Xian Liu

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EDUCATION

- **The Chinese University of Hong Kong** — Hong Kong SAR, China
  Ph.D., Multimedia Laboratory (MMLab). Supervisor: Prof. Dahua Lin, Prof. Ziwei Liu — 2021 – 2025 (Expected)

- **Zhejiang University** — Hangzhou, China
  B.S. in Computer Science; GPA: 3.97/4.00. Rank: **1**/154 — 2017 – 2021

RESEARCH INTERESTS

Computer Vision, Generative Modeling, Image/Video/3D/4D Generation

PREPRINT

- **TC4D: Trajectory-Conditioned Text-to-4D Generation**
  Sherwin Bahmani*, **Xian Liu***, Wang Yifan*, Ivan Skorokhodov, Victor Rong, Ziwei Liu, Xihui Liu, Jeong Joon Park, Sergey Tulyakov, Gordon Wetzstein, Andrea Tagliasacchi, David Lindell
  Preprint, under review.

- **BrushNet: A Plug-and-Play Image Inpainting Model with Decomposed Dual-Branch Diffusion**
  Xuan Ju, **Xian Liu**, Xintao Wang, Yuxuan Bian, Ying Shan, Qiang Xu
  Preprint, under review.

CONFERENCE PUBLICATIONS

(* denotes equal contribution)

- **HumanGaussian: Text-Driven 3D Human Generation with Gaussian Splatting**
  Xian Liu, Xiaohang Zhan, Jiaxiang Tang, Ying Shan, Gang Zeng, Dahua Lin, Xihui Liu, Ziwei Liu
  IEEE/CVF Conference on Computer Vision and Pattern Recognition (**CVPR**), 2024. **(Highlight, Top 11.9%)**

- **HyperHuman: Hyper-Realistic Human Generation with Latent Structural Diffusion**
  Xian Liu, Jian Ren, Aliaksandr Siarohin, Ivan Skorokhodov, Yanyu Li, Dahua Lin, Xihui Liu, Ziwei Liu, Sergey Tulyakov
  International Conference on Learning Representations (**ICLR**), 2024.

- **Semantic-Aware Implicit Neural Audio-Driven Video Portrait Generation**
  Xian Liu, Yinghao Xu, Qianyi Wu, Hang Zhou, Wayne Wu, Bolei Zhou
  European Conference on Computer Vision (**ECCV**), 2022. **(Oral Presentation, Top 2.7%)**

- **Audio-Driven Co-Speech Gesture Video Generation**
  Xian Liu, Qianyi Wu, Hang Zhou, Yuanqi Du, Wayne Wu, Dahua Lin, Ziwei Liu
  Advances in Neural Information Processing Systems (**NeurIPS**), 2022. **(Spotlight Presentation)**

- **Learning Hierarchical Cross-Modal Association for Co-Speech Gesture Generation**
  Xian Liu, Qianyi Wu, Hang Zhou, Yinghao Xu, Rui Qian, Xinyi Lin, Xiaowei Zhou, Wayne Wu, Bo Dai, Bolei Zhou
  IEEE/CVF Conference on Computer Vision and Pattern Recognition (**CVPR**), 2022.

- **Taming Diffusion Models for Audio-Driven Co-Speech Gesture Generation**
  Xian Liu*, Lingting Zhu*, Xuanyu Liu, Rui Qian, Ziwei Liu, Lequan Yu
  IEEE/CVF Conference on Computer Vision and Pattern Recognition (**CVPR**), 2023.

- **Visual Sound Localization in the Wild by Cross-Modal Interference Erasing**
  Xian Liu*, Rui Qian*, Hang Zhou*, Di Hu, Weiyao Lin, Ziwei Liu, Bolei Zhou, Xiaowei Zhou
  AAAI Conference on Artificial Intelligence (**AAAI**), 2022.

- **TextCraft: Your Text Encoder Can be Image Quality Controller**
  Yanyu Li, <u>**Xian Liu**</u>, Anil Kag, Ju Hu, Yerlan Idelbayev, Dhritiman Sagar, Yanzhi Wang, Sergey Tulyakov, Jian Ren
  IEEE/CVF Conference on Computer Vision and Pattern Recognition (**CVPR**), 2024.

- **Object-Compositional Neural Implicit Surfaces**
  Qianyi Wu, <u>**Xian Liu**</u>, Yuedong Chen, Kejie Li, Chuanxia Zheng, Jianfei Cai, Jianmin Zheng
  European Conference on Computer Vision (**ECCV**), 2022.

- **MonoHuman: Animatable Human Neural Field from Monocular Video**
  Zhengming Yu, Wei Cheng, <u>**Xian Liu**</u>, Wayne Wu, Kwan-Yee Lin
  IEEE/CVF Conference on Computer Vision and Pattern Recognition (**CVPR**), 2023.

- **Semantics Meets Temporal Correspondence: Self-supervised Object-centric Learning in Videos**
  Rui Qian, Shuangrui Ding, <u>**Xian Liu**</u>, Dahua Lin
  International Conference on Computer Vision (**ICCV**), 2023.

- **Unbiased Video Representation Learning with Decoupled Mutual Information Constraint**
  Rui Qian, Shuangrui Ding, <u>**Xian Liu**</u>, Dahua Lin
  European Conference on Computer Vision (**ECCV**), 2022.

- **Make-A-Volume: Leveraging Latent Diffusion Models for Cross-Modality 3D Brain MRI Synthesis**
  Lingting Zhu, Zeyue Xue, Zhenchao Jin, <u>**Xian Liu**</u>, Jingzhen He, Xuanyu Liu, Ziwei Liu, Lequan Yu
  Medical Image Computing and Computer Assisted Intervention (**MICCAI**), 2023.

- **Motion Capture from Internet Videos**
  Junting Dong, Qing Shuai, Yuanqing Zhang, <u>**Xian Liu**</u>, Xiaowei Zhou, Hujun Bao
  European Conference on Computer Vision (**ECCV**), 2020. **(Oral Presentation, Top 2%)**

- **Enhancing Self-supervised Video Representation Learning via Multi-level Feature Optimization**
  Rui Qian, Yuxi Li, Huabin Liu, John See, Shuangrui Ding, <u>**Xian Liu**</u>, Dian Li, Weiyao Lin
  International Conference on Computer Vision (**ICCV**), 2021.

JOURNAL PUBLICATIONS

- **ChemSpacE: Toward Steerable and Interpretable Chemical Space Exploration**
  Yuanqi Du, <u>**Xian Liu**</u>, Shengchao Liu, Jieyu Zhang, Bolei Zhou
  Transactions on Machine Learning Research (**TMLR**), 2023.

WORKSHOP PAPERS

- **Interpreting Molecular Space with Deep Generative Models**
  Yuanqi Du, <u>**Xian Liu**</u>, Shengchao Liu, Jieyu Zhang, Bolei Zhou
  ELLIS Machine Learning for Molecule Discovery Workshop, 2021. **(Oral Presentation)**
  ICLR Machine Learning for Drug Discovery Workshop, 2022.

WORKING EXPERIENCE

- **Deep Imagination Research Group, NVIDIA Research** — Santa Clara, America
  Research Scientist Intern. Supervisor: Ting-Chun Wang, Ming-Yu Liu — Mar. 2024 - Now
  Topic: Image/Video Generation Foundation Model

- **Tencent AI Laboratory** — Shenzhen, China
  Research Intern. Supervisor: Ying Shan, Xiaohang Zhan — Sept. 2023 - Mar. 2024
  Topic: Text-Driven 3D Human Generation

- **Creative Vision Group, Snap Research** — Los Angeles, America
  Research Intern. Supervisor: Sergey Tulyakov, Jian Ren, Aliaksandr Siarohin — May. 2023 - Sept. 2023
  Topic: Human Generation Foundation Model

- **Digital Content Group, Shanghai AI Laboratory** — Shanghai, China
  Research Intern. Supervisor: Bo Dai — Jul. 2021 - Feb. 2022
  Topic: Audio-Visual Learning, Generative Modeling

- **Intelligent Video Group, SenseTime Research**   Shanghai, China
  Research Intern. Supervisor: Wayne Wu   Aug. 2020 - Jun. 2021
  Topic: Audio-Driven Talking Face Generation, Co-Speech Gesture Generation

PROFESSIONAL SERVICES

- **Conference Reviewer:** CVPR (2022-2024), ECCV (2022-2024), ICCV (2023), SIGGRAPH (2024), SIGGRAPH Asia (2022, 2023), NeurIPS (2022, 2023), ICML (2022-2024), ICLR (2023, 2024), AAAI (2022-2024).
- **Journal Reviewer:** IJCV, TVCG.

SELECTED HONORS & AWARDS

- **ICLR Travel Award**   2024
- **National Scholarship**   2019, 2020
- **Hong Kong Ph.D. Fellowship Scheme (HKPFS)**   2021-2025
- **Outstanding Graduate, Zhejiang Province**   2021
- **SenseTime Scholarship**   2020
- **Tang Lixin Scholarship**   2019
- **First Class Scholarship for Academic Excellence**   2019, 2020