Liwei Jiang

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Education

Cornell University — Ithaca, NY
PhD in Operations Research — Sep 2019 – Jun 2024 (Expected)
Advisor: Professor Damek Davis
School of Operations Research and Information Engineering

Nanjing University — Nanjing, China
BS in Statistics — Sep 2015 – Jun 2019
Department of Mathematics

University of Wisconsin-Madison — Madison, WI
Exchange student — Jan 2018 – Dec 2018
Department of Mathematics

Research interests

I am broadly interested in the mathematics of data science, particularly the beautiful interplay of optimization, geometry, statistics, and machine learning.

Honors and scholarships

The Hsien Wu and Daisy Yen Wu Scholarship, Cornell — 2023
Teaching Assistant of the Year, Cornell ORIE — 2022
Teaching Assistant of the Year, Cornell ORIE — 2021
National Scholarship, China — 2016

Journal publications

Algorithmic regularization in model-free overparametrized asymmetric matrix factorization
Liwei Jiang, Yudong Chen, Lijun Ding
SIAM Journal on Mathematics of Data Science (SIMODS), 2023

On the translates of general dyadic systems on R
Theresa C Anderson*, Bingyang Hu*, Liwei Jiang*, Connor Olson*, Zeyu Wei*
Mathematische Annalen, 2020

Conference papers

Rank overspecified robust matrix recovery: subgradient method and exact recovery
Lijun Ding*, Liwei Jiang*, Yudong Chen, Qing Qu, Zhihui Zhu
Neural Information Processing Systems Conference (NeurIPS), 2021

Preprints

A nearly linearly convergent first-order method for nonsmooth functions with quadratic growth
Damek Davis*, Liwei Jiang*

preprint, 2022. Under second round review at Foundations of Computational Mathematics. Available on arxiv.

Asymptotic normality and optimality in nonsmooth stochastic approximation
Damek Davis*, Dmitriy Drusvyatskiy*, Liwei Jiang*
preprint, 2023. Major revision at The Annal of Statistics. Available on arxiv.

Active manifolds, stratifications, and convergence to local minima in nonsmooth optimization
Damek Davis*, Dmitriy Drusvyatskiy*, Liwei Jiang*
preprint, 2022. Submitted to Foundations of Computational Mathematics. Available on arxiv.

A validation approach to over-parameterized matrix and image recovery
with Lijun Ding, Zhen Qin, Jinxin Zhou, Zhihui Zhu
preprint, 2022. Available on arxiv.

Teaching experience

Teaching assistant, Department of Operations Research (Cornell)

ORIE 6300: Mathematical Programming	2023 Fall
ORIE 3500/5500: Probability and Statistics II	2021 Fall
ORIE 3510/5510: Stochastic Process	2020 Spring
ORIE 3500/5500: Probability and Statistics II	2020 Fall
ORIE 4600/5600: Intro to Financial Engineering	2020 Spring
ORIE 3500/5500: Probability and Statistics II	2019 Fall

Teaching assistant, Department of Mathematics (Cornell)

Math 2940: Linear Algebra for Engineers	2023 Spring
Math 2940: Linear Algebra for Engineers	2022 Fall
Math 2940: Linear Algebra for Engineers	2022 Spring

Industry experience

Amazon, Research Scientist Intern Jun 2023 - Aug 2023
For huge-scale inventory planning problems at Amazon, I helped design and implement distributed primal-dual algorithms to obtain optimized buying plans using production data.

Talks

Asymptotic normality in nonsmooth optimization
Informs, 10/2023
Cornell Young Researcher Workshop (speaker), 10/2023

Subgradient methods avoid strict saddle point
SIAM Conference on Optimization, 6/2023
International Conference on Continuous Optimization, 7/2022

Rank overspecified robust matrix recovery: Subgradient method and exact recovery
Neural Information Processing Systems (virtual), 12/2021
Informs, 10/2021

Service

Reviewing
Operations Research, Mathematics of Operations Research, Information and Inference: A Journal of the IMA

Diversity
Cornell ORIE PhD application support for underrepresented students, 2020
Cornell ORIE PhD application support for underrepresented students, 2021

Skills

Programming
Proficient in: Python (experience working with PyTorch and language models), Matlab, Java, LaTeX.

Languages
Mandarin (native), English (fluent)

References

Damek Davis: dsd95@cornell.edu.
Yudong Chen: yudong.chen@wisc.edu
Adrian Lewis: adrian.lewis@cornell.edu
Katya Scheinberg: katyas@cornell.edu