FANGCHEN LIU

+1 (510) 736-3601 ⋄ fangchenliu@berkeley.edu
Homepage / Google Scholar

EDUCATION

University of California, Berkeley Aug. 2020 – Present
Ph.D. in Computer Science, advised by Pieter Abbeel

University of California, San Diego Sep. 2018 – Mar. 2020
M.S. in Computer Science, advised by Hao Su

Peking University Sep. 2014 – Jul. 2018
B.S. in Computer Science (Honor Track)

RESEARCH INTEREST

I am interested in developing algorithms and systems for general-purpose embodied agents and robotics. My prior research has focused on three key areas: (1) open-ended perception and reasoning with pre-trained vision-language representations, (2) generalizable and in-context control from diverse sensorimotor trajectories, and (3) learning beyond teleoperated demonstrations, such as action-free videos and negative experiences, through methods like representation learning, reinforcement learning, and world modeling.

PUBLICATIONS

$*$ indicates equal contribution

- ViTaMIn: Learning Contact-Rich Tasks Through Robot-Free VisuoTactile Manipulation Interface. **Fangchen Liu***, Chuanyu Li*, Yihua Qin, Ankit Shaw, Jing Xu, Pieter Abbeel, Rui Chen. In submission for *RSS*, 2025
- Early Fusion Helps Vision-Language-Action Models Generalize Better. **Fangchen Liu***, Raven Huang*, Max Fu, Tingfan Wu, Mustafa Mukadam, Jitendra Malik, Ken Goldberg, Pieter Abbeel. In submission to *ICML*, 2025
- Learning Unified and Adaptive Sensory Representation from Multi-modal Supervision. **Fangchen Liu**, Carlo Sferrazza, Pieter Abbeel. *RAL*, 2025
- MOKA: Open-Vocabulary Robotic Manipulation through Mark-Based Visual Prompting. **Fangchen Liu***, Kuan Fang*, Pieter Abbeel, Sergey Levine. *RSS* 2024
- Chain-of-Thought Predictive Control. Zhiwei Jia, **Fangchen Liu**, Vineet Thumuluri, Zhiao Huang, Hao Su. *ICML*, 2024
- The Wisdom of Hindsight Makes Language Models Better Instruction Followers. Tianjun Zhang*, **Fangchen Liu***, Justin Wong, Pieter Abbeel, Joseph E. Gonzalez. *ICML*, 2023
- Masked Autoencoding for Scalable and Generalizable Decision Making. **Fangchen Liu**, Hao Liu, Aditya Grover, Pieter Abbeel. *NeurIPS*, 2022
- Towards More Generalizable One-shot Visual Imitation Learning. **Fangchen Liu***, Zhao Mandi*, Kimin Lee, Pieter Abbeel. *ICRA*, 2022

- State Alignment-based Imitation Learning. **Fangchen Liu**, Zhan Ling, Tongzhou Mu, Hao Su. *ICLR*, 2020
- Mapping State Space using Landmarks for Universal Goal Reaching. Zhiao Huang*, **Fangchen Liu***, Hao Su. *NeurIPS*, 2019
- ExBody2: Advanced Expressive Humanoid Whole-Body Control. Mazeyu Ji*, Xuanbin Peng*, **Fangchen Liu**, Jialong Li, Ge Yang, Xuxin Cheng, Xiaolong Wang. In submission to *RSS*, 2025
- Video2Policy: Scaling up Manipulation Tasks in Simulation through Internet Videos. Weirui Ye, **Fangchen Liu**, Zheng Ding, Yang Gao, Oleh Rybkin, Pieter Abbeel. In submission to *ICML*, 2025
- In-Context Imitation Learning via Next-Token Prediction. Letian Fu, Huang Huang, Gaurav Datta, Lawrence Yunliang Chen, William Chung-Ho Panitch, **Fangchen Liu**, Hui Li, Ken Goldberg. *ICRA*, 2025
- Body Transformer: Leveraging Robot Embodiment for Policy Learning. Carmelo Sferrazza, Dun-Ming Huang, **Fangchen Liu**, Jongmin Lee, Pieter Abbeel. *CoRL* 2024
- SpawnNet: Learning Generalizable Visuomotor Skills from Pre-trained Networks. Xingyu Lin, John So, Sashwat Mahalingam, **Fangchen Liu**, Pieter Abbeel. *ICRA*, 2024
- FMB: a Functional Manipulation Benchmark for Generalizable Robotic Learning. Jianlan Luo*, Charles Xu*, **Fangchen Liu**, Liam Tan, Zipeng Lin, Jeffrey Wu, Pieter Abbeel, Sergey Levine. *IJRR* 2024
- Open X-Embodiment: Robotic Learning Datasets and RT-X Models. Open X-Embodiment Team. *ICRA*, 2024 (Best Paper Award)
- Masked World Models for Visual Control. Younggyo Seo, Danijar Hafner, Hao Liu, **Fangchen Liu**, Stephen James, Kimin Lee, Pieter Abbeel. *CoRL*, 2022
- HARP: Autoregressive Latent Video Prediction with High-Fidelity Image Generator. Younggyo Seo, Kimin Lee, **Fangchen Liu**, Stephen James, Pieter Abbeel. *ICIP*, 2022.
- SAPIEN: a SimulAted Part-based Interactive ENvironment. Fanbo Xiang, Yuzhe Qin, Kaichun Mo, Yikuan Xia, Hao Zhu, **Fangchen Liu**, Minghua Liu, Hanxiao Jiang, Yifu Yuan, Li Yi, He Wang, Angel Chang, Leonidas Guibas, Hao Su. *CVPR*, 2020 (oral)
- BDD100K: A Diverse Driving Dataset for Heterogeneous Multitask Learning. Fisher Yu, Haofeng Chen, Xin Wang, Wenqi Xian, Yingying Chen, **Fangchen Liu**, Mike Liao, Vashisht Madhavan, Trevor Darrell. *CVPR*, 2020 (oral)
- Adversarial Defense by Stratified Convolutional Sparse Coding. Bo Sun, Nian-hsuan Tsai, **Fangchen Liu**, Ronald Yu, Hao Su. *CVPR*, 2019
- Effective Master-Slave Communication On a Multi-Agent Deep Reinforcement Learning System. Xiangyu Kong, **Fangchen Liu***, Bo Xin*, Yizhou Wang. *NIPS Hierarchical Reinforcement Learning Workshop*, 2017
- Revisiting the Master-Slave Architecture in Multi-Agent Deep Reinforcement Learning. Xiangyu Kong, **Fangchen Liu***, Bo Xin*, Yizhou Wang. *arXiv:1712.07305*

WORKING EXPERIENCE

Intern at Google Research	Jun. 2023 – Sep. 2023
Intern at NVIDIA Research, AI Algorithm Group	Jun. 2022 – Jan. 2023
Intern at FAIR, Robotics and Reinforcement Learning Group	Jun. 2020 – Aug. 2020
Intern at Microsoft Research Asia, Visual Computing Group	Dec. 2017 – Mar. 2018

SERVICES

Reviewer:

- Conference: NeurIPS, ICML, ICLR, CVPR, ECCV, ICCV, ICRA, RSS, CoRL
- Journal: RA-L, IJRR, TMLR, JMLR

Teaching Assistant:

- CS 188: Introduction to Artificial Intelligence (Fall 2024, UC Berkeley)
- CS 203B: Convex Optimization (Winter 2020, UC San Diego)
- CS 152A: Introduction to Computer Vision (Fall 2019, UC San Diego)

Workshop Organizer:

- Leading organizer for *Towards Reliable and Deployable Learning-based Robotic Systems, CoRL 2023*
- Leading organizer for The 1st *Workshop on Humanoid Agents, CVPR 2025*