

DAWEI LI

li004678@umn.edu • +1-2173050069 • dawei95.github.io

WORKING EXPERIENCE

University of Minnesota Postdoc Researcher Supervisor: Prof. Mingyi Hong	2026.6–present
University of Minnesota Visiting Researcher	2025.11–2026.5
The University of Chicago, Booth School of Business Postdoctoral Principal Researcher	2022.9–2025.8

EDUCATION

University of Illinois at Urbana-Champaign PhD Candidate in Industrial Engineering Advisor: Prof. Ruoyu Sun Overall GPA: 4.0/4.0	2017.8–2022.8
Peking University, School of Mathematical Sciences Bachelor of Science, Honored Program in Applied Mathematics	2013.9–2017.7
Peking University, National School of Development B.A. Economics	2014.9–2017.7
The Chinese University of Hong Kong, Shenzhen Visiting Student	2018.5–2018.8, 2019.6–2019.8, 2021.4–2021.7

RESEARCH INTEREST

Optimization:
Non-convex Optimization, Adaptive Optimization Algorithms.
Deep Learning:
Deep Learning Theory.

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.
- [4]. **Dawei Li**, Ruoyu Sun. On a Faster R-Linear Convergence Rate of the Barzilai-Borwein Method. To appear in *Journal of Computational Mathematics*.

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]. Zijian Zhang, Rizhen Hu, Athanasios Glentis, **Dawei Li**, Chung-Yiu Yau, Hongzhou Lin, Mingyi Hong. Is One Layer Enough? Training A Single Transformer Layer Can Match Full-Parameter RL Training. Preprint.
- [2]. Tian Ding, **Dawei Li**, Ruoyu Sun. A Geometric Characterization of the Stationary Plateau for Two-Layer Neural Networks. Preprint.

- [3]. Chung-Yiu Yau, **Dawei Li**, Athanasios Glentis, Valentyn Boreiko, Hoi-To Wai, Mingyi Hong. EMA-Nesterov: Stabilizing Nesterov’s Lookahead for Accelerated Deep Learning Optimization. Preprint.
- [4]. Athanasios Glentis, **Dawei Li**, Chung-Yiu Yau, Mingyi Hong. Revisiting the Adam-SGD Gap in LLM Pre-Training: The Role of Large Effective Learning Rates. Preprint.

WORKING PAPERS AND PROJECTS

- [1]. **Dawei Li**, Xiaotian Jiang, Mingyi Hong. Barzilai–Borwein Fails Superlinear Convergence on an Open Set of Quadratics for Every Dimension $n \geq 4$.

HONORS AND AWARDS

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

TALKS AND POSTER PRESENTATIONS

- [1]. “Landscape Evolution of Neural Networks Through the Lens of Neuron Splitting”, INFORMS 2024 Annual Meeting, Oct 2024.
- [2]. “RMSProp Converges with Proper Hyper-parameter”, International Conference on Learning Representations (Poster session), May 2021.
- [3]. “RMSProp Converges with Proper Hyper-parameter”, CSL Student Conference (Poster session), Feb 2021.
- [4]. “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	
SE 100: Introduction to ISE	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