Indradyumna Roy

Contact Information

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GitHub: https://github.com/indradyumna/

Research Interests

Designing neural models for representation learning and interaction modelling on graphs and sets. Scalable nearest neighbor search. Information retrieval.

Education

Indian Institute of Technology, Bombay, India.
PhD in Computer Science and Engineering. Jul'21– Present.
Topic: Representation Learning for Scalable and Multi-modal Graph Retrieval.
Advisors: Abir De, Soumen Chakrabarti.
CGPA: 10/10.

Indian Institute of Technology, Bombay, India.
Master of Technology in Computer Science and Engineering. Jul'15– Jun'17.
CGPA: 9.12/10.

Jadavpur University, Kolkata, India.
Bachelor of Engineering in Computer Science and Engineering. Jul'09– Jun'13.
CGPA: 8.19/10.

Awards

[1] Google Ph.D Fellowship (2024)

[2] Google Student Travel Grant
Awarded USD 3,000 for attending NeurIPS 2023

[3] Qualcomm Innovation Fellowship
Winner, QIF India 2022.
Super-Winner, QIF India 2023

[4] Prime Minister's Research Fellowship
PMRF Scholar. Jan'22– Nov'23

Publications

Google Scholar Profile
DBLP Profile

[1] Eeshaan Jain*, **Indradyumna Roy***, Saswat Meher, Soumen Chakrabarti, Abir De. *Graph Edit Distance with General Costs Using Neural Set Divergence*. In Neural Information Processing Systems (NeurIPS), 2024.

[2] Ashwin Ramachandran, Vaibhav Raj, **Indradyumna Roy**, Soumen Chakrabarti, Abir De. *Iteratively Refined Early Interaction Alignment for Subgraph Matching based Graph Retrieval* . In Neural Information Processing Systems (NeurIPS), 2024.

[3] **Indradyumna Roy**, Rishi Agarwal, Soumen Chakrabarti, Anirban Dasgupta, Abir De. *Locality Sensitive Hashing in Fourier Frequency Domain For Soft Set Containment Search*. In Neural Information Processing Systems (NeurIPS), 2023. (**Spotlight**)

[4] **Indradyumna Roy**, Soumen Chakrabarti and Abir De.
Maximum Common Subgraph Guided Graph Retrieval: Late and Early Interaction Networks. In Neural Information Processing Systems (NeurIPS), 2022.

[5] **Indradyumna Roy**, Venkata Sai Velugoti, Soumen Chakrabarti and Abir De. *Interpretable Neural Subgraph Matching for Graph Retrieval*. In AAAI Conference on Artificial Intelligence (AAAI), 2022.

[6] **Indradyumna Roy**, Abir De, Soumen Chakrabarti. *Adversarial Permutation Guided Node Representations for Link Prediction*. In AAAI Conference on Artificial Intelligence (AAAI), 2021.

[7] Soham De, **Indradyumna Roy**, Tarunima Prabhakar, Kriti Suneja, Sourish Chaudhuri, Rita Singh, Bhiksha Raj,. *Plagiarism Detection in Polyphonic Music using Monaural Signal Separation*. In InterSpeech (ICSA), 2012.

Reviewing

AISTATS (Reviewer, 2025). ICLR (Reviewer, 2025). LoG (Reviewer, 2025). NeurIPS (Reviewer, 2024). AAAI (Reviewer, 2022-24). TACL (Sub-Reviewer, 2022).

Current & Previous appointments

Google DeepMind. Host: Vinod Nair
Student Researcher. Jun'23– Nov'23
Indian Institute of Technology, Bombay, India.
Project Research Assistant. Jan'20– Jun'21
Samsung R&D Institute India-Bangalore, Karnataka India.
Software Engineer. Jul'17– Aug'19
Synopsys India Pvt. Ltd., Bangalore, Karnataka India.
R&D Engineer. Aug'13– Jul'15

Other Activities

[1] Invited talk on Neural Graph Retrieval at IBM Research Zurich [PPT]

[2] Guest Lecture on Graph Neural Networks for CS728, IIT Bombay [PPT]

[3] Attended Machine Learning Summer School (MLSS24) at OIST, Okinawa.

[4] Attended ML for Drug Discovery Summer School (ML4DD) at Montreal.

[5] Winner of the Kinase Selectivity Challenge Hackathon organized by Valence Labs [LINK]

Technical Skills

Programming Languages: C, C++, Python
Tools and Libraries : LaTeX, TensorFlow, PyTorch, PyTorch Geometric

Teaching

Teaching Assistant for following courses :

[1] **CS101: Computer Programming and Utilization** (July'15– Dec'15)

[2] **CS302+CS306: Implementation of Programming Languages** (Jan'16– May'16)

[3] **CS601: Algorithms & Complexity** (July'16– Dec'16)

[4] **CS152-CS156: Abstractions & Paradigms for Programming** (Jan'17– May'17)

[5] **CS768: Learning with Graphs** (July'21– Dec'21, July'23– Dec'23)

[6] **CS419M: Introduction to Machine Learning** (Jan'22– May'22, Jan'23– May'23)

[7] **CS335+CS337: Artificial Intelligence and Machine Learning** (Jul'22– Dec'22)