

## Chen Dan

PhD Student, Department of Computer Science, Carnegie Mellon University

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- Research** My research interest is in learning theory and optimization, with a focus on:
- Adversarial Robustness
  - Statistical Learning Theory
  - Combinatorial/Non-convex optimization
- Education** **Carnegie Mellon University, Computer Science Department** Aug 2016 - Present  
*Ph.D in Computer Science*
- **Advisor:** Prof. Pradeep Ravikumar
  - **Courses:** Advanced Introduction to Machine Learning; A Theorist's Toolkit; Statistical Learning Theory; Multimedia Database and Data Mining; Convex Optimization; Graduate Artificial Intelligence; Computer Architecture; Statistics Meets Optimization: Randomized Sketching Methods
  - **Teaching:** Teaching assistant for Convex Optimization (Fall 2019).  
Instructor: Ryan Tibshirani.
- Toyota Technological Institute at Chicago** May 2018 - Aug 2018  
*Visiting Student*
- **Host:** Prof. Avrim Blum
- Peking University, School of EECS** Sep 2012 - July 2016  
*Bachelor of Science in Machine Intelligence*
- **Bachelor Thesis:** *On Low Rank Approximation of Binary Matrices*,  
**Top 10 Bachelor Thesis Award** in EECS, PKU  
Thesis Advisor: Prof. Liwei Wang
  - **Awards:**
    - Top 10 Bachelor Thesis Award in School of EECS, 2016  
(10/320 in School of EECS, 1/46 in Department of Machine Intelligence)
    - Outstanding Undergraduate Research Award - Second Prize, 2015  
(3/320 in School of EECS, 1/46 in Department of Machine Intelligence)
    - May Fourth Scholarship, 2015
    - 8508 Alumni Scholarship, 2014
    - Suzhou Industrial Park Scholarship, 2013
- Publications** \* Alphabetical Order or Equal Contribution
1. **Chen Dan**, Hong Wang\*, Hongyang Zhang\*, Yuchen Zhou\*, Pradeep Ravikumar  
**Optimal Analysis of Subset-Selection Based  $L_p$  Low Rank Approximation**  
*33rd Conference on Neural Information Processing Systems (NeurIPS 2019) arXiv 1910.13618*
  2. **Chen Dan**, Liu Leqi, Bryon Aragam, Pradeep Ravikumar, Eric P. Xing,  
**The Sample Complexity of Semi-Supervised Learning with Nonparametric Mixture Models**  
*32nd Conference on Neural Information Processing Systems (NeurIPS 2018), arXiv 1809.03073*

3. Bryon Aragam, **Chen Dan**, Pradeep Ravikumar, Eric Xing,  
**Identifiability of Nonparametric Mixture Models and Bayes Optimal Clustering**,  
*Annals of Statistics 2019*, *arXiv 1802.04397*
4. Haris Angelidakis\*, Pranjali Awasthi\*, Avrim Blum\*, Vaggos Chatziafratis\*, **Chen Dan\***  
**Bilu-Linial Stability, Certified Algorithms and the Independent Set Problem**  
*27th Annual European Symposium on Algorithms (ESA 2019)*, *arXiv 1810.08414*
5. **Chen Dan**, Kristoffer Arnsfelt Hansen, He Jiang, Liwei Wang and Yuchen Zhou,  
**On Low Rank Approximation of Binary Matrices**  
*43rd International Symposium on Mathematical Foundations of Computer Science (MFCS 2018)*, *arXiv 1511.01699*
6. Runtian Zhai, Tianle Cai, Di He, **Chen Dan**, Kun He, John Hopcroft, Liwei Wang,  
**Adversarially Robust Generalization Just Requires More Unlabeled Data**  
*in submission*, *arXiv 1906.00555*
7. Xun Zheng, **Chen Dan**, Bryon Aragam, Pradeep Ravikumar, Eric P. Xing  
**Learning Sparse Nonparametric DAGs**  
*in submission*, *arXiv 1909.13189*
8. **MACER: Attack-free and Scalable Robust Training via Maximizing Certified Radius**  
*in submission to ICLR 2020*

**Services**      Reviewer for NeurIPS 2019 (Top 50% reviewer), SODA 2019, ITCS 2019.

**Skills**      C/C++, Matlab, Python, LaTeX