

Ashudeep Singh

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Education

- 2015-present **Ph.D. Computer Science**, Cornell University, Ithaca, NY.
Advisor: Thorsten Joachims
Relevant Courses: Machine Learning Theory, Advanced topics in Machine Learning, Design and Analysis of Algorithms, Causality and Learning for Intelligent Decision Making, Ethics and Policy in Data Science
Grade Point Average: 4.09
- 2010–2015 **B.Tech.-M.Tech. Dual Degree**, Indian Institute of Technology Kanpur, India.
M.Tech. Cumulative Performance Index (CPI)– 10/10
BTech. Cumulative Performance Index (CPI)– 9.6/10

Awards and Achievements

- 2015 **Ranked first** in the M.Tech. batch of 108 students graduating in 2015 at IIT Kanpur.
- 2011–2015 Awarded **Academic Excellence Award** for outstanding academic achievements at IIT Kanpur for four consecutive years.
- 2010–2014 Awarded **CBSE Merit Scholarship** for Professional Studies by Central Board of Secondary Education, India.
- 2012 Recipient of **Summer Undergraduate Research Grant for Excellence (SURGE)**, granted by Dean Resource Planning and Generation, IIT Kanpur.
- 2010 Awarded the **Certificate of Merit** in English for being in the top 0.1% students in the country for All India Senior School Certificate Examination.

Publications

Ashudeep Singh and Thorsten Joachims. **“Fairness of Exposure in Rankings”**. In KDD '18: The 24th ACM SIGKDD International Conference on Knowledge Discovery & Data Mining (SIGKDD), August 19–23, 2018, London, United Kingdom. ACM, New York, NY, USA [pdf]

Ashudeep Singh, Thorsten Joachims. **“Equality of Opportunity in Rankings”**. Workshop on Prioritising Online Content at NIPS 2017. [pdf]

Ashudeep Singh, Thorsten Joachims. **“Learning item embeddings using biased feedback”**. Causal Inference and Machine Learning for Intelligent Decision Making Workshop at NIPS 2017. [pdf]

Tobias Schnabel, Adith Swaminathan, Ashudeep Singh, Navin Chandak, Thorsten Joachims. **“Recommendations as Treatments: Debiasing Learning and Evaluation”** In Proceedings of The International Conference on Machine Learning (ICML), 2016. [pdf]

David Adamson, Akash Bharadwaj, Ashudeep Singh, Colin Ashe, David Yaron, Carolyn P. Rosé. **“Predicting Student Learning from Conversational Cues”**. In Proceedings of 12th International Conference of Intelligent Tutoring Systems (ITS), Honolulu, HI, USA, June, 2014. [pdf]

David Adamson, Divyanshu Bhartiya, Biman Gujral, Radhika Kedia, Ashudeep Singh, Carolyn P. Rosé. **“Automatically Generating Discussion Questions”**. In Proceedings of 16th International Conference of

Artificial Intelligence in Education (AIED), Memphis, TN, USA, July, 2013. [pdf]

Ongoing Projects

- 2017-ongoing **Fairness in Ranking**, *Research Project with Thorsten Joachims*.
Working on formulating the notion of fairness in ranking systems. We define *Equal Opportunity* constraints in terms of the exposure items from the protected groups get. We also propose how to train ML algorithms to satisfy them and concept of the cost of fairness.
- Aug 2017-ongoing **Active Multilabel classification**, *Mentoring two undergraduates—Pian Pawakapan and Junyoung Lim, for a research project advised by Thorsten Joachims*.
Building counterfactual estimator based learning methods to actively sample multilabel data alongside training the model

Research Internships

- May–August 2017 **Facebook, Menlo Park, CA**.
“**Active Learning for Multilabel Classification**”
Research internship project mentored by Khalid El-Arini (Feed Content Classification Team @ Newsfeed)
- May–August 2016 **Microsoft Research Lab, New York City, NY**.
“**Contextual Bandits for Personalization in fitness tracking applications**”
Research internship project mentored by John Langford (MSR NYC) and Ryen White (Microsoft Health Intelligence and MSR Redmond)
- May–July 2014 **Cornell University, Ithaca, NY**.
“**Using Preference Data to embed documents in Metric spaces**”
Research Project mentored by Prof. Thorsten Joachims (Cornell University)
- May–July 2013 **Carnegie Mellon University, Pittsburgh, PA**.
“**A Computational Model for Quantitative Discourse Analysis in a Collaborative Learning Setting**”
Research Project mentored by Prof. Carolyn P. Rosé (Language Technologies Institute, CMU)

Teaching

- **Teaching Assistant for CS4786: Machine Learning for Data Science** (Spring 2016)
Faculty Instructor: Prof. Karthik Sridharan (Cornell University)
- **Teaching Assistant for CS4780/5780 : Machine Learning for Intelligent Systems** (Fall 2015)
Faculty Instructor: Prof. Kilian Weinberger (Cornell University)
- **Teaching Assistant for CS679–Machine Learning for Vision** (Spring 2015)
Faculty Instructor: Prof. Vinay P. Namboodiri (IIT Kanpur)
- **Tutor (Graduate Student Instructor) for ESC101–Fundamentals of Computing** (Fall 2014)
Faculty Instructor: Prof. Amey Karkare (IIT Kanpur)

Positions of Responsibility and Extra Curricular Activities

- Coordinated the PhD Visit Day 2016 for Cornell Computer Science Department as the **Visit Day Czar** with other czars, department staff and volunteers. (2016)
- **Student Guide, Counselling Service, IIT Kanpur** (2011–12)
Guided freshmen for a year to adjust to the campus environment.
- **Academic Mentor, Counselling Service, IIT Kanpur** (2011–12)
Conducted remedial classes for subjects like Fundamentals of Computing & Mathematics-I,II
- **Link Student, Counselling Service, IIT Kanpur** (2012–13)
- **Member of Hall Executive Committee, Hall 9, IIT Kanpur** (2011–12)
- **Secretary, Hospitality Cell, Techkriti 2011** (2011).