NAMAN SINGHAL

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Summary

Sophomore student pursuing a Dual Degree in Computer Science and Computational Linguistics at IIIT Hyderabad. My primary focus is on NLP and machine learning, specifically sentiment analysis and multimodal search, alongside a personal interest in financial modeling.

Education

IIIT Hyderabad
07/2024 - 05/2028

Bachelor of Engineering in Computer Science

IIIT Hyderabad
07/2024 - 05/2029

Master of Science in Computational Linguistics

Projects

Sentiment Analysis on Social Media Texts with Semantic Interpretation

Conducted a comparative study evaluating the efficacy of traditional machine learning versus semantic-enhanced approaches for social media sentiment classification. Engineered a robust feature extraction pipeline combining syntactic analysis with semantic embeddings and contextual rules, validating the model on a 1.6-million-tweet corpus and a domainspecific airline dataset.

Event Management & Logistics Platform

Developed a centralized full-stack platform using the MERN stack to digitize university fest operations and eliminate organizational overhead. Engineered Role-Based Access Control (RBAC) for three distinct user tiers, securing protected routes via JWT authentication and bcrypt hashing. Built a dynamic form builder for custom registration schemas and integrated an automated ticketing system featuring QR code generation and real-time email notifications. Architected a payment approval workflow for merchandise sales, facilitating secure proof-of-payment uploads and administrative verification to manage high-volume transactions.

CLIP-Powered Design Search

Built a semantic image search engine for Google Drive design repositories by leveraging OpenAll's CLIP model to generate multimodal embeddings. This eliminates the need for manual metadata tagging, enabling natural language retrieval with high accuracy. The architecture integrates a vector database for efficient high-dimensional indexing and features a GPUaccelerated processing pipeline to ensure scalable, low-latency performance via a custom web interface.

Named Entity Recognition for Code-Mixed Text

Developed a CRF-based NER system for Hindi-English social media text, achieving 93.1% token accuracy. Curated and annotated a gold-standard corpus of 4,849 sentences from platforms like Twitter and WhatsApp, implementing a feature pipeline with lexical n-grams, word shapes, and language tags to handle non-standard transliterations.

Systematic Strategy Backtester

Built a systematic trading simulation platform for commodity markets capable of executing averaging-down logic with customizable entry gaps and profit targets. The application has a robust backtesting engine that handles gap-down protection and forced expiry exits, allowing stress-testing of strategies over continuous historical data with comprehensive visual analytics including equity curve tracking and cycle-based PnL to facilitate in-depth strategy auditing and optimization.

Skills

Languages: C · C++ · Python · SQL · JavaScript · HTML · CSS

Libraries & Frameworks: React · Node.js · Express.js · MongoDB · NLTK · Pandas · NumPy · SciPy · Streamlit · Matplotlib · Seaborn

Developer Tools: Git · GitHub · JWT · bcrypt · Vector Databases · REST APIs

Key Achievements

JEE
Ranked within the top 1 percentile of all students in India

UGEE
Got a rank of 118 among more than 1 lakh students

CBSE Boards
Received 97.8% & 95.8% in Class 10 and 12 Boards resp.