Eishkaran Singh

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Education

Thapar Institute of Engineering and Technology — Patiala
BTech Computer Engineering — September 2021 - Present

Indian Institute of Technology — Madras
Bs Data Science and Applications — January 2022 - Present

Publications

REAMS: Reasoning Enhanced Algorithm for Maths Solving *Eishkaran Singh, Tanav Singh Bajaj,S iddharth Nayak*
Submission Id:- 14605
Under Review AAAI-2025

HaloRAG: Towards Mitigating LLM Hallucinations with Low-Cost Real-Time Retrieval *Eishkaran Singh, Siddharth Nayak*
Submission Id:- 2873
Under Review EMNLP-2024

GlucoBreath: Non-Invasive Glucometer to Detect Diabetes using Breath *Ritu Kapur, Yashwant Kumar, Swati Sharma, Shivani, Eishkaran Singh, Dhruv Rohilla, Bhupinder Kumar, Vikrant Kanwar, Arnav Bhavsar, and Varun Dutt*
Paper Link:- `https://doi.org/10.1109/access.2024.3392015`

AIM-CVT: Design of a Framework for the AI-Enabled-Multilingual Court Verdict Translator *Eishkaran Singh, Sachin Kansal, Arshjot Singh*
Submission Id:- EVOS-D-23-00559

Experience

Stanford University — February 2024 - Present
Research Intern under Prof. (Dr.) Dan Jurafsky

- Developed and implemented knowledge graphs leveraging Large Language Models (LLMs) to effectively mitigate social biases within LLM outputs.

Massachusetts Institute of Technology — November 2023 - Present
Research Intern under Prof. (Dr.) Hamsa Balakrishnan

- Currently engaged in independent research focused on mitigating hallucinations in Large Language Models (LLMs), implemented a cost-effective wrapper that provides real-time internet access, enhancing model robustness and reducing the generation of inaccurate outputs while minimizing compute requirements.
- Developed an approach a reasoning based Large Language Models (LLMs) to solve university-level mathematics problems, establishing a new benchmark of 90.15%, surpassing the previous record of 81.1%.

Data Science Intern — May 2024 - Present
Data Science Intern at United We Care

- Achieved a new benchmark of 94.7% on the Stanford Natural Language Inference (SNLI) dataset, surpassing Meta's previous record with a score of 93.4%
- Formulated 4 patents related to knowledge graphs and graph neural networks, and worked on fine-tuning large language models (LLMs) through supervised fine-tuning (SFT) and unsupervised training methods.

Indian Institute of Technology Indore — July 2023 - December 2023
Research Intern under Prof. (Dr.)Chandresh Kumar Maurya

- Employed NLP and IndicNLP libraries for text preprocessing, constructing a gold standard dataset to drive the application of various ML/DL models.

Indian Institute of Technology Mandi — June 2023 - December 2023
Research Intern under Prof. (Dr.)Varun Dutt in Digital Nose Project

- Migrated local workflows to server environments using automation and DevOps, developed asynchronous functions with FastAPI, and applied machine learning algorithms for improved predictive accuracy.

Projects/Achievements

PixelMind AI — May 2023

- Secured 2nd position in the Paradox'23 contest at IIT Madras, winning a cash prize of Rs. 50K. Utilized a combination of C and Python, along with image processing functions, to achieve significant improvements in image enhancement efficiency.

Kaggle Master — June 2023
`https://www.kaggle.com/eishkaran`

- Participated in a global Kaggle competition on Binary Classification with Software Defects, competing against 1702 teams worldwide. Achieved an impressive world ranking of 44, placing in the top 3% of participants. Employed advanced classifier models to optimize accuracy within the shortest time frame, demonstrating a strong commitment to efficiency and excellence in data analysis and predictive modeling

Skills

Programming Languages:	Python, C++ ,C
Database Management Systems:	MySQL , Oracle
Cloud Computing:	GCP, AWS
Web Development:	HTML , CSS, JavaScript
Tech Stack:	Flask , FastAPI, Docker, Tableau, Power BI
Libraries / Frameworks:	Pandas, Numpy, Seaborn, Tensorflow, Pytorch, XGBoost, scikit-learn, OpenCv, PIL
Machine Learning:	Regression, Classification, Clustering, Neural Networks, Deep Learning, LLM
Soft Skills:	Public Speaking, Leadership