

# DIBYANAYAN BANDYOPADHYAY

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🔄 [newcodevelop](https://github.com/newcodevelop)

## EDUCATION

**PhD Computer Science & Engineering**, Indian Institute of Technology Patna Patna, Bihar  
GPA: 9.25 / 10 Jul 2023 - Present

**M.Tech. Computer Science & Engineering**, Indian Institute of Technology Patna Patna, Bihar  
GPA: 9.21 / 10 Jul 2021 - Jun 2023

**B.Tech. Computer Science & Engineering**, Government College of Engineering and Textile Technology Berhampore, WB  
GPA: 8.79 / 10 Aug 2016 - Aug 2020

## WORK EXPERIENCE

**Junior Research Fellowship**  
Indian Institute of Technology, Patna Oct 2020 - June 2023

- Working on **Sign Language Translation (SLT)** using both gloss level and text level information.
- Built a SLT system which got state-of-the-art performance and was accepted in **IJCNN 2023**.
- Worked on hateful meme detection with additional information as multitasking (*viz.* sarcasm detection, emotion recognition).
- Works got published into **ECIR 2023**, **IEEE TCSS**, and **COLING 2024**.

## RESEARCH INTERNSHIP

**Research Intern-AI**  
IBM Research, Bengaluru May 2024 - Aug 2024

- Worked on curation of a **large scale** collection of repository for **Java** and **Python** with integrated **function call graph (FCG)** creation.
- Ordering functions using graph based traversal of the FCG, yielding contextual information between functions of a repository.
- **Extended pretraining (EPT)** large language models (*DeepSeekCoder*, *StarCoder-v2*) using FCG level contextual information shown **performance gain in several cross-repository code completion tasks**.

## SELECTED PUBLICATIONS

**SEMANTIFY: Unveiling Memes with Robust Interpretability beyond Input Attribution** IJCAI, 2024 (Core A\*)  
*D.Bandyopadhyay, A. Ganguly, B.Gain, A.Ekbal*

- **SEMANTIFY** devices a *four step* keyword extraction for understanding multimodal model behavior.
- Extracted keywords are not necessarily from input space and show inner working of the model.
- Works better than standard input attribution methods in simulatability.

**Seeing Through VisualBERT: A Causal Adventure on Memetic Landscapes** EMNLP Findings, 2024 (Core A\*)  
*D.Bandyopadhyay, M. Hasamuzzaman, A.Ekbal*

- This paper proposes a causal framework on VisualBERT applied for meme offensiveness detection task.
- The causal framework retrieves causally important keywords locally for each classification decision.
- We show that input attribution methods does not always reflect causality within the proposed framework.

**A knowledge infusion based multitasking system for sarcasm detection in meme** ECIR, 2023 (Core A)  
*D.Bandyopadhyay, G.Kumari, A.Ekbal, S.Pal, A.Chatterjee, V. BN*

- This paper proposes a multitasking system on top of CLIP for sarcasm detection in memes.
- This paper proposes a dataset containing around 7000 Hindi memes along with their sarcasm levels.
- Using fine-grained emotion categories as knowledge infusion, we show sarcasm detection performance increases.

**Unsupervised Text Style Transfer Through Differentiable Back Translation and Rewards** PAKDD, 2023 (Core A)  
*D.Bandyopadhyay, A.Ekbal*

- This paper proposes an unsupervised text style transfer (UTST) system.
- Through a novel combination of both back-translation and reinforcement learning, we showed state-of-the-art performance on two datasets, i) YELP and ii) GYAFC for UTST.

**A Deep Transfer Learning Method for Cross-Lingual Natural Language Inference** LREC, 2022  
*D.Bandyopadhyay, A.De, B.Gain, T.Saikh, A.Ekbal*

- This paper proposes a novel application of teacher-student learning for learning cross-lingual knowledge transfer.
- We showed upto 10% performance gain in cross-lingual Natural Language Inference using knowledge of cross-lingual pretrained BERT and employing teacher-student objective on top of that.

## RELEVANT COURSES

Linear Algebra, Probability and Statistics, Machine Learning, Advanced Machine Learning, Deep Learning, Natural Language Processing.

## TECHNICAL SKILLS

Python, PyTorch, C, pandas, numpy, open-source.