Yutong Liang

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Education

University of California, San Diego — Sep 2025–Dec 2026 (expected)
M.S. in Computer Science · Advisor: Prof. Xiaolong Wang — CA, USA

Peking University — Sep 2021–Jun 2025
B.S. in Computer Science and Technology · Advisor: Prof. Libin Liu — 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 — Under review
Yutong Liang*, Quanquan Peng*, Matthew Kim*, Xiaolong Wang — arXiv:2609.33973

FACT: Failure-Aware Causal Training for World-Action Models — CoRL 2026
Quanquan Peng*, **Yutong Liang***, Rui Yan, Nicklas Hansen, Xiaolong Wang

ConTrack: Constrained Hand Motion Tracking with Adaptive Trade-Off Control — ECCV 2026
Yutong Liang, Quanquan Peng, Ri-Zhao Qiu, Xiaolong Wang

XL-VLA: Cross-Hand Latent Representation for Vision-Language-Action Models — CVPR 2026 Highlight
Guangqi Jiang*, **Yutong Liang***, Jianglong Ye, Jia-Yang Huang, Changwei Jing, Rocky Duan, Pieter Abbeel, Xiaolong Wang, Xueyan Zou

DexterCap: Affordable and Automated Capture of Complex Hand-Object Interactions — Eurographics 2026
Yutong Liang*, Shiyi Xu*, Yulong Zhang*, Bowen Zhan, He Zhang, Libin Liu

GSWorld: Closed-Loop Photo-Realistic Simulation Suite for Robotic Manipulation — ICRA 2026
Guangqi Jiang*, Haoran Chang*, Ri-Zhao Qiu, **Yutong Liang**, Mazeyu Ji, Jiyue Zhu, Zhao Dong, Xueyan Zou, Xiaolong Wang

RoboVerse: A Unified Platform, Benchmark and Dataset for Scalable and Generalizable Robot Learning — RSS 2025
Haoran Geng, …, **Yutong Liang**, …, Jitendra Malik, Pieter Abbeel

SimiSketch: Efficiently Estimating Similarity of Streaming Multisets — arXiv 2024
Fenghao Dong, Yang He*, **Yutong Liang***, Zirui Liu, Yuhan Wu, Peiqing Chen, Tong Yang

*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 2×2×2 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)