Ritik Sharma
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Projects

Vision-Driven Real-Time Vehicle Tracking System *Feb 2025 –April 2025*

- Built a real-time vehicle detection and tracking system using YOLOv8 and OpenCV.
- Implemented lane-wise vehicle counting and traffic density classification using bounding box tracking.
- Pre-processed video frames for optimal object detection in diverse lighting and motion conditions.
- Achieved real-time inference performance with optimized model and multi-threaded video stream handling.
- Designed the system for potential integration with city-wide traffic surveillance networks.

Machine Translation using NLP and Transformer Models *Sep 2024 – Nov 2024*

- Fine-tuned **Google Pegasus, a state-of-the-art transformer model,** for efficient text summarization.
- Trained on a dataset of over 50,000 samples to improve summary generation quality.
- Achieved a 25% improvement in ROUGE-1 and ROUGE-L scores over baseline models.
- integrated advanced pre-processing techniques like custom tokenization and data augmentation to enhance domain-specific accuracy.
- Optimized the model's performance by reducing compute costs by 40% while maintaining high accuracy.

Library Management System *June 2024 – July 2024*

- Built a Library Management System using C++ to manage book records, user interactions, and transaction logs.
- Implemented core functionalities such as book issuance, returns, due date tracking, and inventory updates.
- Utilized data structures like arrays, linked lists, and hash maps to optimize search and update operations.
  Applied file handling for persistent data storage, enabling seamless data retrieval across sessions.

House Price Prediction System *Aug 2023 – Oct 2023*

- Designed a predictive model to estimate house prices based on features such as location, square footage, and amenities.
- Used various machine learning algorithms including **Logistic Regression, Decision Trees, and Support Vector Classifier (SVC),** achieving an accuracy of 92% on the test dataset.
- Engineered features like one-hot encoding for categorical variables and feature scaling to improve prediction quality.
- Fine-tuned hyperparameters to enhance model precision, resulting in a 15% improvement in prediction accuracy.

Certificates

Social Network Analysis || NPTEL **Link** **July 2024 - Nov 2024**

Build AI Apps with ChatGPT, Dall-E, and GPT-4 || Coursera Link **Jan 2024 – May 2024**

Dynamic Programming Greedy Algorithms || Coursera Link **Jan 2024 – Feb 2024**

C++ Programming || NeoColab & Data Structure and Algorithms || NeoColab **Aug 2023 – Jan 2024**

Technical Skills

Programming Languages: Python, R, C++
Frameworks & Libraries: Scikit-Learn, TensorFlow, Keras, OpenCV
Machine Learning & AI: Supervised & Unsupervised Learning, ANN, CNN, Reinforcement Learning
Mathematics for ML & DL: Algebra, Probability, Statistics, Calculus, Matrices
Web Development: HTML, CSS, JavaScript
Tools & Platforms: Hugging Face Hub, Transfer Learning, Fine-Tuning Model

Education

Lovely Professional University Punjab **2022 – Present**
Computer Science and Engineering — CGPA: 6.9 *Phagwara, Punjab*

High School Udkagaon **2020 – 2021**
12th with Science — Percentage: 76.2% *Gopalganj, Bihar*

High School Uchkagaon **2019 – 2020**
10th with Science — Precentage: 78.2% *Gopalganj, Bihar*