Yuxin Sun

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Professional Experience

Aarhus University, Denmark September 2024 -
- Postdoc Researcher, Department of Computer Science
- Supervisor: Kasper Green Larsen

Education Background

University of Wisconsin - Madison, WI, United States August 2017 - August 2024
- Ph.D., Department of Computer Sciences
- Advisor: Ilias Diakonikolas
- Final GPA: 3.94/4.0

Nanjing University, Jiangsu, China September 2013 - June 2017
- B.S. Department of Computer Science and Technology (**with honors**)
- Final GPA: 91/100 (**rank** 1^{st})

Achievement & Awards

- **World Finalist** **2018**
  The 42nd ACM International Collegiate Programming Contest (ICPC).
- **Second Place** **2017**
  The 42nd ACM International Collegiate Programming Contest (ICPC) North Central North America Regional contest.
- **Gold Medal** **2016**
  The 2nd China Collegiate Programming Contest (CCPC) Changchun site.
- **Gold Medal** **2015**
  The 40th ACM International Collegiate Programming Contest (ICPC) Asia Regional Contest Shenyang site.
- **Outstanding Prize** (top1) **2014, 2015**
  National Elite Program Scholarship, Nanjing University.
- **Bronze Medal** in NOI 2012 **2012**
  Third prize in Chinese National Olympiads in Informatics. (Top 250 among all Chinese high school students.)

Research Interests

My PhD thesis focuses on theoretical foundation of machine learning, primarily in developing efficient algorithms for fundamental problems in data science with provable guarantees, especially in settings where the data might be heterogeneous or contaminated. Recently, I am interested in applications of algorithmic robustness in machine learning and generative AI.

Publications

Authors are listed in **alphabetical order** *following the convention of machine learning theory.*

1. Ilias Diakonikolas, Daniel M. Kane, **Yuxin Sun**, "SQ Lower Bounds for Learning Mixtures of Linear Classifiers". *Neural Information Processing Systems (NeurIPS), 2023.*
2. Ilias Diakonikolas, Daniel M. Kane, Lisheng Ren, **Yuxin Sun**, "SQ Lower Bounds for Non-Gaussian Component Analysis with Weaker Assumptions". *Neural Information Processing Systems (NeurIPS), 2023.*

3. Ilias Diakonikolas, Daniel M. Kane, Lisheng Ren, **Yuxin Sun**, "SQ Lower Bounds for Learning Single Neurons with Massart Noise", *Neural Information Processing Systems (NeurIPS), 2022.*
4. Ilias Diakonikolas, Daniel M. Kane, **Yuxin Sun**, "Optimal SQ Lower Bounds for Robustly Learning Discrete Product Distributions and Ising Models", *Conference on Learning Theory (COLT), 2022.*
5. Ilias Diakonikolas, Daniel M. Kane, Alistair Stewart, **Yuxin Sun**, "Outlier-Robust Learning of Ising Models Under Dobrushin's Condition", *Conference on Learning Theory (COLT), 2021.*
6. Shuai Shao, **Yuxin Sun**, "Contraction: a Unified Perspective of Correlation Decay and Zero-Freeness of 2-Spin Systems", *Journal of Statistical Physics (2021). Preliminary version appeared in Proceedings of International Colloquium on Automata, Languages and Programming (ICALP), 2020.*
7. Weiming Feng, **Yuxin Sun**, Yitong Yin, "What can be sampled locally?", *Distributed Computing (2018). Preliminary version appeared in Proceedings of ACM Symposium on Principles of Distributed Computing (PODC), 2017.*

Teaching

Department of Computer Sciences, University of Wisconsin - Madison

- *CS 400* ***Fall 2018***
  Programming III: *Teaching Assistant*
- *CS 520* ***Spring 2019***
  Introduction to the Theory of Computing: *Teaching Assistant*
- *CS 540* ***Fall 2022***
  Introduction to Artificial Intelligence: *Teaching Assistant*
- *CS 577* ***Fall 2017, Spring 2018, Summer 2019, Fall 2019, Spring 2020***
  Introduction to Algorithms: *Teaching Assistant*
- *CS 639* ***Fall 2020***
  Introduction to Computational Learning Theory: *Teaching Assistant*

Service

Conference reviewer: NeurIPS'21, ICML'22, ICALP'22, COLT'22, ICLR'24, STOC'24

Student Coach for the UW-Madison ACM-ICPC teams, Fall 2019

- Organize practice contests for UW-Madison ACM-ICPC teams, including designing problem sets and leading solution discussions.

Invited Talks

SQ Lower Bounds for Learning Mixtures of Linear Classifiers
- Neural Information Processing Systems (NeurIPS), virtual, 2023

SQ Lower Bounds for Learning Single Neurons with Massart Noise
- Neural Information Processing Systems (NeurIPS), virtual, 2022

Optimal SQ Lower Bounds for Robustly Learning Discrete Product Distributions and Ising Models
- Conference on Learning Theory (COLT), virtual, 2022

On Outlier Robust Learning of Ising Models
- MLOPT Idea Seminar at UW-Madison, virtual, 2022

Outlier-Robust Learning of Ising Models Under Dobrushin's Condition
- Conference on Learning Theory (COLT), virtual, 2021

Programming Languages	Python, Latex, Matlab, C++