools.
- Created context-aware tool selection with intelligent sequencing for precise and efficient query resolution.
- Utilized Chain of Thought, Tree of Thought, and distillation to optimize tool retrieval and enhance system performance.

Projects

Text-to-Image Synthesis for Indic Languages
B.Tech Project | Guide: Prof. Mayank Vatsa — Aug'24- Nov'24

- Developed a text-to-image model for culturally relevant images in Indic languages, enhancing inclusivity.
- Evaluated metrics Image-Grounded Correctness & Language-Grounded Correctness for image accuracy and diversity.
- Analyzed biases in image generation, uncovering cultural stereotypes and limitations in linguistic representation.

Quantitative Market Forecasting and Portfolio Optimization — Feb'24 - Apr'24
Course Project | Financial Engineering | Guide: Prof. Vivek Vijay

- Conducted technical analysis (MA, RSI, Bollinger Bands) for forecasting, achieving 81% accuracy with Random Forest.
- Applied mean-variance optimization to build the Efficient Frontier, visualizing portfolio diversification by risk.
- Utilized CAPM and option pricing models (Black-Scholes, Binomial) for asset, emphasizing risk returns& Sharpe ratios.

Taxi Demand Prediction — Jan'24- April'24
Course Project | Deep Learning | Guide: Prof. Angshuman Paul

- Developed techniques to improve seasonal pattern capturein time series forecasting models like "SeasonNet"
- Implemented LSTM, RNN, GRU models, achieving improved performance (e.g., MSE reduced to 0.000273 for LSTM)
- Preprocessed NYC taxi dataset, handled missing values, errors, and feature normalization

VideoVerse
Course Project | Data Enginnering | Guide: Prof. Saptarshi Pyne — Sept'23 - Nov'23

- Designed a YouTube like website with the help of Django(Backend)and Html/Css, React (Frontend).
- Used MySQL, MongoDB and Neo4j as the database management system
- Built a recommendation system by modelling the relationships between videos.

Competitions and Challenges

Fastest-Coder-Hackathon — Jun'23
Microsoft Azure

- Developed a weather Forecasting tool using API for displaying real-time weather forecasts in designated cities.
- Displayed API integration, adept data parsing, and robust error handling for weather data.
- Illustrated expertise in OpenWeatherMap API integration, data management, and accuracy assurance for weather data.
- Implemented user-friendly interface with intuitive data visualization for enhanced accessibility.

Technical Skills

Programming languages: C++, Python, R
ML/AI: Pytorch, Numpy, Pandas, Plotly, Matplotlib, Sklearn
Web Technologies: HTML, CSS, Django, JavaScript, React
Miscellaneous: MySQL, Neo4j, Git, Github, Latex

Relevant Coursework

Artificial Intelligence: Machine Learning, Optimization Machine Learning, Data Engineering, Computer Vision, Deep Learning
Computer Science: Design & Analysis of Algorithms, Computer Architecture, Operating System, Computer Networks
Mathematics: Linear Algebra, Probability and Statistics, Calculus, Differential Equations, Discrete Mathematics