

XUN TANG

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EDUCATION

Stanford University

PhD, Major in computational and applied Mathematics

Advisor: Lexing Ying

2020.09 - 2025.03

Stanford, CA

University of Hong Kong

Bachelor of Science, Major in Mathematics (intensive)

2016.08 - 2020.06

Hong Kong

WORK EXPERIENCE

Assisant professor, Hong Kong University of Science and Technology

Department of mathematics

2026.08-

Clear Water Bay, Kowloon, HK SAR

Postdoctoral scholar, Stanford University

Department of mathematics

2025.04-2026.06

Stanford, CA, USA

PUBLICATION

Preprints

1. **Xun Tang**, Haoxuan Chen, Lexing Ying. Variational inference and density estimation with non-negative tensor of hierarchical tucker format. *arXiv preprint*, 2026. Under review in SISC.
2. **Xun Tang**, Haoxuan Chen, Yuehaw Khoo, Lexing Ying. Sketch Tomography: Hybridizing Classical Shadow and Matrix Product State. *arXiv preprint*, 2026. Under review in FOCM.
3. **Xun Tang**, Yuehaw Khoo, Lexing Ying. On a spherically lifted spin model at finite temperature. *arXiv preprint*, 2025.
4. **Xun Tang**, Yuehaw Khoo, Lexing Ying. Initialization and training of matrix product state probabilistic models. *arXiv preprint*, 2025.
5. Nan Sheng, **Xun Tang**, Haoxuan Chen, Lexing Ying. Approximation of High-Dimensional Gibbs Distributions with Functional Hierarchical Tensors. *arXiv preprint*, 2025. Under review in SISC.
6. **Xun Tang**, Holakou Rahmanian, Michael Shavlovsky, Kiran Koshy Thekumparampil, Tesi Xiao, Lexing Ying. A Sinkhorn-type Algorithm for Constrained Optimal Transport. *arXiv preprint*, 2024. Under review in SISC

Published

1. **Xun Tang**, Lexing Ying. Wavelet-based density sketching with functional hierarchical tensor. *arXiv preprint*, 2025. To appear in Multiscale Modeling and Simulation.
2. **Xun Tang**, Lexing Ying. Solving the Fokker-Planck equation of discretized Dean-Kawasaki models with functional hierarchical tensor. To appear in SISC.
3. **Xun Tang**, Rajat Dwaraknath, Lexing Ying. Variational inference and density estimation with non-negative tensor train. *arXiv preprint*, 2025. To appear in SIAM Journal on Scientific Computing (SISC).

4. **Xun Tang**, Michael Shavlovsky, Holakou Rahmanian, Tesi Xiao, Lexing Ying. An efficient algorithm for entropic optimal transport under martingale-type constraints. To appear in Research in the Mathematical Sciences.
5. **Xun Tang**, Nan Sheng, Lexing Ying. Solving high-dimensional Hamilton-Jacobi-Bellman equation with functional hierarchical tensor. To appear in SIAM Journal on Scientific Computing (SISC).
6. **Xun Tang**, Leah Collis, Lexing Ying. Solving high-dimensional Kolmogorov backward equations with functional hierarchical tensor operator. To appear in SISC.
7. **Xun Tang**, Lexing Ying. Solving high-dimensional Fokker-Planck equation with functional hierarchical tensor. Journal of Computational Physics Volume 511 2024.
8. **Xun Tang**, Michael Shavlovsky, Holakou Rahmanian, Elisa Tardini, Kiran Koshy Thekumparampil, Tesi Xiao, Lexing Ying. Accelerating Sinkhorn algorithm with sparse Newton iterations. ICLR 2024.
9. **Xun Tang**, YoonHaeng Hur, Yuehaw Khoo, Lexing Ying. Generative Modeling via Tree Tensor Network States. Research in the Mathematical Sciences. 2023.
10. **Xun Tang**, Lexing Ying, and Yuhua Zhu, Operator Shifting for Model-based Policy Evaluation. Communications in Mathematical Sciences. 2023.

SERVICES

Reviewer:

- Journal of Machine Learning Research.
- Communications on Pure and Applied Mathematics.
- Mathematical Programming.
- Journal of Scientific Computing.
- SIAM Journal on Scientific Computing.
- Research in the Mathematical Sciences.
- ICLR 2025.

INVITED TALKS

- Numerical Analysis seminar at University of Hong Kong, May 2022
- Applied mathematics seminar at HKUST, October 2025
- Applied mathematics seminar at UC Berkeley, November 2025
- Applied mathematics seminar at UC Santa Cruz, Apr 2026