

Jiaojiao Fan

Research Scientist
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🏠 <https://sbyebs.github.io/>

EDUCATION

Georgia Institute of Technology

PhD student in Machine Learning, Advisor: Dr. Yongxin Chen

January 6, 2020 - July 5, 2024

Shanghai Jiao Tong University

Bachelor in Engineering

September 14, 2015 - July 12, 2019

EXPERIENCE

NVIDIA

Research Scientist, Manager: *Ming-Yu Liu*

06/2024 - Present

Santa Clara, California

- **Led end-to-end data collection and post-training pipeline** for Edify text-to-image model, ensuring high-quality training data curation and model optimization
- **Developed and deployed background replacement ControlNet**, enabling precise image manipulation and scaling synthetic data generation for downstream computer vision tasks
- **Built comprehensive evaluation and inference infrastructure** for Cosmos video models, establishing performance benchmarks and production-ready deployment pipelines
- **Spearheaded open-source initiative** for Cosmos video autoregressive model, managing code release, documentation, and community engagement efforts
- **Architected low-fps/high-compression VAE** for Cosmos video diffusion models

NVIDIA

Research Intern, Mentors: *Ting-Chun Wang, Xun Huang, Ming-Yu Liu*

08/2023 - 05/2024

Santa Clara, California

- Developed customization capabilities for the Edify image generation model, which was shipped as part of the Edify model family and deployed by enterprise clients for advertising applications (**demo**). The Edify customization generates extremely photorealistic images for human personalization tasks.

Snap Inc., Creative Vision Team

Research Intern, Mentor: *Jian Ren*

05/2023 - 08/2023

Los Angeles, California

- Research on multi-modal diffusion models for image generation

Microsoft Research, New England

Research Intern, Mentors: *David Alvarez-Melis, Nicolo Fusi*

05/2022 - 08/2022

Remote

- Developed an algorithm for generating synthetic datasets by interpolating among multiple labeled datasets, demonstrating strong performance in transfer learning tasks

PUBLICATIONS

17. **Cosmos World Foundation Model Platform for Physical AI**

NVIDIA
arXiv 2025.

16. **Client-only Distributed Markov Chain Monte Carlo Sampling over a Network**

Bo Yuan, **Jiaojiao Fan**, Jiaming Liang, Yongxin Chen.
TMLR 2025.

15. **Proximal Sampler with Adaptive Step Size**

Bo Yuan, **Jiaojiao Fan**, Jiaming Liang, Yongxin Chen.
AISTATS 2025.

14. **Edify Image: High-Quality Image Generation with Pixel Space Laplacian Diffusion Models**

NVIDIA
arXiv 2024.

13. **One-step diffusion policy: Fast visuomotor policies via diffusion distillation**

Zhendong Wang, Zhaoshuo Li, Ajay Mandlekar, Zhenjia Xu, **Jiaojiao Fan**, Yashraj Narang, Linxi Fan, Yuke Zhu, Yogesh Balaji, Mingyuan Zhou, Ming-Yu Liu, Yu Zeng
ICML 2025.

12. **RefDrop: Controllable Consistency in Image or Video Generation via Reference Feature Guidance**
Jiaojiao Fan, Haotian Xue, Qinsheng Zhang, Yongxin Chen.
NeurIPS 2024.
11. **A parallel framework for graphical optimal transport**
Jiaojiao Fan*, Isabel Haasler*, Qinsheng Zhang, Johan Karlsson, Yongxin Chen
arXiv 2024.
10. **Neural Monge Map estimation and its applications**
Jiaojiao Fan*, Shu Liu*, Shaojun Ma, Yongxin Chen, Haomin Zhou.
TMLR 2023 (featured certificate).
9. **Improved dimension dependence of a proximal algorithm for sampling**
Jiaojiao Fan*, Bo Yuan*, Yongxin Chen.
COLT 2023.
8. **On a Class of Gibbs Sampling over Networks**
Bo Yuan, Jiaojiao Fan, Jiaming Liang, Andre Wibisono, Yongxin Chen.
COLT 2023.
7. **Nesterov smoothing for sampling without smoothness**
Jiaojiao Fan, Bo Yuan, Jiaming Liang, Yongxin Chen.
CDC 2023.
6. **Markov chain Monte Carlo for Gaussian: A linear control perspective**
Bo Yuan, Jiaojiao Fan, Yuqing Wang, Molei Tao, Yongxin Chen.
L-CSS 2023.
5. **Generating Synthetic Datasets by Interpolating along Generalized Geodesics**
Jiaojiao Fan, David Alvarez-Melis.
UAI 2023.
4. **Variational Wasserstein gradient flow**
Jiaojiao Fan, Qinsheng Zhang, Amirhossein Taghvaei, Yongxin Chen.
ICML 2022.
3. **On the complexity of the optimal transport problem with graph-structured cost**
Jiaojiao Fan*, Isabel Haasler*, Johan Karlsson, Yongxin Chen
AISTATS 2022.
2. **Scalable Computations of Wasserstein Barycenter via Input Convex Neural Networks.**
Jiaojiao Fan, Amirhossein Taghvaei, Yongxin Chen.
ICML 2021 (long talk).
1. **Watch for failing Objects: What Inappropriate Compliance Reveals about Shared Mental Models in Autonomous Cars.**
Yosef Razin, Jack Gale, Jiaojiao Fan, Jaznae' Smith, Karen Feigh
HFES 2021.

SKILLS

- Large-scale data processing using Ray across multiple clusters, with experience scaling to thousands of nodes
- Large-scale diffusion and VAE model training on SLURM clusters, with experience managing hundreds of nodes
- Comprehensive model evaluation using both human evaluation protocols and automated metrics

SELECTED AWARDS AND HONORS

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| • CES Best AI Award and Best overall award for NVIDIA Cosmos model | 2025 |
| • Herbert P. Haley Fellowship, \$4000 | 2023 |
| • UAI scholarship, \$325 | 2023 |
| • Neurips Top Reviewer | 2022 |
| • IDEaS-TRIAD Research Scholarships, \$8000 | 2020 |
| • SJTU Pacesetter Award (one of students' highest honor in SJTU) | 2018 |

- **Tang Lixin Scholarship, \$3000** (Top 0.5%) *2017, 2018*
- **China National Scholarship, \$2300** (Top 2%, Twice) *2017, 2018*
- **Shanghai Outstanding Graduates** (Top 5%) *2019*

PEER REVIEW

- 2021 Neurips OTML workshop
- 2022 AISTATS, ICML, Neurips, SyntheticData4ML Workshop
- 2023 AISTATS, ICML, Neurips, IEEE L-CSS, Frontiers4lcd Workshop
- 2024 ICML, Neurips, Springer Machine Learning Journal
- 2025 ICML, Neurips