

# DEBAJYOTI MAZUMDER

PHD SCHOLAR · NLP

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## Summary

Debajyoti Mazumder is a Ph.D. research scholar in the Data Science and Engineering (DSE) Department at IISER Bhopal. He is working under the guidance of Dr. Jasabanta Patro, and his research interest lies mainly in Social Natural Language Processing (NLP).

## Research Projects

### Can native language samples improve code-mixed hate detection?: A case study for Hindi-English code-mixed hate detection

*D. Mazumder, A. Kumar, J. Patro*

CODE-MIXED HATE DETECTION ([HTTPS://DL.ACM.ORG/DOI/10.1145/3726866](https://dl.acm.org/doi/10.1145/3726866))

ACM TALLIP

• Adding native hate samples in the code-mixed training set, even in small quantity, improved the performance of MLMs for code-mixed hate detection.

### Revealing the impact of synthetic native samples and multi-tasking strategies in Hindi-English code-mixed humour and sarcasm detection

*D. Mazumder, A. Kumar, J. Patro*

MULTI-TASK LEARNING FRAMEWORK FOR HUMOR & SARCASM DETECTION (PRE-PRINT: [HTTPS://ARXIV.ORG/ABS/2412.12761](https://arxiv.org/abs/2412.12761))

Submitted, Under Review

• Creating a multi-task learning architecture that leverages shared knowledge among different tasks.  
• Compared the multi-task learning framework with the current state-of-the-art models.

### Evaluation of Cross-Layer Transformer Networks for Link Prediction in Multiplex Networks

*D. Sharma, D. Mazumder, J. Patro*

LINK PREDICTION IN MULTIPLEX NETWORKS

Ongoing

• Novel task: Link prediction task in partial graph of multiplex networks.

### Comparison of End-to-end, Pipeline and Prompting based approaches for Automated Fact Checking

*G. Kumar, D. Mazumder, J. Patro*

FACT CHECKING

Ongoing

• Analysis of intrinsic and extrinsic knowledge of open source LLMs.  
• Thorough evaluation of LLM prompting and fine-tuning approaches.

### Do VLMs Really Understand Memes? A Fine-Grained Analysis of Multimodal Meme Classification

*D. Gavit, D. Mazumder, J. Patro, S. Das*

MULTIMODAL MEME CLASSIFICATION

Ongoing

• A comprehensive study of state-of-the-art vision-language models (VLMs).

## Recent Certifications & Achievements

2025 **Selected for LiveRAG Challenge track**, SIGIR 2025

*Padua, Italy*

2023 **Travel Grant (Participant)**, Indian Symposium on Machine Learning (IndoML – 2023)

*IITB, INDIA*

2023 **2nd Position**, Poster Presentation on DSE(Data Science & Engineering) day

*IISERB, INDIA*

2022 **Travel Grant (Participant)**, Indian Symposium on Machine Learning (IndoML – 2022)

*IITGN, INDIA*

2022 **MHRD Fellowship Recipient**, GATE Exam

*INDIA*

## Education

### Indian Institute of Science Education and Research - Bhopal (IISERB)

*Madhya Pradesh, India*

PH.D. IN DATA SCIENCE & ENGINEERING

*Aug. 2022 -*

Score: 9.00 CPI

Supervisor: Dr. Jasabanta Patro

### Zakir Hussain Delhi College, University of Delhi

*New Delhi, India*

MSC IN MATHEMATICS

*Jul. 2018 - Oct. 2020*

Score: 69.25 %

### Deshbandhu College, University of Delhi

*New Delhi, India*

BSC HONOURS IN MATHEMATICS

*Jul. 2015 - Jul. 2018*

Score: 8.70 SGPA

**K.V. No.-2, Delhi Cantt.-10 (CBSE Board)***New Delhi, India*

SENIOR SECONDARY

2015

Score: 89.80 %

**K.V. No.-3, AFS-II, Jamnagar (CBSE Board)***Gujarat, India*

SECONDARY

2013

Score: 9.60 CGPA

## Courses

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**IISER BHOPAL**

- Machine Learning- DSE617, Deep Learning- DSE616, Natural Language Processing- DSE607, Advance Natural Language Processing- DSE 618, Spatial Data Science & Applications- DSE606, Data Science in Practice- DSE615
- Teaching Assistant : Introduction to Programming- ECS102 (Jan,2025 -), Natural Language Processing- DSE407/607 (Aug,2024 - Nov,2024), Introduction to Programming- ECS102 (Jan,2024 - Apr,2024), Applied optimization- DSE311 (Jan,2023 - Apr,2023)