

WEI GUO

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Google Scholar \diamond Github \diamond LinkedIn

EDUCATION

Georgia Institute of Technology, Machine Learning Center

Aug 2023 – Present

Ph.D. in Machine Learning

Advisor: Professors Yongxin Chen and Molei Tao

Peking University, School of Mathematical Sciences

Sep 2019 – Jul 2023

B.S. in Statistics

GPA: 3.848/4.0; rank: 5/44

Advisor: Professor Cheng Zhang

RESEARCH INTERESTS

- **Statistics and Probability:** Theoretical analysis and practical design of sampling algorithms (Markov Chain Monte Carlo, non-equilibrium (e.g., denoising diffusion, stochastic localization) sampling, or learning-based neural samplers); Applied stochastic analysis with applications to optimal transport, stochastic optimal control, and statistical physics.
- **Machine Learning:** Generative modeling, with a particular focus on (continuous/discrete) diffusion and flow-based models and with applications to vision and language.

PREPRINTS AND PUBLICATIONS

(In reversed chronological order. * denotes equal contribution or alphabetical order.)

- [1] Wei Guo*, Jaemoo Choi*, Yuchen Zhu, Molei Tao, and Yongxin Chen. “Proximal Diffusion Neural Sampler”. In: *Preprint* (2025).
- [2] Wei Guo, Molei Tao, and Yongxin Chen. “Complexity Analysis of Normalizing Constant Estimation: from Jarzynski Equality to Annealed Importance Sampling and beyond”. In: *arXiv preprint arXiv:2502.04575* (2025).
- [3] Wei Guo, Molei Tao, and Yongxin Chen. “Provable Benefit of Annealed Langevin Monte Carlo for Non-log-concave Sampling”. In: *The Thirteenth International Conference on Learning Representations*. 2025. URL: <https://openreview.net/forum?id=P6IVIoGRRg>.
- [4] Yinuo Ren*, Haoxuan Chen*, Yuchen Zhu*, Wei Guo*, Yongxin Chen, Grant M Rotskoff, Molei Tao, and Lexing Ying. “Fast Solvers for Discrete Diffusion Models: Theory and Applications of High-Order Algorithms”. In: *The Thirty-ninth Annual Conference on Neural Information Processing Systems*. 2025. URL: <https://openreview.net/forum?id=OuklL6Q3s0>.
- [5] Yuchen Zhu*, Wei Guo*, Jaemoo Choi, Guan-Horng Liu, Yongxin Chen, and Molei Tao. “MDNS: Masked Diffusion Neural Sampler via Stochastic Optimal Control”. In: *The Thirty-ninth Annual Conference on Neural Information Processing Systems*. 2025. URL: <https://openreview.net/forum?id=xIH95kXNR2>.
- [6] Yuchen Zhu*, Wei Guo*, Jaemoo Choi, Petr Molodyk, Bo Yuan, Molei Tao, and Yongxin Chen. “Enhancing Reasoning for Diffusion LLMs via Distribution Matching Policy Optimization”. In: *Preprint* (2025).
- [7] Wei Guo*, Yuchen Zhu*, Molei Tao, and Yongxin Chen. “Plug-and-play controllable generation for discrete masked models”. In: *arXiv preprint arXiv:2410.02143* (2024).

TEACHING ASSISTANT

AE 3531: Control System Analysis and Design. Lecturer: Lu Gan.

Fall 2024

AE 8803: Optimal Transport Theory and Applications. Lecturer: Yongxin Chen.

Spring 2025

COMMUNITY SERVICE

Served as a reviewer for ICLR 2024 (1 paper), ICLR 2025 (3 papers), and NeurIPS 2025 (5 papers).

AWARDS

PKU merit student in the academic year of 2019-2020	<i>Oct 2020</i>
PKU merit student pacesetter in the academic year of 2020-2021	<i>Oct 2021</i>
PKU merit student in the academic year of 2021-2022	<i>Oct 2022</i>
2023 Beijing Outstanding Undergraduate Graduate Award	<i>Jul 2023</i>
Best poster award at Yale FDS conference "Recent Advances and Future Directions for Sampling"	<i>Oct 2024</i>

TECHNICAL SKILLS

- **Mathematics and Statistics:** Markov chain Monte Carlo, convex optimization, stochastic analysis, optimal transport, applied partial differential equations.
- **Machine learning:** computer vision, natural language processing.
- **Programming:** proficient programming in Python (including PyTorch).
- **Languages:** Chinese (Mandarin and Wu dialect, native), English (proficient), French (beginner).