

Education

University of California, San Diego

M.S. in Computer Science and Engineering

Advisor: *Prof. Xiaolong Wang*

CA, USA

Sep 2025–Present

Peking University

B.S. in Computer Science and Technology

GPA: 3.75/4.0 Rank: 7/121

Advisor: *Prof. Libin Liu*

Beijing, China

Sep 2021–Jul 2025

Research Interests

My research connects three problems: capturing dense human-object motion, learning dexterous hand manipulation from these motions, and training policies that generalize in the real world.

Publications

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

Yutong Liang^{*}, Quanquan Peng^{*}, Matthew Kim^{*}, Xiaolong Wang

Under review, 2026

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 (Highlight), 2026

DexterCap: An Affordable and Automated System for Capturing Dexterous Hand-Object Manipulation

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: Towards a Unified Platform, Dataset and Benchmark for Scalable and Generalizable Robot Learning

RoboVerse Team

RSS, 2025

SimiSketch: Efficiently Estimating Similarity of Streaming Multisets

Fenghao Dong, Yang He^{*}, Yutong Liang^{*}, Zirui Liu, Yuhan Wu, Peiqing Chen, and Tong Yang[†]

arXiv preprint, 2024

^{*}Equal contribution. [†]Corresponding author.

Research Experience

University of California, San Diego

2025–Present

Robot learning | Advisor: Prof. Xiaolong Wang

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

First author | Under review

- Designed a flow policy combining permutation-invariant finger-relative geometry with future tokens supervised on contact-force changes, layer-turn progress, and finger motion at multiple horizons, raising real-robot layer-turn success from 79.7% to 99.0% over 300 attempts.
- Built the data collection, policy training, and deployment pipeline, integrating learned layer turns with grasping, table-assisted regrasping, and state verification to solve 10/10 scrambled $2 \times 2 \times 2$ cubes in an average of 137 seconds, including pickup, regrasping, and final placement.

ConTrack

First author | ECCV 2026

- Developed constrained RL with online dual control and policy-reachable resets for long-horizon hand-object tracking, preserving object-motion accuracy while adapting hand motion and contact to robot kinematics; executed generated trajectories on a bimanual xArm7-XHand platform.

XL-VLA / CrossLatent

Co-first author | CVPR 2026 Highlight

- Designed XL-VLA's shared latent action space across four dexterous hands. The representation learns from randomly sampled joint configurations and differentiable kinematic constraints, without demonstration data or paired cross-hand trajectories.

Peking University

2023–2025

Visual Computing and Learning Lab | Advisor: Prof. Libin Liu

Character animation and physics simulation

DexterCap

First author | Eurographics 2026

- Designed the automated hand-object reconstruction pipeline behind DexterHand, combining learned marker identification, multi-view triangulation, and motion fitting for hands and rigid or articulated objects.

Stanford University

Jun–Sep 2024

Research Intern | 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, evaluating human motion in each layout through MuJoCo inverse dynamics.

Honors and Awards

PKU Scholarship (Top 5%); PKU Outstanding Research Award

2024

AEON Scholarship (Top 10%)

2023

Academic Service

Reviewer: CoRL 2026; ICRA Workshop on Manipulation Robustness 2026; IEEE RA-L 2026.