

SURBHI GOEL

<http://www.cs.utexas.edu/~surbhi>

EDUCATION

University of Texas at Austin
MS/PhD in Computer Science
Advisor: Adam Klivans

August 2015 - present
GPA: 4.0/4.0

Indian Institute of Technology, Delhi
Bachelor of Technology
Department of Computer Science and Engineering

July 2011 - May 2015
Cum. GPA: 9.38 / 10.0
Major GPA: 9.55 / 10.0

RESEARCH INTERESTS

Theory, Machine Learning

PUBLICATIONS

Surbhi Goel, Sushrut Karmalkar, Adam Klivans. **Time/Accuracy Tradeoffs for Learning a ReLU with respect to Gaussian Marginals.** NeurIPS 2019 (*Spotlight*).

Surbhi Goel, Daniel Kane, Adam Klivans. **Learning Ising Models with Independent Failures.** COLT 2019.

Surbhi Goel, Adam Klivans. **Learning Neural Networks with Two Nonlinear Layers in Polynomial Time.** Short version: Deep Learning: Bridging Theory and Practice Workshop, NIPS 2017. Full version: COLT 2019.

Surbhi Goel, Adam Klivans, Raghu Meka. **Learning One Convolutional Layer with Overlapping Patches.** ICML 2018 (*Long Talk*).

Surbhi Goel, Adam Klivans. **Eigenvalue Decay Implies Polynomial-Time Learnability for Neural Networks.** NeurIPS 2017.

Surbhi Goel, Varun Kanade, Adam Klivans, Justin Thaler. **Reliably Learning ReLU in Polynomial Time.** Short Version: Workshop on Optimization for Machine Learning, NIPS 2016 (*Oral Presentation*). Full Version: COLT 2017.

WORKING PAPERS

Surbhi Goel. **Learning Restricted Boltzmann Machines with Arbitrary External Fields.**

Surbhi Goel, Rina Panigrahy. **Recovering the Lowest Layer of Deep Networks.**

Simon Du, Surbhi Goel. **Improved Learning of One-hidden-layer Convolutional Neural Networks with Overlaps.**

Jessica Hoffmann, Soumya Basu, Surbhi Goel, Constantine Caramanis. **Disentangling Mixtures of Epidemics on Graphs.**

Matt Jordan, Naren Manoj, Surbhi Goel, Alex Dimakis. **Quantifying Perceptual Distortion of Adversarial Examples.**

WORK EXPERIENCE

- Simons Institute for Theory of Computing, Berkeley CA** May - Aug 2019
· *Research Fellow*
- Google, Mountain View CA** May - Aug 2018
Research Intern Supervisor: *Rina Panigrahy*
· Worked with the Research and Machine Intelligence team on theoretically understanding the recovery of lower level layers in neural networks.
- Dell, Round Rock TX** June - Aug 2017
Research Intern
· Worked with the Acoustics team to develop machine learning models for predicting throughput in the presence of acoustic and vibration noise.
- Google, New York, NY** May - Aug 2016
Research Intern Supervisor: *Natalia Ponomareva*
· Worked with the Research and Machine Intelligence team to design algorithms for classification tasks on unbalanced datasets.
- Google, Mountain View CA** May - Aug 2014
Software Engineering Intern Supervisor: *Neha Jha*
· Designed and implemented an automated bidding model for hotel advertisements.
- University of Michigan, Ann Arbor MI** May - July 2013
Research Scholar Supervisor: *Atul Prakash*
· Worked on automating test case generation for an autograder.

TEACHING EXPERIENCE

- University of Texas at Austin** Spring 2016
· *Course: Distributed Computing (Hons.)*
- University of Texas at Austin** Fall 2015
· *Course: Data Structures*
- Indian Institute of Technology Delhi** Spring 2015
· *Course: Data Structures*

TALKS

- Learning Neural Networks with Two Nonlinear Layers in Polynomial Time** 2019
· *COLT*
- Learning Ising Models with Independent Failures** 2019
· *COLT, Research Fellows Talk at Simons Institute*
- Efficiently Learning Simple Convolutional Networks** 2018
· *China Theory Week*
- Learning One Convolutional Layer with Overlapping Patches** 2018
· *Google Research Theory Reading Group, ICML*

REVIEWING

COLT 2018, NeurIPS 2018 (top 30%), ICLR 2019, STOC 2019, ICML 2019 (top 5%), COLT 2019, ICLR 2020

SCHOLASTIC ACHIEVEMENTS

- 2019 Rising Stars in ML
- 2019 Rising Stars in EECS
- 2019 Graduate Dean's Prestigious Fellowship Supplement
- 2019 J.P. Morgan AI PhD Fellowship
- 2019 Simons-Berkeley Research Fellowship for Foundations of Deep Learning.
- 2018 University of Texas at Austin Graduate Continuing Bruton Fellowship
- 2017 University of Texas at Austin Graduate School Summer Fellowship
- 2016-19 Professional Development Award for travel to NeurIPS, COLT, ICML
- 2015 ICIM Stay Ahead Award for Undergraduate Thesis
- 2015 Suresh Chandra Memorial Trust Award for Undergraduate Thesis
- 2014 Google Grant for Grace Hopper Celebration of Women in Computing
- 2011-15 Aditya Birla Scholarship awarded to 12 students from all over India
- 2011 OPJEM Scholarship awarded to 1 out of 850 students in the batch
- 2011 All India Rank 37 (second in girls) in IITJEE among 450,000 students
- 2010-11 National Mathematics Olympiad finalist, IMO training camp attendee
- 2010-11 KVPY Fellowship awarded to 250 from all over India pursuing science