

Xiang Feng

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Research Interests

I am interested in physical AI, with a focus on closed-loop training and evaluation of robot control policies. Building on my background in 3D vision and physics-based simulation, I aim to enable robots to learn, act, and continually improve through interaction with both simulated and real-world environments.

Education

University of California, Los Angeles Sep 2026 – Present
Ph.D. in Computer Science, Advisor: Prof. Chenfanfu Jiang & Prof. Demetri Terzopoulos Los Angeles, USA

University of California, San Diego Sep 2025 – Sep 2026
Ph.D. in Computer Science and Engineering La Jolla, USA

Zhejiang University Sep 2022 – Jun 2025
M.Eng. in Computer Science, Advisor: Prof. Hongzhi Wu Hangzhou, China

Zhejiang University Sep 2018 – Jun 2022
B.Eng. in Computer Science and Technology (Mixed Class of Chu Kochen Honors College) Hangzhou, China

Experience

T.B.D. Intern Sep 2026 – Present
Los Angeles, USA

Real2Sim2Real

- Integrated real-time path tracing into an agentic real2sim 3D generation framework for visual alignment.
- Integrated a simulator with improved frictional contact modeling to support sim2real transfer for robotic manipulation.

Recursive Self-Improving System for Robotic Manipulation (In progress)

Large Behavior Models Team (Dynamics & Simulation) at Toyota Research Institute Jun 2026 – Aug 2026
Research Summer Intern, Mentor: Joe Masterjohn Cambridge, USA

Dynamics Modeling of Friction Contact for Robotics and Deformable Bodies (In progress)

- Implemented a monolithic simulator for strongly coupled dynamics between robots and deformable bodies on GPU.
- Proposed a formulation that accounts for residuals arising from inexact solutions of deformable-body dynamics.

Artificial Intelligence & Visual Computing Lab at UCLA Sep 2025 – Jun 2026
Visiting Student, Advisor: Prof. Chenfanfu Jiang Los Angeles, USA

GPU-Accelerated Simulation for Articulated Robots with Frictional Contact

- Implemented and open-sourced a GPU-accelerated version of Drake (TRI's robot simulator).

High Performance Physics-based Simulation

- Proposed a novel MPM formulation that removes the burden of particle-based quadratures.
- Optimized the method for GPU execution, achieving up to a $16\times$ speedup over classical methods.

Soft-body Deformation with Large Neural Network

- Developed a large-scale neural network for feed-forward elastodynamics prediction.
- Synthesized a dataset using a quasi-static simulator under specific boundary conditions.

Video-Action Model with Memory for Robotic Manipulation

- Set up a PIKKA-based teleoperation system for the PIPER robot arm and assisted with data collection.

Utah Graphics Lab at University of Utah Dec 2023 – Oct 2024
Research Assistant, Advisor: Prof. Yin Yang Salt Lake City, USA

Large 3D Generation Model

- Developed a triplane based transformer for 3D generation from single input view.
- Decoupled geometry and appearance synthesis and reconstructed high-quality 3D meshes and PBR texture maps.

Unified Representation for 3D Gaussian Splatting and Two-way Fluid-solid Coupling

- Proposed a cohesive 3DGS framework for rendering, view synthesis, and the dynamics of solids and fluids.
- Implemented position-based fluids with surface tension.

Physics-in-the-loop Neural Elastodynamics Generation

- Implemented a latent diffusion model for encoding and generating the weights of a neural dynamics network.

State Key Lab of CAD&CG at Zhejiang University

Research Assistant, Advisor: Prof. Hongzhi Wu

Feb 2022 – Jun 2025

Hangzhou, China

3D Shape and Appearance Reconstruction with Differentiable Acquisition System

- Proposed an invariant photometric feature transform framework for enhancing 3D reconstruction.
- Developed a differentiable inverse rendering framework for appearance estimation.
- Built a 3D object dataset with calibrated multi-view and multi-lighting images.
- Built an FPGA-based acquisition system with synchronized camera and light control.

Publications

MemoryVAM: Integrating Memory into Video Action Model for Robot Manipulation

Yuxin Jiang*, Chang Yu*, Yunuo Chen, **Xiang Feng**, Yin Yang, Nishank Gite, Chenfanfu Jiang, in *Conference on Robot Learning 2026*.

Unified Sparse Framework for Large-Scale Material Point Method Simulations

Yidong Zhao, Lars Blatny, **Xiang Feng**, Mikkel M. Juel, Chenfanfu Jiang, Johan Gaume, in *arXiv 2026*.

MPM Lite: Linear Kernels and Integration without Particles

Xiang Feng*, Yunuo Chen*, Chang Yu* (equal contributions), Hao Su, Demetri Terzopoulos, Yin Yang, Joseph Masterjohn, Alejandro Castro, Chenfanfu Jiang, in *SIGGRAPH 2026 (Journal Track & Technical Paper Trailer)*.

ElastoGen: 4D Generative Elastodynamics

Yutao Feng*, Yintong Shang*, **Xiang Feng*** (equal contributions), Lei Lan, Shandian Zhe, Tianjia Shao, Hongzhi Wu, Kun Zhou, Hao Su, Chenfanfu Jiang, Yin Yang, in *Conference on Artificial Intelligence 2026 (Oral paper)*.

OpenSubstance: A High-quality Measured Dataset of Multi-View and -Lighting Images and Shapes

Fan Pei, Jinchen Bai, **Xiang Feng**, Zoubin Bi, Kun Zhou, Hongzhi Wu, in *Conference on Computer Vision (ICCV) 2025*

ARM: Appearance Reconstruction Model for Relightable 3D Generation

Xiang Feng*, Chang Yu*, Zoubin Bi* (equal contributions), Yintong Shang, Feng Gao, Hongzhi Wu, Kun Zhou, Chenfanfu Jiang, Yin Yang, in *Conference on Computer Vision and Pattern Recognition (CVPR) 2025 (Highlight paper)*.

Gaussian Splashing: Unified Particles for Versatile Motion Synthesis and Rendering

Yutao Feng*, **Xiang Feng*** (equal contributions), Yintong Shang, Ying Jiang, Chang Yu, Zeshun Zong, Tianjia Shao, Hongzhi Wu, Kun Zhou, Chenfanfu Jiang, Yin Yang, in *Conference on Computer Vision and Pattern Recognition (CVPR) 2025*.

Learning Photometric Feature Transform for Free-form Object Scan

Xiang Feng, Kaizhang Kang, Fan Pei, Huakeng Ding, Jinjiang You, Ping Tan, Kun Zhou, Hongzhi Wu, in *IEEE Transactions on Visualization and Computer Graphics (TVCG) 2024*.

GS³: Efficient Relighting with Triple Gaussian Splatting

Zoubin Bi, Yixin Zeng, Chong Zeng, Fan Pei, **Xiang Feng**, Kun Zhou, Hongzhi Wu, in *SIGGRAPH Asia 2024*.

Real-time Acquisition and Reconstruction of Dynamic Volumes with Neural Structured Illumination

Yixin Zeng, Zoubin Bi, Mingrui Yin, **Xiang Feng**, Kun Zhou, Hongzhi Wu, in *Conference on Computer Vision and Pattern Recognition (CVPR) 2024*.

Differentiable Dynamic Visible-Light Tomography

Kaizhang Kang, Zoubin Bi, **Xiang Feng**, Yican Dong, Hongzhi Wu, Kun Zhou, in *SIGGRAPH Asia 2023*.

Open-Source Projects

SAP Warp: GPU-accelerated Simulation of Friction Contact for Robotics

Yunuo Chen*, **Xiang Feng*** (equal contributions), Chang Yu, Yin Yang, Joseph Masterjohn, Chenfanfu Jiang, GitHub: https://github.com/sap-sim/sap_warp.

Asuna: Vulkan-based Path Tracer

Xiang Feng, GitHub: <https://github.com/f1shel/Asuna>.

Professional Activities

Invited talk at GAMES Webinar

Topic: High Performance Physics-based Simulation

Jun 2026

Invited talk at SFU Delta Lab

Topic: Towards Bridging the 3D Data Gap for Building Spatial Intelligence

Mar 2026

Meshy Fellowship

Finalist

2026

Asia Student Supercomputer Challenge

Second Prize

Academic Reviewer

SIGGRAPH Asia, IEEE TVCG, Pacific Graphics, AAAI

Last update: Sep 30, 2026