Chen Dan
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Research

My research interest is in learning theory and optimization, with a focus on:

- Statistical Learning Theory
- Adversarial Robustness
- 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; Coumpter 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**, Yuting Wei, Pradeep Ravikumar
   Sharp Statistical Guarantees for Adversarially Robust Gaussian Classification
   37th International Conference on Machine Learning (ICML 2020)
2. Ziyu Neil Xu, **Chen Dan**, Justin Khim, Pradeep Ravikumar
   Class-Weighted Classification: Trade-offs and Robust Approaches
   37th International Conference on Machine Learning (ICML 2020), arXiv 2005.12914

3. Runtian Zhai*, **Chen Dan***, Di He*, Huan Zhang, Boqing Gong, Pradeep Ravikumar, Cho-Jui Hsieh, Liwei Wang
MACER: Attack-free and Scalable Robust Training via Maximizing Certified Radius
2020 International Conference on Learning Representations (ICLR 2020), arXiv:2001.02378
4. Xun Zheng, **Chen Dan**, Bryon Aragam, Pradeep Ravikumar, Eric P. Xing
Learning Sparse Nonparametric DAGs
23rd International Conference on Artificial Intelligence and Statistics (AISTATS 2020), arXiv 1909.13189
5. **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
6. **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
7. Bryon Aragam, **Chen Dan**, Pradeep Ravikumar, Eric Xing,
Identifiability of Nonparametric Mixture Models and Bayes Optimal Clustering,
Annals of Statistics 2019, arXiv 1802.04397
8. Haris Angelidakis*, Pranjal 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
9. **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
10. 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
11. Avrim Blum, **Chen Dan***, Saeed Seddighin
Learning Complexity of Simulated Annealing
in submission, arXiv 2003.02981

Services Reviewer for NeurIPS 2020, ICML 2020, NeurIPS 2019 (Top 50% reviewer), SODA 2019, ITCS 2019.

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