Dawei Li

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Working Experience

The University of Chicago, Booth School of Business 2022.9 - Present
Postdoctoral Principle Researcher

Supervisor: Prof. Barış Ata

Education

University of Illinois at Urbana-Champaign 2017.8 - 2022.8
PhD Candidate in Industrial Engineering.
Advisor: Prof. Ruoyu Sun
Overall GPA: 4.0/4.0

Peking University, School of Mathematical Sciences 2013.9-2017.7
Bachelor of Science, Honored Program in Applied Mathematics

Peking University, Nation School of Development 2014.9-2017.7
B.A. Economics

The Chinese University of Hong Kong, Shenzhen 2018.5-2018.8, 2019.6-2019.8, 2021.4-2021.7
Visiting Student

Research Interest

Computational Methods for Solving High-dimensional Stochastic Control Problems, Scientific Machine Learning, Non-convex Optimization, Learning Theory and its Applications, Adaptive Optimization Algorithms.

Publications

Journal Publications

[1]. **Dawei Li**, Tian Ding, Ruoyu Sun. On the Benefit of Width for Neural Networks: Disappearance of Bad Basins. *SIAM Journal on Optimization, 2022, 32(3): 1728-1758.*

[2]. Tian Ding*, **Dawei Li***, Ruoyu Sun. Suboptimal Local Minima Exist for Wide Neural Networks with Smooth Activations. *Mathematics of Operations Research, 2022, 47(4): 2784-2814.*

[3]. Ruoyu Sun, **Dawei Li**, Shiyu Liang, Tian Ding, R Srikant. The global landscape of neural networks: An overview. *IEEE Signal Processing Magazine, 2020, 37(5): 95-108.*

Conference Proceedings

[1]. Yite Wang, **Dawei Li**, Ruoyu Sun. NTK-SAP: Improving neural network pruning by aligning training dynamics. In *International Conference on Learning Representations*, 2023.

[2]. Naichen Shi, **Dawei Li**, Mingyi Hong, Ruoyu Sun. RMSProp Converges with Proper Hyper-parameter. In *International Conference on Learning Representations* (Spotlight), 2021.

(* indicates equal contribution)

Preprints

[1]. **Dawei Li**, Ruoyu Sun. On a Faster R-Linear Covergence Rate of the Barzilai-Borwein Method. Preprint.

Working Papers and Projects

[1]. Barış Ata, J. Michael Harrison, **Dawei Li**. Brownian bandits.

Talks and Poster Presentations

[1] "RMSProp Converges with Proper Hyper-parameter", International Conference on Learning Representations (Poster session), May 2021.

[2] "RMSProp Converges with Proper Hyper-parameter", CSL Student Conference (Poster session), Feb 2021.

[3] "Over-parameterized deep neural networks have no strict local minima for any continuous activations", Peking University, Jan 2019.

Service

Reviewer for ICML, NeurIPS, ICLR, AISTATS, Journal of Scientific Computing.

Outstanding reviewer award for NeurIPS 2021.

Teaching

IE 300: Analysis of Data   Fall 2019
Teaching assistant

IE 510: Applied Nonlinear Programming   Spring 2020
Teaching assistant

Computing Skills

Python, MATLAB, Lingo

Courses Taken

Numerical Analysis, Linear Programming, Applied Nonlinear Programming, Convex Optimization, Big Data Optimization, Optimization for Deep Learning, Queuing Theory, Game Theory, Information Theory, Online Learning, Interplay between Control and Machine Learning

Honors and awards

- Peking University, Kwang-Hua Scholarship, 2015.
- Peking University, Sumitomo Corporation Scholarship, 2014.
- First Prize, 28th Chinese Mathematical Olympiad in Senior(CMO), 2013
- First Prize, National Mathematical Olympiad in Senior, 2010-2012.

References

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