RISHABH RANJAN

rishabhranjan0207@gmail.com +1 (650)-546-5853 rishabh-ranjan.github.io

Education

Doctor of Philosophy (Ph.D.) in Computer Science *2023 – present*
Stanford University

Bachelor of Technology (B.Tech.) in Computer Science and Engineering *2018 – 22*
Indian Institute of Technology Delhi CGPA **9.904**/10, Institute Rank **1**

Awards

- **School of Engineering Fellowship,** awarded to select first-year PhD students at Stanford *2023*
- **President's Gold Medal** for highest CGPA in graduating batch at IIT Delhi *2022*
- **Suresh Chandra Memorial Trust Award** for best undergrad thesis project in CS *2022*
- All India Rank **154** in **Joint Entrance Examination (Advanced)** among 200,000+ candidates *2018*
- **Certificate of Merit** for excellent performance in the **Indian National Mathematical Olympiad** *2017*

Papers

(* denotes equal contribution; ˆ denotes alphabetical ordering)

1. Matthias Fey*ˆ, Weihua Hu*ˆ, Kexin Huang*ˆ, Jan Eric Lenssen*ˆ, Rishabh Ranjan*ˆ, Joshua Robinson*ˆ, Rex Ying, Jiaxuan You, and Jure Leskovec. **Relational Deep Learning: Graph Representation Learning on Relational Databases.** *arXiv:2312.04615* [PDF] [Code] [Website]

2. Yatin Nandwani*, Rishabh Ranjan*, Mausam, and Parag Singla. **A solver-free framework for scalable learning in neural ILP architectures.** In *Advances in Neural Information Processing Systems (NeurIPS)*, December 2022 [PDF] [OpenReview] [Poster] [SlidesLive] [Code]

3. Rishabh Ranjan, Siddharth Grover, Sourav Medya, Venkatesan Chakaravarthy, Yogish Sabharwal, and Sayan Ranu. **GREED: A neural framework for learning graph distance functions.** In *Advances in Neural Information Processing Systems (NeurIPS)*, December 2022 [PDF] [OpenReview] [Poster] [SlidesLive] [Code]

4. Rishabh Ranjan, Ishita Agrawal, and Subodh Sharma. **Exploiting epochs and symmetries in analysing MPI programs.** In *Proceedings of the 37th IEEE/ACM International Conference on Automated Software Engineering (ASE)*, October 2022 [PDF] [Code]

Talks

1. **Exploiting symmetry for scalable deadlock detection in message passing programs** *2020*
IARCS SAT+SMT Workshop [Recording]

Internships

Learning under noisy data settings *Oct '22 – Aug '23*
Supervisor: *Prof. Zachary Lipton* *Carnegie Mellon University, Pittsburgh PA, USA*

- Curated noisy real-world *image*, *text*, *tabular* and *graph* datasets, with sources of noise other than label corruptions
- Conducted a large-scale study on the interplay of *overfitting* across *noise* levels with *calibration* and *ensembling*
- Uncovered surprising findings with important implications to *model selection* and *early stopping*, among others

Semantic Search in SmartTV via Natural Language Processing [Code] [Presentation] *May '21 – Jul '21*
Supervisor: *Jongjin Bae* *Samsung Electronics Co. Ltd., South Korea*

- Explored SOTA document retrieval techniques with language models like *BERT* and *RoBERTa*
- Integrated *HuggingFace* transformers with *ElasticSearch* via *Docker* containers into a prototype search engine
- Improved performance on *Mean Reciprocal Rank* metric by 20% over a strong baseline in *production* at the time

Academic Service

Reviewer, *Neural Information Processing Systems (NeurIPS), 2023*

External Reviewer, *Web Search and Data Mining (WSDM) 2023*

Selected Courses

Stanford. Machine Learning with Graphs

CMU. Philosophical Foundations of Machine Intelligence

IIT Delhi. Natural Language Processing, Deep Learning, Machine Learning, Artificial Intelligence, Data Mining, Linear Algebra, Probability and Stochastic Processes, Calculus, Language and Writing Skill