



ANDI HAN

Postdoctoral Researcher — Riken AIP, Continuous Optimization Team — Tokyo, Japan

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EDUCATION

University of Sydney, Sydney, NSW

Mar. 2020 — Sep. 2023

Doctor of Philosophy (Ph.D.) in Business Analytics

Doctoral Thesis: Optimization and Learning over Riemannian Manifolds.[\[link\]](#)

University of Sydney, Sydney, NSW

Mar. 2016 — Mar. 2020

Bachelor of Commerce (Honors) in Business Analytics

First Class Honors with the University Medal (Top 1 graduate)

RESEARCH INTEREST

Nonconvex optimization, optimization on manifolds, optimization theory and practice for deep learning and foundation models, graph machine learning.

CONFERENCE PUBLICATIONS

1. [NeurIPS 2024] A Han, J Li, W Huang, M Hong, A Takeda, P Jawanpuria, B Mishra. “SLTrain: a sparse plus low rank approach for parameter and memory efficient pretraining”. *Conference on Neural Information Processing Systems*.
2. [NeurIPS 2024] A Han, B Mishra, P Jawanpuria, A Takeda. “A Framework for Bilevel Optimization on Riemannian Manifolds”. *Conference on Neural Information Processing Systems*.
3. [NeurIPS 2024] W Huang*, A Han*, Y Chen, Y Cao, Z Xu, T Suzuki. “On the Comparison between Multi-modal and Single-modal Contrastive Learning”. *Conference on Neural Information Processing Systems*.
4. [NeurIPS 2024] D Bu, W Huang, A Han, A Nitanda, T Suzuki, Q Zhang, H Wong. “Provably Transformers Harness Multi-Concept Word Semantics for Efficient In-Context Learning”. *Conference on Neural Information Processing Systems*.
5. [ICML 2024] A Han, P Jawanpuria, B Mishra. “Riemannian coordinate descent algorithms on matrix manifolds”. *International Conference on Machine Learning*. [\[link\]](#)
6. [BIBM 2024, ICML 2024 AI4Science] Y Hu*, Y Tan*, A Han*, L Zheng, L Hong, B Zhou. “Secondary Structure-Guided Novel Protein Sequence Generation with Latent Graph Diffusion”. *IEEE International Conference on Bioinformatics and Biomedicine + International Conference on Machine Learning AI for Science Workshop*.
7. [AISTATS 2023] A Han, B Mishra, P Jawanpuria, J Gao. “Riemannian accelerated gradient methods via extrapolation”. *International Conference on Artificial Intelligence and Statistics*. [\[link\]](#)
8. [GSI 2023] A Han, B Mishra, P Jawanpuria, J Gao. “Learning with symmetric positive definite matrices via generalized Bures-Wasserstein geometry”. *International Conference on Geometric Science of Information*. [\[link\]](#)
9. [ACML 2023] D Shi, Z Shao, A Han, Y Guo, J Gao. “A New Perspective On the Expressive Equivalence Between Graph Convolution and Attention Models”. *Asian Conference on Machine Learning*. [\[link\]](#)
10. [IJCNN 2023] D Shi, A Han, Y Guo, J Gao. “Fixed Point Laplacian Mapping: A Geometrically Correct Manifold Learning Algorithm”. *International Joint Conference on Neural Networks*. [\[link\]](#)
11. [SCCI 2022] S Zhang, A Han, J Gao. “Robust Denoising in Graph Neural Networks”. *IEEE Symposium Series on Computational Intelligence*. (Best Paper Award). [\[link\]](#)
12. [NeurIPS 2021] A Han, B Mishra, P Jawanpuria, J Gao. “On Riemannian optimization over positive definite matrices with the Bures-Wasserstein geometry”. *Conference on Neural Information Processing Systems*. [\[link\]](#)
13. [IJCAI 2021] A Han, J Gao. “Riemannian stochastic recursive momentum method for non-convex optimization”. *International Joint Conference on Artificial Intelligence*. [\[link\]](#)

JOURNAL PUBLICATIONS

1. [IJMLC] (IF: 5.6) D Shi*, A Han*, L Lin*, Y Guo, Z Wang, J Gao, “Design your own universe: a physics-informed agnostic method for enhancing graph neural networks”. *International Journal of Machine Learning and Cybernetics*. 2024.
2. [ML] (IF: 7.5) A Han, B Mishra, P Jawanpuria, J Gao. “Differentially private Riemannian optimization”. *Machine Learning*. (ECML 2023 Special Issue). 2024. [\[link\]](#)
3. [TMLR] A Han, D Shi, L Lin, J Gao. “From continuous dynamics to graph neural networks: Neural diffusion and beyond”. *Transactions on Machine Learning Research*. 2024. [\[link\]](#)
4. [IJMLC] (IF: 5.6) Z Shao*, D Shi*, A Han*, A Vasnev, Y Guo, J Gao. “Enhancing framelet GCNs with generalized p-Laplacian regularization”. *International Journal of Machine Learning and Cybernetics*. 2023. [\[link\]](#)
5. [SIOPT] (IF: 3.1) A Han, B Mishra, P Jawanpuria, P Kumar, J Gao. “Riemannian Hamiltonian methods for min-max optimization on manifolds”. *SIAM Journal on Optimization*. 2023. [\[link\]](#)
6. [TMLR] A Han, B Mishra, P Jawanpuria, J Gao. “Nonconvex-nonconcave min-max optimization on Riemannian manifolds”. *Transactions on Machine Learning Research*. 2023. [\[link\]](#)
7. [IEEE TAI] (IF: 4.7) C Zou, A Han, L Lin, M Li, J Gao. “A simple yet effective framelet-based graph neural network for directed graphs”. *IEEE Transactions on Artificial Intelligence*. 2023. [\[link\]](#)

* Equal contribution

8. [ML] (IF: 7.5) **A Han**, B Mishra, P Jawanpuria, J Gao. “Riemannian block SPD coupling manifold and its application to optimal transport”. *Machine Learning*. 2022. (ACML 2022 Special Issue, Oral). [\[link\]](#)
9. [TMLR] S Utpala, **A Han**, P Jawanpuria, B Mishra. “Improved differentially private Riemannian optimization: Fast sampling and variance reduction”. *Transactions on Machine Learning Research*. 2022. [\[link\]](#)
10. [IEEE TPAMI] (IF: 23.6) **A Han**, J Gao. “Improved variance reduction methods for Riemannian non-convex optimization”. *IEEE Transactions on Pattern Analysis and Machine Intelligence*. 2021. [\[link\]](#)

BOOK CHAPTERS

1. **A Han**, P Jawanpuria, and B Mishra, “Riemannian optimization”. *Encyclopedia of Optimization*. 2024. [\[link\]](#)

PROFESSIONAL EXPERIENCE

| | |
|--|---|
| Postdoctoral Researcher RIKEN AIP Advisor: Prof. Akiko Takeda | Nov. 2023 - Present Tokyo, Japan |
| Teaching Assistant, (Head) Tutor University of Sydney | July. 2021 - Nov. 2023 Sydney, Australia |
| Research Assistant University of Sydney Advisor: Prof. Junbin Gao | July. 2021 - Nov. 2023 Sydney, Australia |

INVITED TALKS

| | |
|---|------------------|
| Optimization on smooth manifolds and its applications <i>The Chinese University of Hong Kong, hosted by Dr. Fenglei Fan</i> | CUHK (Feb. 2024) |
| Subspace methods for efficient optimization on matrix manifolds <i>The University of Sydney, Department of Business Analytics</i> | USYD (May. 2024) |

PROFESSIONAL SERVICE

Session chair at ICCOPT 2025
 Conference reviewer: NeurIPS, ICML, ICLR, AISTATS, AAAI, IJCAI, IJCNN
 Journal reviewer: JMLR, ML (Springer), SICON, TMLR, FITEE, Symmetry

HONOURS

| | |
|--|------------|
| Business School PhD Completion Award , USYD | June. 2023 |
| Feedback for Teachers (FFT) Award , USYD | May. 2022 |
| Enhanced Business School Research Scholarship , USYD | Mar. 2020 |
| University of Sydney International Strategic Scholarship , USYD | Mar. 2020 |
| The University Medal , USYD | Mar. 2020 |
| University of Sydney Honours Scholarship , USYD | Dec. 2018 |
| Business Analytics 2018 Prize , USYD | Dec. 2018 |
| Dean’s List of Excellence in Academic Performance , USYD | Apr. 2018 |
| University of Sydney Academic Merit Prize , USYD | Apr. 2018 |