

Xiang Gu

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Academic Appointments

- Assistant Professor, Department of Information Science, School of Mathematics and Statistics, Xi'an Jiaotong University.

Education

- Ph.D. in Applied Mathematics, Xi'an Jiaotong University, 2024.
Advisors: Prof. Zongben Xu; Co-advisor: Prof. Jian Sun.
- B.S. in Statistics, Southeast University, 2017.

Research Interests

Optimal transport theory and algorithms; transfer learning in statistics and AI; applications in biology and science.

Publications

(# indicates corresponding author; * indicates co-first author.)

Journal Articles

- J1. Yannan Pu, **Xiang Gu**, Niansheng Tang, Jingyao Zhang, Jian Sun. "Variational Masking Generative Model for Anomaly Detection on Incomplete Tabular Data." *Pattern Recognition*, 2026.
- J2. Liwei Yang, **Xiang Gu** #, Jian Sun. "In-Context Learning Implicit Representation for Time Series Forecasting." *IEEE Signal Processing Letters*, 2025.
- J3. Jiazen Wang, Zhihao Shi, **Xiang Gu**, Yan Yang, Jian Sun. "Diffusion-based Arbitrary-Scale Magnetic Resonance Image Super-Resolution via Progressive K-space Reconstruction and Denoising." *Medical Image Analysis (MIA)*, 2025.
- J4. Xiaole Tang, **Xiang Gu**, Xiaoyi He, Xin Hu, Jian Sun. "Degradation-Aware Residual-Conditioned Optimal Transport for Unified Image Restoration." *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)*, 2025. (CCF-A)
- J5. Xin Wei, **Xiang Gu**, Jian Sun. "Multi-scale Part-based Feature Representation for 3D Domain Generalization and Adaptation." *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)*, 2024. (CCF-A)
- J6. **Xiang Gu**, Xi Yu, Yan Yang, Jian Sun, Zongben Xu. "Adversarial Reweighting with α -Power Maximization for Domain Adaptation." *International Journal of Computer Vision (IJCV)*, 2024. (CCF-A)
- J7. Xi Yu, **Xiang Gu** *, Jian Sun. "Contrasting Augmented Features for Domain Adaptation with Limited Target Domain Data." *Pattern Recognition*, 2023.
- J8. **Xiang Gu**, Jian Sun, Zongben Xu. "Adversarial Data Splitting for Domain Generalization." *Science China Information Sciences (SCIS)*, 2023. (CCF-A)
- J9. Fan Wang, **Xiang Gu**, Jian Sun, Zongben Xu. "Learning-based Local Weighted Least Squares for Algebraic Multigrid Method." *Journal of Computational Physics (JCP)*, 2023.

- J10. **Xiang Gu**, Jian Sun, Zongben Xu. “Unsupervised and Semi-supervised Robust Spherical Space Domain Adaptation.” *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)*, 2022. (CCF-A)

Conference Papers

- C1. Taoran Zheng, Xing Li, Yan Yang, **Xiang Gu**[#], Zongben Xu, Jian Sun. “Towards Prospective Medical Image Reconstruction via Knowledge-Informed Dynamic Optimal Transport.” *NeurIPS*, 2025. (CCF-A)
- C2. Dongyi Wang, Yuanwei Jiang, Zhenyi Zhang, **Xiang Gu**[#], Peijie Zhou, Jian Sun. “Joint Velocity-Growth Flow Matching for Single-Cell Dynamics Modeling.” *NeurIPS*, 2025. (CCF-A)
- C3. Xi Yu, **Xiang Gu**[#], Zhihao Shi, Jian Sun. “Wasserstein Style Distribution Analysis and Transform for Stylized Image Generation.” *ICCV*, 2025. (CCF-A)
- C4. Xiaole Tang, Xin Hu, **Xiang Gu**, Jian Sun. “Residual-Conditioned Optimal Transport: Towards Structure-Preserving Unpaired and Paired Image Restoration.” *ICML*, 2024. (CCF-A)
- C5. **Xiang Gu**, Liwei Yang, Jian Sun, Zongben Xu. “Optimal Transport-Guided Conditional Score-Based Diffusion Model.” *NeurIPS*, 2023. (CCF-A)
- C6. Xi Yu, **Xiang Gu**^{*}, Haozhi Liu, Jian Sun. “Constructing Non-isotropic Gaussian Diffusion Model Using Isotropic Gaussian Diffusion Model.” *NeurIPS*, 2023. (CCF-A)
- C7. Zixiang Zhao, Jiangshe Zhang, **Xiang Gu**, Chengli Tan, Shuang Xu, Yulun Zhang, Radu Timofte, Luc Van Gool. “Spherical Space Feature Decomposition for Guided Depth Map Super-Resolution.” *ICCV*, 2023. (CCF-A)
- C8. Liwei Yang, **Xiang Gu**^{*}, Jian Sun. “Generalized Semantic Segmentation by Self-supervised Source Domain Projection and Multi-level Contrastive Learning.” *AAAI*, 2023. (CCF-A)
- C9. Yucheng Yang, **Xiang Gu**^{*}, Jian Sun. “Prototypical Partial Optimal Transport for Universal Domain Adaptation.” *AAAI*, 2023. (CCF-A)
- C10. Xin Wei, **Xiang Gu**, Jian Sun. “Learning Generalizable Part-based Feature Representation for 3D Point Clouds.” *NeurIPS*, 2022. (CCF-A)
- C11. **Xiang Gu**, Yucheng Yang, Wei Zeng, Jian Sun, Zongben Xu. “Keypoint-Guided Optimal Transport with Application in Heterogeneous Domain Adaptation.” *NeurIPS*, 2022. (CCF-A)
- C12. **Xiang Gu**, Xi Yu, Yan Yang, Jian Sun, Zongben Xu. “Adversarial Reweighting for Partial Domain Adaptation.” *NeurIPS*, 2021. (CCF-A)
- C13. **Xiang Gu**, Jian Sun, Zongben Xu. “Spherical Space Domain Adaptation with Robust Pseudo-label Loss.” *CVPR*, 2020.

Honors & Awards

- CAAI Outstanding Doctoral Dissertation Award.
- Shaanxi “Sanqin Bochuang” Talent Program.
- National Postdoctoral Innovation Talent Support Program.
- NSFC Young Student Basic Research Program (PhD Student Project).
- VALSE Outstanding Student Forum Guest Representative.

Academic Service

- **Reviewer (Journals):** IEEE TPAMI, IJCV, IEEE TIP, etc.
- **Program Committee:** CVPR, ICCV, NeurIPS, ICLR, ICML, ECCV, AAAI, etc.

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