Ligong Han

🎓 scholar.google.com   🔗 Homepage   ✉ ligong.han@rutgers.edu & hanligong@gmail.com   📞 (412) 916-4540

EDUCATION

Rutgers University — New Brunswick, NJ
- Ph.D. in Computer Science — 09/2018-07/2024

Carnegie Mellon University — Pittsburgh, PA
- Research MS. in Biomedical Engineering — 08/2015-12/2016

Southeast University — Nanjing, Jiangsu, China
- B. Eng. in Biomedical Engineering — 08/2010-06/2014
  - Chien-Shiung Wu Honor College (Talent Training Program in Electrical and Computer Engineering)

RESEARCH EXPERIENCE

MIT-IBM Watson AI Lab — Cambridge, MA, USA
- **Research Scientist** — 08/2024-Present
  - Generative modeling for complex mechanical systems with constraints, w/ Prof. Faez Ahmed (MIT)
  - Synthetic data generation for LLM alignment

Rutgers, The State University of New Jersey — Piscataway, NJ, USA
- **Research Assistant** at CBIM. **Advisor:** Dimitris Metaxas — 09/2018-07/2024
  - Generative models, Diffusion models, GANs
  - Representation learning, Disentanglement, Domain adaptation

Google Research — Mountain View, CA, USA
- **Research Intern**. **Mentor:** Yinxiao Li, Feng Yang & Han Zhang — 06/2022-03/2023
  - Diffusion model, text-to-image generation, image editing, parameter efficient fine-tuning

MIT-IBM Watson AI Lab — Cambridge, MA, USA
- **Research Intern**. **Mentor:** Akash Srivastava — 03/2022-06/2022
  - Improving contrastive learning with generative models

Snap Inc. — Santa Monica, CA, USA
- **Research Intern** in the Creative Vision Group at Snap Research. **Mentor:** Jian Ren — 05/2021-10/2021
  - Transformer-based video generation with multimodality control signals

NEC Laboratories America Inc. — Princeton, NJ, USA
- **Research Intern** at Machine Learning Department. **Mentor:** Martin Renqiang Min — 06/2020-08/2020
  - Recurrent generative modeling for videos, disentangled sequential representation learning

Tencent — Shenzhen, China
- **Intern** at YouTu X-Lab. **Mentor:** Xin Tao — 06/2018-08/2018
  - Conditional GAN-based image style transfer

Carnegie Mellon University — Pittsburgh, PA, USA
- **Visitor** at The Robotics Institute. **Advisor:** Deva Ramanan — 03/2017-02/2018
  - Learning generative models of tissue organization with supervised GANs
  - Semantic segmentation for sub-cellular imagery

Carnegie Mellon University — Pittsburgh, PA, USA
- **Research Assistant** at CyLab Biometrics Center. **Advisor:** Marios Savvides — 07/2016-11/2016
  - Contextual recurrent residual network for semantic segmentation; level-set-based cell segmentation

TEACHING

- **Teaching Assistant:** Introduction to Artificial Intelligence (Fall'18), Data Structure (Spring'19), Computer Application for Business (Summer'19), Programming Language (Fall'19), Computer Vision (Spring'20)

PUBLICATIONS (*equal contribution, † corresponding author*)

To address challenges in **controllable and explainable generative modeling**, I have been developing and applying **advanced conditioning mechanisms, efficient model editing and customization techniques, and leveraging generative optimization**. These efforts are substantiated by a strong track record of research contributions and publications, underscoring my commitment to advancing this field.

1. X Zhang*, S Wen*, **L Han***†, F Xu, A Srivastava, J Hunag, H Wang, M Tao, V Pavlovic, D Metaxas. "SODA: Spectral Orthogonal Decomposition Adaptation for Diffusion Models," *IEEE Winter Conference on Applications of Computer Vision* (**WACV**), 2025 [pdf][code]

2. Y Wang, H Shi, **L Han**, D Metaxas, H Wang. "BLoB: Bayesian Low-Rank Adaptation by Backpropagation for Large Language Models," *38th Conference on Neural Information Processing Systems* (**NeurIPS**), 2024 [pdf]

3. A Stathopoulos, **L Han**, D Metaxas. "Score-Guided Diffusion for 3D Human Recovery" *IEEE Conference on Computer Vision and Pattern Recognition* (**CVPR**), 2024 [pdf][webpage][code]

4. **L Han**†, S Wen, Q Chen, Z Zhang, K Song, M Ren, R Gao, *et al*. "ProxEdit: Improving Tuning-Free Real Image Editing with Proximal Guidance," *IEEE Winter Conference on Applications of Computer Vision* (**WACV**), 2024 [pdf][code]

5. K Song, **L Han**, B Liu, D Metaxas, A Elgammal. "Diffusion Guided Domain Adaptation of Image Generators," *IEEE Winter Conference on Applications of Computer Vision* (**WACV**), 2024 [pdf][webpage][code]

6. Q Chen, C Shui, **L Han**, M Marchand. "On the Stability-Plasticity Dilemma in Continual Meta-Learning: Theory and Algorithm," *37th Conference on Neural Information Processing Systems* (**NeurIPS**), 2023 [pdf][code]

7. **L Han**†, Y Li, H Zhang, P Milanfar, D Metaxas, F Yang. "SVDiff: Compact Parameter Space for Diffusion Fine-Tuning," *IEEE International Conference on Computer Vision* (**ICCV**), 2023 [pdf][webpage][code]

8. X He, C Tan, **L Han**, B Liu, L Axel, K Li, D Metaxas. "DMCVR: Morphology-Guided Diffusion Models for 3D Cardiac Volume Reconstruction," *Medical Image Computing and Computer-Assisted Intervention* (**MICCAI**), 2023 [pdf][code]

9. **L Han**, S Han, S Sudalairaj, C Loh, R Dangovski, F Deng, P Agrawal, D Metaxas, L Karlinsky, T Weng, A Srivastava. "Constructive Assimilation: Boosting Contrastive Learning Performance through View Generation Strategies," **CVPR Workshop** on *Generative Models for Computer Vision*, 2023 [pdf]

10. Z Zhang, **L Han**, A Ghosh, D Metaxas, J Ren. "SINE: SINgle Image Editing with Text-to-Image Diffusion Models," *IEEE Conference on Computer Vision and Pattern Recognition* (**CVPR**), 2023 [webpage][code]

11. A Stathopoulos, G Pavlakos, **L Han**, D Metaxas. "Learning Articulated Shape with Keypoint Pseudo-labels from Internet Images," *IEEE Conference on Computer Vision and Pattern Recognition* (**CVPR**), 2023 [pdf]

12. R Gao, M Saar-Tsechansky, M De-Arteaga, **L Han**, M Lee, W Sun, M Lease. "Learning Complementary Policies for Human-AI Teams." Under Review at *Management Science,* **Best Student Paper** at *Conference on Information Systems and Technology* (**CIST**), 2023

13. C Loh, R Dangovski, S Sudalairaj, S Han, **L Han**, L Karlinsky, M Soljacic, A Srivastava. "Mitigating Confirmation Bias in Semi-supervised Learning via Efficient Bayesian Model Averaging," *Transactions on Machine Learning Research* (**TMLR**), 2023 [pdf]

14. **L Han**, J Ren, H Lee, F Barbieri, S Minaee, D Metaxas, S Tulyakov. "Show Me What and Tell Me How: Video Synthesis via Multimodal Conditioning," *IEEE Conference on Computer Vision and Pattern Recognition* (**CVPR**), 2022 [pdf][slides][webpage][code]

15. R Gao, M Biggs, W Sun, **L Han**. "Enhancing Counterfactual Classification Performance via Self-Training," *36th AAAI Conference on Artificial Intelligence* (**AAAI**), 2022 [pdf]

16. **L Han**†, SH Musunuri, MR Min, R Gao, Y Tian, D Metaxas. "AE-StyleGAN: Improved Training of Style-Based Auto-Encoders," *IEEE Winter Conference on Applications of Computer Vision* (**WACV**), 2022 [pdf][code]

17. **L Han**†, MR Min, A Stathopoulos, Y Tian, R Gao, A Kadav, D Metaxas. "Dual Projection Generative Adversarial Networks for Conditional Image Generation," *IEEE International Conference on Computer Vision* (**ICCV**), 2021 [pdf][slides][code]

18. R Gao, M Saar-Tsechansky, M De-Arteaga, **L Han**, M Lee, M Lease. "Human-AI Collaboration with Bandit

Feedback," *30th International Joint Conference on Artificial Intelligence* (**IJCAI**), 2021 [pdf]

19. J Han*, MR Min*, **L Han***, X Zhang, LE Li. "Disentangled Recurrent Wasserstein Autoencoder," *9th International Conference on Learning Representations* (**ICLR**), 2021 (**Spotlight**, **scored among top 4%**) [pdf][slides]

20. **L Han**†, A Stathopoulos, T Xue, D Metaxas. "Unbiased Auxiliary Classifier GANs with MINE," **CVPR Workshop** on *Adversarial Machine Learning in Computer Vision*, 2020 (**Oral**, **DeepMind Travel Award**) [pdf]

21. **L Han**†, R Gao, M Kim, X Tao, B Liu, D Metaxas. "Robust Conditional GAN from Uncertainty-Aware Pairwise Comparisons," *34th AAAI Conference on Artificial Intelligence* (**AAAI**), 2020 [pdf][slides]

22. **L Han**†, Y Zou, R Gao, L Wang, D Metaxas. "Unsupervised Domain Adaptation via Calibrating Uncertainties," **CVPR Workshop** on *Uncertainty and Robustness in Deep Visual Learning*, 2019 [pdf]

23. **L Han**†, RF Murphy, D Ramanan. "Learning Generative Models of Tissue Organization with Supervised GANs," *IEEE Winter Conference on Applications of Computer Vision* (**WACV**), 2018 [pdf]

24. THN Le, CN Duong, **L Han**, K Luu, KG Quach, M Savvides. "Deep Contextual Recurrent Residual Networks for Scene Labeling," *Pattern Recognition*, 2018 [pdf]

ACADEMIC SERVICE

- **Technical Program Committee:** Dynamic Data Driven Applications Systems (**DDDAS**), 2024
- **Journal Review:** International Journal of Computer Vision (**IJCV**), Pattern Recognition, Computer Methods and Programs in Biomedicine, IEEE Transactions on Circuits and Systems for Video Technology (**TCSVT**), …
- **Conference Review:** Conference on Computer Vision and Pattern Recognition (**CVPR**), International Conference on Computer Vision (**ICCV**), European Conference on Computer Vision (**ECCV**), IEEE/CVF Winter Conference on Applications of Computer Vision (**WACV**), Asian Conference on Computer Vision (**ACCV**), Conference on Neural Information Processing Systems (**NeurIPS**), International Conference on Learning Representations (**ICLR**), International Conference on Machine Learning (**ICML**), SIGGRAPH Conference and Exhibition on Computer Graphics and Interactive Techniques in Asia (**SIGGRAPH Asia**), International Conference on Artificial Intelligence and Statistics (**AISTATS**), The Association for the Advancement of Artificial Intelligence (**AAAI**), …

HONORS & AWARDS

- **Best Student Paper Award**, Conference on Information Systems and Technology (CIST), 2023.
- **Spotlight**, scored among top 4%, International Conference on Learning Representations (ICLR), 2021.
- **Best Student Paper Award**, Future Technologies Conference (FTC), 2020.
- **DeepMind Travel Award** for CVPR Workshop on Adversarial Machine Learning in Computer Vision.

OPEN-SOURCE CONTRIBUTIONS

- **GitHub Repo**, ScoreHMR, 397 stars, CVPR 2024 paper.
- **GitHub Repo**, SVDiff-pytorch, 369 stars, ICCV 2023 paper.
- **MATLAB File Exchange Pick of the Week**, Path Simplification and Binary Image Reconstruction Made Easy, 1.8K downloads, 2018.
- **MATLAB File Exchange Pick of the Week**, Aligning Axes Labels, 7.3K downloads, 2015.
- **MATLAB File Exchange**, 2-D Tomographic Reconstruction Toolbox, 4.7K downloads, 2013.

SKILLS

- **Coding:** Python, MATLAB, PyTorch, JAX, TensorFlow, LaTeX, Java, HTML, …
- **Languages:** English, Mandarin Chinese.