

Lingxiao Wang

206-422-3734 | lingxw@cs.ucla.edu | <http://web.cs.ucla.edu/~lingxw>
Department of Computer Science, University of California, Los Angeles
EVI 295, 404 Westwood Plaza, Los Angeles, CA 90095

RESEARCH INTERESTS

Machine Learning, Privacy-Preserving Machine Learning, Deep Learning, Federated/Distributed Optimization, Nonconvex Optimization, Low-rank Matrix Factorization, High-Dimensional Statistics

EDUCATION

University of California, Los Angeles (UCLA) <i>Ph.D. candidate in Computer Science</i>	CA, USA 2018 – Present
University of Virginia (UVA) <i>Ph.D. student in Computer Science</i>	VA, USA 2016 – 2018
University of Washington (UW) <i>Master of Science in Statistics</i>	WA, USA 2014 – 2016
University of Science and Technology Beijing (USTB) <i>Bachelor of Science in Mathematics and Applied Mathematics</i>	Beijing, China 2010 – 2014

RESEARCH EXPERIENCE

JD.COM Silicon Valley Research Center <i>Research Intern (Mentor: Jing Huang)</i>	June 2019 – Sep. 2019
<ul style="list-style-type: none">Improving the neural language model for language generation and machine translationPaper has been accepted by ICLR 2020	
Department of Computer Science, UCLA	2018 – Present
Department of Computer Science, UVA <i>Research Assistant (Advisor: Quanquan Gu)</i>	2016 – 2018

TEACHING EXPERIENCE

Teaching Assistant CS118: Computer Network Fundamentals (Undergrad)	Fall 2020 UCLA
Teaching Assistant SYS 4582/6016: Machine Learning (Grad)	Spring 2017 UVA
Teaching Assistant SYS 3062: Discrete Event Simulation (Undergrad)	Spring 2017 UVA

PUBLICATIONS

(* indicates equal contribution)

- [1] Bargav Jayaraman, **Lingxiao Wang**, Katherine Knipmeyer, Quanquan Gu, David Evans, Revisiting Membership Inference Under Realistic Assumptions, 21st Privacy Enhancing Technologies Symposium (**PETS**), 2021.
- [2] Fabrice Harel-Canada, **Lingxiao Wang**, Muhammad Ali Gulzar, Quanquan Gu, Miryung Kim, Is Neuron Coverage a Meaningful Measure for Testing Deep Neural Networks?, in Proc. of the ACM SIGSOFT International Symposium on the Foundations of Software Engineering (**ESEC/FSE**), 2020.
- [3] Bao Wang, Quanquan Gu, March Boedihardjo, **Lingxiao Wang**, Farzin Barekat, Stanley J. Osher, DP-LSSGD: A Stochastic Optimization Method to Lift the Utility in Privacy-Preserving ERM, in Proc. of the Mathematical and Scientific Machine Learning Conference (**MSML**), 2020.
- [4] **Lingxiao Wang**, Jing Huang, Kevin Huang, Ziniu Hu, Guangtao Wang, Quanquan Gu, Improving Neural Language Generation with Spectrum Control, in Proc. of the 8th International Conference on Learning Representations (**ICLR**), 2020.

- [5] **Lingxiao Wang**, Quanquan Gu, A Knowledge Transfer Framework for Differentially Private Sparse Learning, in Proc. of the 34th AAAI Conference on Artificial Intelligence (**AAAI**), 2020. ([Oral presentation](#))
- [6] **Lingxiao Wang**, Quanquan Gu, Differentially Private Iterative Gradient Hard Thresholding for Sparse Learning, in Proc. of the 28th International Joint Conference on Artificial Intelligence (**IJCAI**), 2019.
- [7] Xiao Zhang*, Yaodong Yu*, **Lingxiao Wang***, Quanquan Gu, Learning One-hidden-layer ReLU Networks via Gradient Descent, in Proc. of the 22nd International Conference on Artificial Intelligence and Statistics (**AISTATS**), 2019.
- [8] Bargav Jayaraman, **Lingxiao Wang**, David Evans, Quanquan Gu, Distributed Learning without Distress: Privacy-Preserving Empirical Risk Minimization, in Proc. of the 31st Advances in Neural Information Processing Systems (**NeurIPS**), 2018.
- [9] Jinghui Chen, Pan Xu, **Lingxiao Wang**, Jian Ma, Quanquan Gu, Covariate Adjusted Precision Matrix Estimation via Nonconvex Optimization, in Proc. of the 35th International Conference on Machine Learning (**ICML**), 2018.
- [10] Xiao Zhang*, **Lingxiao Wang***, Yaodong Yu, Quanquan Gu, A Primal-Dual Analysis of Global Optimality in Nonconvex Low-Rank Matrix Recovery, in Proc. of the 35th International Conference on Machine Learning (**ICML**), 2018.[\[Talk\]](#)
- [11] Xiao Zhang*, **Lingxiao Wang***, Quanquan Gu, A Unified Framework for Nonconvex Low-Rank plus Sparse Matrix Recovery, in Proc. of the 21st International Conference on Artificial Intelligence and Statistics (**AISTATS**), 2018.
- [12] Rongda Zhu, **Lingxiao Wang**, Chengxiang Zhai, Quanquan Gu, Variance-Reduced Stochastic Gradient High-dimensional Expectation-Maximization Algorithm, in Proc. of the 34th International Conference on Machine Learning (**ICML**), 2017.[\[Talk\]](#)
- [13] **Lingxiao Wang***, Xiao Zhang*, Quanquan Gu, A Unified Variance Reduction-Based Framework for Nonconvex Low-Rank Matrix Recovery, in Proc. of the 34th International Conference on Machine Learning (**ICML**), 2017.
- [14] **Lingxiao Wang**, Quanquan Gu, Robust Gaussian Graphical Model Estimation with Arbitrary Corruption, in Proc. of the 34th International Conference on Machine Learning (**ICML**), 2017.[\[Talk\]](#)
- [15] **Lingxiao Wang***, Xiao Zhang*, Quanquan Gu, A Unified Computational and Statistical Framework for Nonconvex Low-Rank Matrix Estimation, in Proc. of the 20th International Conference on Artificial Intelligence and Statistics (**AISTATS**), 2017.
- [16] **Lingxiao Wang**, Xiang Ren, Quanquan Gu, Precision Matrix Estimation in High Dimensional Gaussian Graphical Models with Faster Rates, in Proc. of the 19th International Conference on Artificial Intelligence and Statistics (**AISTATS**), 2016.

PREPRINTS & WORKSHOPS

- [1] Difan Zou, **Lingxiao Wang**, Pan Xu, Jinghui Chen, Weitong Zhang, Quanquan Gu, Epidemic Model Guided Machine Learning for COVID-19 Forecasts in the United States, medRxiv: 2020.05.24.20111989, 2020.
- [2] **Lingxiao Wang**, Bargav Jayaraman, David Evans, Quanquan Gu, Efficient Privacy-Preserving Stochastic Nonconvex Optimization, ICML 2020 EcoPaDL workshop.
- [3] Jinghui Chen, **Lingxiao Wang**, Xiao Zhang, Quanquan Gu, Robust Wirtinger Flow for Phase Retrieval with Arbitrary Corruption, arXiv:1704.06256, 2017.

TALKS AND PRESENTATIONS

Invited Talks:

- **How to Preserve Privacy in Data Analysis?**
Rising Stars in Data Science Workshop, hosted by UChicago, Jan 2021
- **Efficient Privacy-Preserving Stochastic Nonconvex Optimization**
ICML 2020 EcoPaDL Workshop, Online, July 2020
- **Improving Neural Language Generation with Spectrum Control**
JD.COM Silicon Valley Research Center, September 2019

- **Low-rank Matrix Recovery: from Theory to Applications**
Image Processing Seminar, University of Virginia, March 2017

Conference Presentations:

- **Improving Neural Language Generation with Spectrum Control**
International Conference on Learning Representations, Online, April 2020
- **A Knowledge Transfer Framework for Differentially Private Sparse Learning**
AAAI Conference on Artificial Intelligence, New York, USA, February 2020
- **A Primal-Dual Analysis of Global Optimality in Nonconvex Low-Rank Matrix Recovery**
International Conference on Machine Learning, Stockholm, Sweden, July 2018
- **Variance-Reduced Stochastic Gradient High-dimensional Expectation-Maximization Algorithm**
International Conference on Machine Learning, Sydney, Australia, July 2017
- **Robust Gaussian Graphical Model Estimation with Arbitrary Corruption**
International Conference on Machine Learning, Sydney, Australia, July 2017

HONORS AND AWARDS

- Rising Stars in Data Science 12/2020
- UCLA Graduate Division Fellowship 09/2020
- NuerIPS 2018 Student Travel Award 12/2018
- ICML 2018 Student Travel Award 07/2018
- ICML 2017 Student Travel Award 08/2017
- National Scholarship, Ministry of Education of China 2012

PROFESSIONAL SERVICES

Conference Reviewer/Program Committee:

- International Conference on Machine Learning (ICML)
- Neural Information Processing Systems (NeurIPS)
- International Conference on Learning Representations (ICLR)
- International Conference on Artificial Intelligence and Statistics (AISTATS)
- AAAI Conference on Artificial Intelligence (AAAI)
- International Joint Conference on Artificial Intelligence (IJCAI)
- Asia Conference on Machine Learning (ACML)
- IEEE International Conference on Big Data (BigData)

Journal Reviewer:

- IEEE Transactions on Signal Processing (TSP)
- IEEE Journal of Selected Topics in Signal Processing (STSP)
- IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)
- IEEE Transactions on Neural Networks and Learning Systems (TNNLS)
- IEEE Access
- PLOS ONE

PROJECTS

Combating COVID-19 using Machine Learning (covid19.uclaml.org)

- We use a machine learning based epidemic model to forecast the spread of COVID-19 and provide guidance to policy makers. Our model is used in the official forecast by Centers for Disease Control and Prevention (CDC), California Department of Public Health (CDPH).
- Media coverage: UCLA Newsroom, FiveThirtyEight, TPM, POLITICO, CBS News 8

MENTORING

Master students: Guanqun Yang (Master at UCLA)

Undergraduate students: Yewen Wang (Undergraduate at Tsinghua University, now PhD at UCLA)