JIAXIN LU

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University of Texas at Austin, Texas, U.S.A.

Education

University of Texas at Austin — **Texas, U.S.A**
Ph.D Student of Computer Science — *August 2022 - Present*
- Advisor: **Professor Qixing Huang**.

Shanghai Jiao Tong University — **Shanghai, China**
Bachelor of Computer Science, ACM Honors Class — *September 2018 - June 2022*
- **ACM Honors Class** is an elite CS program for students ranked in the top 5% of the school.
- Advisors: **Professor Junchi Yan** and **Professor Yong Yu**.

Research Interests

My research interests lie at the intersection of computer vision, computer graphics, and machine learning, with a specific emphasis on understanding and generating 3D interactions. My work spans **3D generation** through diffusion and flow-based models, **multi-modal learning** that bridges different 3D modalities, **human-centric systems** that model complex interactions between humans and objects, and **optimization algorithms** for reconstruction and matching problems. My overarching goal is to model the 3D world through interactions - whether between objects, humans and objects, or humans themselves - using unified frameworks that can seamlessly integrate into real-world applications.

Research Experience

Adobe — **San Jose, U.S.A**
Research Scientist Intern, Advised by **Dr. Yi Zhou** — *May 2024 - April 2025*
- **Human-object interaction dataset.** Built industry-standard human-object interaction dataset using motion capture, LLMs, and tracking algorithms for Adobe's creative suite and generative models. *(ICCV 2025)*
- **Generative human-object interaction.** Developed retrieval-based generative model for text-to-motion synthesis, enabling language control of digital characters in interactive environments.

Wormpex AI Research LLC — **Bellevue, U.S.A**
Research Intern, Advised by **Dr. Gang Hua** — *May 2023 - August 2023*
- **Unified dexterous grasp generation system.** Created diffusion model (UGG) for robotic grasping, object generation, and affordance analysis with 40% accuracy improvement over state-of-the-art. *(ECCV 2025 Oral)*

Stanford — **Palo Alto, U.S.A**
Visiting PhD Student, Advised by **Prof. Karen Liu** and **Dr. Yao Feng** — *May 2025 - present*
- **Text-to-interaction synthesis pipeline.** Building end-to-end system generating 3D scenes, human characters, and object interactions from text input, producing 4D sequences for AR/VR and humanoid robot training.

Department of Computer Science, University of Texas at Austin — **Texas, U.S.A.**
Graduate Researcher, Advised by **Prof. Qixing Huang** — *August 2022 - present*
- **3D shape generation for object reassembly.** Developed Jigsaw++ algorithm for object reassembly using rectified flow, reducing shape reconstruction error by 50% for manufacturing and heritage applications. *(ICCV 2025)*
- **Multi-fractures assembly framework.** Created Jigsaw framework for fractured object reconstruction achieving 2.2× accuracy improvement over existing methods. *(Neurips 2023)*
- **Conformal mesh parametriztion.** Designed an edge-based method with end-to-end learning framework for computing conformal parametrizations of closed surfaces.

ThinkLab, Shanghai Jiao Tong University — **Shanghai, China**
Undergraduate Researcher, Advised by **Prof. Junchi Yan** — *July 2020 - August 2022*
- **Scalable universe model for graph matching.** Designed "universe" graph approach for partial matching with 13% accuracy improvement and linear time complexity. *(ICLR 2025)*

- **Joint graph matching and clustering.** Developed convergence-guaranteed optimization algorithm with self-supervised model for joint matching and clustering problem. *(ICLR 2024)*

Publication

1. Jiaxin Lu, Chun-Hao Paul Huang, Uttaran Bhattacharya, Qixing Huang, Yi Zhou, "HUMOTO: A 4D Dataset of Mocap Human Object Interactions", *ICCV 2025*, [arXiv:2504.10414]
2. Jiaxin Lu, Gang Hua, Qixing Huang, "Jigsaw++: Imagining Complete Shape Priors for Object Reassembly", *ICCV 2025*, [arXiv:2410.11816]
3. Zihang He, Yuezhi Yang, Congyue Deng, Jiaxin Lu, Leonidas Guibas, and Qixing Huang, "An Efficient Global-to-Local Rotation Optimization Approach via Spherical Harmonics", *SGP 2025*, [paper]
4. Jiaxin Lu*, Yongqing Liang*, Huijun Han*, Jiacheng Hua*, Junfeng Jiang†, Xin Li†, Qixing Huang†, "A Survey on Computational Solutions for Reconstructing Complete Objects by Reassembling Their Fractured Parts", *Eurographics State-of-the-Art Reports*, [arXiv:2410.14770]
5. Jiaxin Lu, Hao Kang, Haoxiang Li, Bo Liu, Yiding Yang, Qixing Huang, Gang Hua, "UGG: Unified Generative Grasping ", *ECCV 2024 (Oral)*, [arxiv:2311.16917]
6. Jiaxin Lu*, Yifan Sun*, and Qixing Huang, "Jigsaw: Learning to Assemble Multiple Fractured Objects", *NeurIPS 2023*, [arxiv:2305.17975]
7. Zetian Jiang*, Jiaxin Lu*, Haizhao Fan, Tianzhe Wang and Junchi Yan, "Learning Structured Universe Graph with Outlier OOD Detection for Partial Matching", *ICLR 2025*, [ICLR version] [arxiv:2210.10374]
8. Jiaxin Lu*, Zetian Jiang*, Tianzhe Wang and Junchi Yan, "M3C: A Framework towards Convergent, Flexible, and Unsupervised Learning of Mixture Graph Matching and Clustering", *ICLR 2024*, [arxiv:2310.18444]
   *, † *denotes equal contribution*

Selected Awards and Honors

- Pandey Trinity Graduate Fellowship *2025*
- Excellent Bachelor Thesis (Top 1%) of Shanghai Jiao Tong University *2022*
- Shanghai Excellent Graduate (Awarded for overall performance in undergraduate career) *2022*
- Zhiyuan Outstanding Student Scholarship (Highest award for undergraduate in SJTU) *2022*
- Shanghai Scholarship (Top 0.2% in Shanghai) *2021*
- Zhiyuan Honor Scholarship (Top 2% in Shanghai Jiao Tong University) *2018-2021*
- Rank 3rd in CCPC WomenFINAL (Out of 85 teams) *May 2017*

Teaching Experience

- Teaching Assistant, CS 378: Generative Visual Computing, UT Austin, *Spring 2025*
- Teaching Assistant, CS395T: Numerical Optimization for Graphics/AI, UT Austin, *Spring 2024*
- Teaching Assistant, CS376: Computer Vision, UT Austin, *Spring 2023, Fall 2023*
- Teaching Assistant, CS303E: Elements of Programming, UT Austin *Fall 2022*
- Teaching Assistant, CS151: C++ Programming (Honors), SJTU *Fall 2020, Fall 2019*

Academic Services

- Conference Reviewer: CVPR, ECCV, ICCV, NeurIPS, ICLR, ICML, SIGGRAPH Asia, AAAI, 3DV, EG, PG
- Journal Reviewer: TPAMI, IJCV, TVCG

Computer and Language Skills

- **Programming Language:** Proficient in C++, Python, Java, MATLAB, and Verilog HDL.
- **Deep Learning Libraries:** Proficient in Pytorch and Tensorflow.
- **Language:** Mandarin (native), English (fluent).