Kaifeng Zhang

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EDUCATION

Columbia University	Aug 2024 – Present
Ph.D. student in Computer Science	*Advisor: Yunzhu Li*

University of Illinois Urbana-Champaign	Aug 2023 – Aug 2024
Ph.D. Student in Computer Science	*Advisor: Yunzhu Li*

- Completed one year of Ph.D. study before transferring to Columbia University.

Tsinghua University	Sep 2019 – Jun 2023
B.Eng. in Computer Science, Institute for Interdisciplinary Information Sciences	*GPA: 3.93/4.0*

- Visiting student at the University of California, San Diego from Feb 2022 to Jul 2022.

PUBLICATIONS

Real-to-Sim Policy Evaluation with Gaussian Splatting Simulation of Soft-Body Interactions
Kaifeng Zhang*, Shuo Sha*, Hanxiao Jiang, Matthew Loper, Hyunjong Song, Guangyan Cai, Zhuo Xu, Xiaochen Hu, Changxi Zheng, Yunzhu Li
In submission, 2025.

BoxTwin: Learning Elastoplastic Articulated Object Dynamics from Videos
Heng Zhang, Gehan Zheng, **Kaifeng Zhang**, Hyunjong Song, Shivansh Patel, Xiaochen Hu, Yunzhu Li, Changxi Zheng, Peter Yichen Chen
In submission, 2025.

Particle-Grid Neural Dynamics for Learning Deformable Object Models from RGB-D Videos
Kaifeng Zhang, Baoyu Li, Kris Hauser, Yunzhu Li
Robotics: Science and Systems (RSS), 2025.

PhysTwin: Physics-Informed Reconstruction and Simulation of Deformable Objects from Videos
Hanxiao Jiang, Hao-Yu Hsu, **Kaifeng Zhang**, Hsin-Ni Yu, Shenlong Wang, Yunzhu Li
in International Conference on Computer Vision (ICCV), 2025.

Dynamic 3D Gaussian Tracking for Graph-Based Neural Dynamics Modeling
Mingtong Zhang*, **Kaifeng Zhang***, Yunzhu Li
Conference on Robot Learning (CoRL), 2024.

AdaptiGraph: Material-Adaptive Graph-Based Neural Dynamics for Robotic Manipulation
Kaifeng Zhang*, Baoyu Li*, Kris Hauser, Yunzhu Li
Robotics: Science and Systems (RSS), 2024 and ICRA RMDO Workshop, 2024 (Best Abstract Award, Top 1)

4DRecons: 4D Neural Implicit Deformable Objects Reconstruction from a single RGB-D Camera with Geometrical and Topological Regularizations
Xiaoyan Cong, Haitao Yang, Liyan Chen, **Kaifeng Zhang**, Li Yi, Chandrajit Bajaj, Qixing Huang
Preprint, 2024.

Self-Supervised Geometric Correspondence for Category-Level 6D Object Pose Estimation in the Wild
Kaifeng Zhang, Yang Fu, Shubhankar Borse, Hong Cai, Fatih Porikli, Xiaolong Wang
International Conference on Learning Representations (ICLR), 2023.

Semantic-Aware Fine-Grained Correspondence
Yingdong Hu, Renhao Wang, **Kaifeng Zhang**, Yang Gao
European Conference on Computer Vision (ECCV), 2022. (Oral presentation)

RESEARCH EXPERIENCE

RoboPIL Lab, Columbia University & UIUC	Aug 2023 – Present
Graduate Research Assistant	*Advisor: Yunzhu Li*

- Research focus: dynamics model learning, robotic simulation, deformable object manipulation.
- Building a realistic real-to-sim pipeline for robot policy evaluation, leveraging Gaussian Splatting for rendering and soft-body digital twins for dynamics.

- Developing methods to create soft-body digital twins via neural dynamics models, enabling efficient identification from visual observations, photorealistic rendering, and integration into physics-based simulators. Demonstrated model-based planning with MPC using learned dynamics.

Wang Lab, University of California, San Diego   Feb 2022 – Jul 2023
Undergraduate Research Assistant   *Advisor: Xiaolong Wang*
- Research focus: 6D object pose estimation, 3D reconstruction, neural rendering.

Tsinghua Vision and Robotics Lab, Tsinghua University   Jun 2021 – Mar 2022
Undergraduate Research Assistant   *Advisor: Yang Gao*
- Research focus: self-supervised learning, vision encoders, video object segmentation.

WORKING EXPERIENCE

SceniX, Inc.   May 2025 – Aug 2025
Robotics Research Intern   *Supervisor: Yunzhu Li, Changxi Zheng*
- Developed robotic simulation and real-to-sim pipelines for the evaluation of robot policies across varied tasks.
- Worked on perception, system identification, and simulation of diverse deformable objects, including ropes, plush toys, and paper boxes. Built end-to-end workflows, covering data collection, policy training, and evaluation.

TEACHING EXPERIENCE

COMS W4733: Computational Aspects of Robotics   Columbia University
Instructor: Yunzhu Li   *Fall 2025*

AWARDS & HONORS

Best Abstract Award, 4th Workshop on Representing and Manipulating Deformable Objects @ ICRA 2024.   05/2024
Outstanding Graduate, Tsinghua University (Top 10%).   06/2023
Xuetang Scholarship, Tsinghua University.   10/2020
Freshman Scholarship, Tsinghua University.   10/2019
Silver Prize, the 35th Chinese Physics Olympiad, Chinese Physical Society.   08/2018

ACADEMIC SERVICE

Conference Reviewer
CoRL, ICRA, IROS, CVPR, ECCV, ICCV, WACV
Workshop Reviewer
SWOMO @ RSS 2025, WM @ ICML 2025, RINO @ CoRL 2025, Digital Twin @ ICCV 2025
Workshop Organizer
SWOMO @ RSS 2025, RINO @ CoRL 2025

INVITED TALKS

AnySyn3D Webinar   09/2025
Topic: Combining Physics and Learning for 3D Object Modeling and Simulation

3DCV Talk Series   08/2025
Topic: Particle-Grid Neural Dynamics for Learning Deformable Object Models from RGB-D Videos

TechBeat Talk Series   08/2024
Topic: AdaptiGraph: Material-Adaptive Graph-Based Neural Dynamics for Robotic Manipulation

SKILLS

Programming Languages: Python, C, C++
Python Frameworks: PyTorch, TensorFlow, Warp
Softwares and Tools: Git, LaTeX, Docker, ROS, Blender, Kubernetes