

Renu Sankhla

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EDUCATION

Indian Institute of Technology (IIT) Jodhpur

Bachelor of Technology in Artificial Intelligence and Data Science | CGPA: 7.05/10.0

2021 - 2025 (Expected)

PUBLICATIONS

Analysis and Advancement in Domain-Specific Templated Question Answering

5th International Conference on Semantic & Natural Language Processing (SNLP 2024)

2024

- Developed novel templated QA framework improving accuracy by 22% in domain-specific contexts
- Implemented hybrid NLP techniques combining transformer models with rule-based systems

PROFESSIONAL EXPERIENCE

Research Intern - Large Language Models for Biometrics

IIT Guwahati

Artificial Intelligence Research Lab | Advisor: Dr. Chiranjib Sur

May 2024 - July 2024

- Researched and implemented LLaVA (Large Language and Vision Assistant) model for biometric applications, achieving 89% accuracy in cross-dataset validation
- Developed optimized prompt engineering strategies that improved model performance by 15% on LFW (Labeled Faces in the Wild) and AgeDB datasets
- Conducted comparative analysis against state-of-the-art models (FaceNet, DeepFace) with rigorous statistical validation

Machine Learning Engineer - Inter IIT Tech Meet

IIT Madras

High Prep Problem Statement - AI Agent Development

Nov 2023 - Dec 2023

- Engineered AI Agent 007 for domain-specific QA, reducing response time by 40% through optimized tool sequencing
- Implemented Chain of Thought and Tree of Thought reasoning, improving answer accuracy by 32%
- Designed context-aware tool selection algorithm with 92% retrieval precision

TECHNICAL PROJECTS

Text-to-Image Synthesis for Indic Languages

IIT Jodhpur

B.Tech Thesis | Advisor: Prof. Mayank Vatsa

Aug 2024 - Present

- Developing diffusion-based model for culturally relevant image generation in 5 Indic languages
- Achieving 0.78 FID score on validation set, outperforming baseline Stable Diffusion by 18%
- Implementing novel evaluation metrics for cultural relevance and linguistic accuracy

VidVerse - YouTube-like Video Platform

IIT Jodhpur

Data Engineering Course Project | Advisor: Prof. Saptarshi Pyne

Sept 2023 - Nov 2023

- Achieved 300ms average API response time through optimized Django backend with Redis caching
- Developed graph-based recommendation system (Neo4j) improving user engagement by 42%
- Integrated MySQL, MongoDB, and Neo4j to create scalable multi-model architecture

Quantitative Financial Analysis System

IIT Jodhpur

Financial Engineering Course Project | Advisor: Prof. Vivek Vijay

Feb 2024 - Apr 2024

- Built predictive system with Random Forest achieving 81% accuracy on technical indicators (Relative Strength Index, Moving Average Convergence Divergence, Bollinger Bands)
- Optimized portfolio allocation using mean-variance optimization, improving Sharpe ratio by 27%
- Implemented Black-Scholes and Binomial pricing models with 94% convergence to market prices

Advanced Face Detection System

IIT Jodhpur

Computer Vision Course Project | Advisor: Prof. Rajendra Nagar

Feb 2024 - Apr 2024

- Developed hybrid face detection achieving 0.79 mean IoU (MTCNN) under challenging conditions
- Compared classical (Haar, AdaBoost) and deep learning approaches (ResNet, MobileNetV2)
- Conducted comprehensive evaluation under challenging conditions (lighting variations, occlusions, facial expressions)

TECHNICAL SKILLS

Programming: PythonPyTorch, C/C++, R, SQL, JavaScript

Data Science: Pandas, NumPy, Scikit-learn, Matplotlib, Plotly

Tools: Git, Docker, AWS, GCP, CI/CD, LaTeX

AI/ML: Computer Vision, NLP, Time Series Analysis, GenAI

Web Dev: Django, React, Node.js, MongoDB, Neo4j

Methodologies: MLOps, Statistical Modeling

RELEVANT COURSEWORK

Core AI: Machine Learning, Deep Learning, Computer Vision, Natural Language Processing, Data Engineering

Computer Science: Algorithms, Data Structures, Operating Systems, Computer Networks, Database Systems

Mathematics: Linear Algebra, Probability & Statistics, Optimization, Discrete Mathematics, Calculus

AWARDS & LEADERSHIP

• **Gold Medalist**, Varchas Sports Fest - Athletics (Middle Distance) | IIT Jodhpur

2023

• **1st Place**, 10km Mini Marathon - Raptors Aviation Brigade

2022