

RISHABH RANJAN

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EDUCATION

Doctor of Philosophy (Ph.D.) in Computer Science
Stanford University

2023 – present

Bachelor of Technology (B.Tech.) in Computer Science and Engineering
Indian Institute of Technology Delhi

2018 – 22
CGPA **9.904**/10, Institute Rank **1**

AWARDS

- **President's Gold Medal** for highest CGPA in graduating batch 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

PUBLICATIONS

1. 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]
2. 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]
3. 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 aleatoric uncertainty

Oct '22 – present

Supervisor: Prof. Zachary Lipton

Carnegie Mellon University, Pittsburgh PA, USA

- Curated a benchmark of *image*, *text*, *tabular* and *graph* classification datasets exhibiting aleatoric uncertainty
- 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

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