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ACADEMIC DETAILS

Examination	University	Institute	Year	CPI/%
PhD	IIT Bombay	IIT Bombay	2021-now	10
Post Graduation	IIT Bombay	IIT Bombay	2017	9.12
Undergraduate Specialization:	Computer Science and Engineering			
Graduation	Jadavpur University	Jadavpur University	2013	8.19
Intermediate/+2	DAV Public School, Kota	DAV Public School, Kota	2009	90.00
Matriculation	Loyola School, Jamshedpur	Loyola School, Jamshedpur	2007	92.00

Areas of Interest

Graph Representation Learning, Information Retrieval and Ranking, Question Answering, Natural Language Processing, Deep Learning, Causality

Publications

- Indradyumna Roy, Venkata Sai Velugoti, Soumen Chakrabarti, Abir De,"**Interpretable Neural Subgraph Matching for Graph Retrieval**", AAAI (2022) [LINK]
- Indradyumna Roy, Abir De, Soumen Chakrabarti, "**Adversarial Permutation Guided Node Representations for Link Prediction**", AAAI (2021) [LINK]
- Soham De, Indradyumna Roy, Tarunima Prabhakar, Kriti Suneja, Sourish Chaudhuri, Rita Singh, Bhiksha Raj, "**Plagiarism Detection in Polyphonic Music using Monaural Signal Separation**", INTERSPEECH-2012, 1744-1747 (2012) [LINK]

Current Position

- **Indian Institute of Technology Bombay , Maharashtra India** (Jul'21 - now)
  (PhD Candidate)
  - Working with **Prof. Soumen Chakrabarti** and **Prof. Abir De**, Dept. of Computer Science and Engineering
  - Currently working on problems at the intersection of graph representation learning and knowledge graphs - including link prediction, entity alignment and graph search
  - Developing more expressive models for generating richer node/subgraph/graph level representations for improved accuracy on downstream tasks

Mtech Thesis and Seminar

- **M.Tech Thesis : Causal Inference on Observational Data** (June'16 - June'17)
  *(Guide: **Prof. Saketha Nath**)*
  - Investigated questions in causal inference from the perspective of machine learning:
    1. Given a joint distribution, how to infer directionality of causal influence among the involved random variables.
    2. How to exploit prior information about causal structure to improve performance of machine learning algorithms.
- **M.Tech Seminar: Diverse Multiple Kernel Learning** (Jan'16 - May'16)
  *(Guide: **Prof. Saketha Nath**)*
  - Worked on a novel framework for enabling diversification of Kernels selected as part of Multiple Kernel Learning process.

Course Projects

- **TextJoin** (Sept'16 - May'17)
  *(Guide: **Prof. Soumen Chakrabarti**)*
  - Improved question answering over text, preferably without using a knowledge base.
  - Extraction, Scoring and Ranking of candidate entities based on evidence snippets extracted from multiple documents, supporting type and relationship specified in query.
  - Compiled a list of ~150 queries where current search engines perform poorly and built a preliminary system to provide ranked answer entities for those queries.
- **Implementation of Row Level Security in PostGreSQL** (Sept'15 - Nov'15)
  *(Guide: **Prof. S. Sudarshan**)*
  - Made changes in Postgresql source to implement row level security on relations.
  - Involved adding support for predicated grants implemented by query rewriting using views.
- **M.Tech R&D Project: Extractive Summarization of Hindi Documents** (July'16 - Nov'16)
  *(Guide: **Prof. Pushpak Bhattacharyya**)*
  - Explored if translation to English space and incorporating word/sentence embeddings can help improve summarization techniques.
  - Implemented TextRank algorithm for extracting most relevant sentences for summary.
  - Incorporated Hindi and English text embeddings for similarity scoring and ranking.

Industry Experience

- **Indian Institute of Technology Bombay , Maharashtra India** (Jan'20 - Jun'21)
  (Project Research Assistant)
- **Samsung R&D Institute India-Bangalore, Karnataka India** (Jul'17 - Aug'19)
  (Software Engineer)
- **Synopsys India Pvt. Ltd., Bangalore, Karnataka India** (Aug'13 - Jul'15)
  (R&D Engineer)

Technical Skills

- **Programming Languages**: C, C++, Python, Matlab
- **Tools and Libraries** : LaTeX, Hadoop, TensorFlow, PyTorch

Position of Responsibility

- **Teaching Assistant for following courses :**
  - **CS101: Computer Programming and Utilization** (July'15 - Dec'15)
  - **CS302-CS306: Implementation of Programming Languages** (Jan'16 - May'16)
  - **CS601: Algorithms & Complexity** (July'16 - Dec'16)
  - **CS152-CS156: Abstractions & Paradigms for Programming** (Jan'17 - May'17)
  - **CS768: Learning with Graphs** (July'21 - Dec'21)
  - **CS419M: Introduction to Machine Learning** (Jan'22 - ongoing)