

YUTONG LIANG

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Education

University of California, San Diego

M.S. in Computer Science and Engineering · Advisor: Prof. Xiaolong Wang

Sep 2025–Dec 2026 (expected)

CA, USA

Peking University

B.S. in Computer Science and Technology · Advisor: Prof. Libin Liu

Sep 2021–Jul 2025

Beijing, China

GPA: 3.75/4.0 · Rank: 7/121

Research Interests

I build real-world learning systems for contact-rich dexterous manipulation. My work captures fine-grained human hand-object interaction, uses human demonstrations as motion and exploration priors for reinforcement learning, and learns precise contact from teleoperated robot data. My long-term goal is to build a general model for contact-aware, low-level robot control.

Publications

FINGR: Learning Dexterous Hand Control for Real-World Rubik's Cube Solving

Yutong Liang*, Quanquan Peng*, Matthew Kim*, Xiaolong Wang

Under review
arXiv:2609.33973

FACT: Failure-Aware Causal Training for World-Action Models

Quanquan Peng*, Yutong Liang*, Rui Yan, Nicklas Hansen, Xiaolong Wang

CoRL 2026

ConTrack: Constrained Hand Motion Tracking with Adaptive Trade-Off Control

Yutong Liang, Quanquan Peng, Ri-Zhao Qiu, Xiaolong Wang

ECCV 2026

XL-VLA: Cross-Hand Latent Representation for Vision-Language-Action Models

Guangqi Jiang*, Yutong Liang*, Jianglong Ye, Jia-Yang Huang, Changwei Jing, Rocky Duan, Pieter Abbeel, Xiaolong Wang, Xueyan Zou

CVPR 2026
Highlight

DexterCap: Affordable and Automated Capture of Complex Hand-Object Interactions

Yutong Liang*, Shiyi Xu*, Yulong Zhang*, Bowen Zhan, He Zhang, Libin Liu

Eurographics 2026

GSWorld: Closed-Loop Photo-Realistic Simulation Suite for Robotic Manipulation

Guangqi Jiang*, Haoran Chang*, Ri-Zhao Qiu, Yutong Liang, Mazeyu Ji, Jiyue Zhu, Zhao Dong, Xueyan Zou, Xiaolong Wang

ICRA 2026

RoboVerse: A Unified Platform, Benchmark and Dataset for Scalable and Generalizable Robot Learning

Haoran Geng, ..., Yutong Liang, ..., Jitendra Malik, Pieter Abbeel

RSS 2025

SimiSketch: Efficiently Estimating Similarity of Streaming Multisets

Fenghao Dong, Yang He*, Yutong Liang*, Zirui Liu, Yuhan Wu, Peiqing Chen, Tong Yang

arXiv 2024

*Equal contribution.

Research Experience

University of California, San Diego · Graduate Researcher

Jul 2025–Present

Advisor: Prof. Xiaolong Wang

FINGR: Rubik's Cube Solving with a Dexterous Hand

First author · Under review

Solved 10/10 scrambled $2 \times 2 \times 2$ cubes autonomously on a real dexterous hand, 137 s on average. A contact-aware policy learned from teleoperated demonstrations raised layer-turn success from 79.7% to 99.0%.

ConTrack: Human-to-Robot Hand Motion Tracking

First author · ECCV 2026

Tracked 90% of each human hand-object clip vs. 74% for the strongest baseline, by constraining object tracking and letting the robot hand deviate from the human hand; deployed on a real bimanual xArm7-XHand.

XL-VLA: One VLA Policy Across Four Dexterous Hands Co-first author · **CVPR 2026 Highlight**
Raised mean real-world success over ten tasks from 55% (π_0) to **90%**. Designed the cross-hand latent action space, learned without demonstrations or paired cross-hand data.

Peking University · *Undergraduate Researcher* Jul 2023–Jul 2025
Visual Computing and Learning Lab · Advisor: Prof. Libin Liu

DexterCap: Low-Cost Hand-Object Motion Capture First author · **Eurographics 2026**
Reached **0.77 mm** hand-marker error (2.06 mm during dynamic manipulation) with under **\$6,000** of optical capture hardware. Built the automated reconstruction pipeline and produced the DexterHand dataset.

Stanford University · *Research Intern* Jun–Sep 2024
The Movement Lab and Stanford Vision and Learning Lab · Advisors: Prof. C. Karen Liu and Prof. Jiajun Wu

Motion-Guided Interior Design
Optimized indoor layouts with CMA-ES, scoring each layout by the human motion it supports through MuJoCo inverse dynamics.

Skills

Robots: xArm7; XHand, Sharpa Wave Hand, Ability Hand, Inspire Hand, Paxini DexH13
Simulation: Isaac Lab, MuJoCo
Data capture: Apple Vision Pro teleoperation, data gloves, optical motion capture, MANO/SMPL-X fitting

Honors and Awards

PKU Scholarship (Top 5%); PKU Outstanding Research Award	2024
AEON Scholarship (Top 10%)	2023

Academic Service

Reviewer: ICLR 2027, ICRA 2027, CoRL 2026, IEEE RA-L 2026
Workshop reviewer: CoRL 2026 (Compositional Generalization for Real-World Robot Learning; Dexterous Manipulation), ICRA 2026 (Manipulation Robustness)