

Divyanshu Singh

Curriculum Vitae

Education

2022–Present **B.E. Computer Science**, *Birla Institute of Technology and Science Pilani*, Goa

Publications

[IEEE Xplore] **The Last Mile: A Novel, HotSpot Based Distributed Path-Sharing Network for Food Deliveries**, *IEEE Transactions on Intelligent Transport Systems*, DOI: 10.1109/TITS.2024.3465217
○ **Authors:** Ashman Mehra, **Divyanshu Singh**, Vaskar Raychoudhury, Archana Mathur, Snehanishu Saha.

Experience

Jan 2024 – **Undergraduate Researcher**, *APP Center for AI Research (APPCAIR)*, Goa, India

Present *Supervisors: Dr. Snehanishu Saha, Dr. Santonu Sarkar*

- Developed DeliverAI, a Reinforcement Learning-based model optimizing food delivery routes.
- Currently researching on novel ride-sharing optimization and driver behavior modeling problems.

May 2024 – **Research Intern**, *Digital India Bhashini Division*, New Delhi, India

July 2024 *Contributed to the National Language Mission to develop language technologies for all Indian languages.*

- Collaborated with the post-processing team, focusing on Inverse Text Normalization.
- Developed a WFST model for handling Inverse Text Normalization across multiple Indic languages, [Git](#)
- Implemented a BERT-based indic-punct model to introduce punctuation handling in Inverse Text Normalization.
- Researched state-of-the-art translation and transliteration tools.

Research / Projects

November 2024 – **Zero-shot Classification with RoBERTa**, *Associated with BITS Pilani, Goa*, [Git](#)

Natural Language Processing, Deep Learning, Generative AI

- Implemented a pre-trained RoBERTa model for zero-shot classification using Hugging Face transformers on the AG News dataset.
- Enhanced classification accuracy by iteratively optimizing label prompts using generative language models (LLMs) such as Gemma2-9B, Qwen2.5-32B, and Nemotron-70B.
- Improved performance metrics, achieving a significant increase in accuracy from 48.5% to 82.13% which was achieved by Nemotron-70B.
- Evaluated results using metrics like precision, recall, F1-score, and confusion matrices, focusing on common error patterns and label effectiveness.

November 2023 **TheCourseAssignment**, *Associated with BITS Pilani, Goa*, [Git](#)

Heuristic Algorithm, Graph Theory, Dynamic Programming

- Designed a heuristic graph-optimization algorithm for assigning faculty to courses based on preferences and load constraints.
- Applied advanced heuristic strategies, including constraint propagation and search space pruning, to improve the efficiency of the backtracking algorithm for large-scale assignments.

Relevant Coursework

CS Data Structures and Algorithms, Database Management Systems, Logic in CS[#], Discrete Structures for CS[#], Theory of Computing[#], Operating Systems[#], Reinforcement Learning, Generative AI*[\[Git\]](#), Natural Language Processing[#], Foundations of Data Science [#] Ongoing courses, * Audited courses

Technical Proficiency

Languages Python, C++, C, Java

Software/Tools PyTorch, TensorFlow, HuggingFace, Gymnasium, PettingZoo, Anaconda, GitHub, Docker

Interests Reinforcement Learning, Deep Learning, Natural Language Processing, Optimization

Extra Courses

YouTube DeepMind x UCL | Deep Learning Lectures, DeepMind x UCL | Reinforcement Learning Lectures, CS229 Stanford's ML

edX CS50's Introduction to Artificial Intelligence with Python[\[Certificate\]](#)