Kuan Fang

Contact Information

Address:
2121 Berkeley Way, 8th Floor,
Berkeley, CA 94305

Phone: +1 (650) 275-7502
Email: kuanfang@berkeley.edu
Website: `https://kuanfang.github.io/`

Research Interests

Robotics, Computer Vision, Machine Learning.

Education

Stanford University 2021

Ph.D. in *Electrical Engineering*

Advisors: Fei-Fei Li, Silvio Savarese

Dissertation: *Learning Perception and Control from Rich Interactions*

Stanford University 2017

Master of Science in *Electrical Engineering*

Tsinghua University 2014

Bachelor of Science in *Microelectronics*

Appointment

University of California, Berkeley 2021 - Present
Postdoctoral Researcher with Sergey Levine

Other Research Experience

Google Brain Robotics 2018
Student Researcher

X (formerly Google [x]) Robotics 2017
Software Engineering Intern

Microsoft Research Asia, Machine Learning Group 2013
Research Intern

Stanford University, Computer Science Department 2013
Research Assistant with Ron Fedkiw

Tsinghua University, Parallel Embedded Computing Lab 2012 - 2013
Research Assistant with Yangdong Deng

Honors And Awards

Computing Innovation Fellow	2021 - 2022
Stanford Graduate Fellowship (David Cheriton Fellow)	2014 - 2017
Award of Excellence in Microsoft Research Asia Internship Program	2014
Best Paper Award in International Conference on Computer Design (ICCD)	2013
Comprehensive Scholarship for Academic Excellence, Tsinghua University	2013
Comprehensive Scholarship for Academic Excellence, Tsinghua University	2012

Publications

[1] **Kuan Fang**, Patrick Yin, Ashvin Nair, Homer Walke, Gengchen Yan, Sergey Levine. Generalization with Lossy Affordances: Leveraging Broad Offline Data for Learning Visuomotor Tasks. In *Conference on Robot Learning (CoRL)*, 2022.

[2] **Kuan Fang***, Patrick Yin*, Ashvin Nair, Sergey Levine. Planning to Practice: Efficient Online Fine-Tuning by Composing Goals in Latent Space. In *International Conference on Intelligent Robots and Systems (IROS)*, 2022.

[3] **Kuan Fang**, Yuke Zhu, Silvio Savarese, Li Fei-Fei. Learning Generalizable Skills via Automated Generation of Diverse Tasks. In *Robotics: Science and Systems (RSS)*, 2021.

[4] Zhenyu Jiang, Yifeng Zhu, Maxwell Svetlik, **Kuan Fang**, Yuke Zhu. Synergies Between Affordance and Geometry: 6-DoF Grasp Detection via Implicit Representations. In *Robotics: Science and Systems (RSS)*, 2021.

[5] **Kuan Fang**, Yuke Zhu, Silvio Savarese, Li Fei-Fei. Adaptive Procedural Task Generation for Hard-Exploration Problems. In *International Conference on Learning Representations (ICLR)*, 2021.

[6] Zengyi Qin **Kuan Fang**, Yuke Zhu, Li Fei-Fei, Silvio Savarese. KETO: Learning Keypoint Representations for Tool Manipulation. In *International Conference on Robotics and Automation (ICRA)*, 2020.

[7] **Kuan Fang**, Yuke Zhu, Animesh Garg, Silvio Savarese, Li Fei-Fei. Dynamics Learning with Cascaded Variational Inference for Multi-Step Manipulation. In *Conference on Robot Learning (CoRL)*, 2019.

[8] **Kuan Fang**, Yuke Zhu, Animesh Garg, Andrey Kurenkov, Viraj Mehta, Li Fei-Fei, Silvio Savarese. Learning Task-Oriented Grasping for Tool Manipulation from Simulated Self-Supervision. In *International Journal of Robotics Research (IJRR)*, 2019.

[9] **Kuan Fang**, Alexander Toshev, Li Fei-Fei, Silvio Savarese. Scene Memory Transformer for Embodied Agents in Long-Horizon Tasks. In *Conference on Computer Vision and Pattern Recognition (CVPR)*, 2019.

[10] **Kuan Fang**, Yuke Zhu, Animesh Garg, Andrey Kurenkov, Viraj Mehta, Li Fei-Fei, Silvio Savarese. Learning Task-Oriented Grasping for Tool Manipulation from Simulated Self-Supervision. In *Robotics: Science and Systems (RSS)*, 2018.

[11] **Kuan Fang***, Te-Lin Wu*, Daniel Yang, Silvio Savarese, Joseph J. Lim. Demo2Vec: Learning Object Affordances from Online Videos. In *Conference on Computer Vision and Pattern Recognition (CVPR)*, 2018.

[12] **Kuan Fang**, Yunfei Bai, Stefan Hinterstoisser, Silvio Savarese, Mrinal Kalakrishnan. Multi-task Domain Adaptation for Deep Learning of Instance Grasping from Simulation. In *International Conference on Robotics and Automation (ICRA)*, 2018.

[13] **Kuan Fang**, Yu Xiang, Silvio Savarese. Recurrent Autoregressive Networks for Online Multi-Object Tracking. In *Winter Conf. on Applications of Computer Vision (WACV)*, 2018.

[14] Saumitro Dasgupta, **Kuan Fang***, Kevin Chen*, Silvio Savarese. DeLay: Robust Spatial Layout Estimation of Cluttered Indoor Scenes. In *Computer Vision and Pattern Recognition (CVPR)*, 2016.

[15] Xingyu Liu, Shikai Li, **Kuan Fang**, Yufei Ni, Zonghui Li, Yangdong Deng. RadixBoost: A Hardware Acceleration Structure For Scalable Radix Sort on Graphic Processors. *In International Symposium on Circuits and Systems (ISCAS)*, 2015.

[16] **Kuan Fang**, Yufei Ni, Jiayuan He, Shuai Mu, Yangdong Deng. FastLanes: An FPGA Accelerated GPU Microarchitecture Simulator. *In IEEE International Conference on Computer Design (ICCD)*, 2013.

(* indicates equal contribution)

Patents

[1] **Kuan Fang**, Alexander Toshkov Toshev. Controlling Agents Using Scene Memory Data. US11455530.

[2] Yunfei Bai, **Kuan Fang**, Stefan Hinterstoisser, Mrinal Kalakrishnan. Machine Learning Methods And Apparatus For Robotic Manipulation And That Utilize Multi-Task Domain Adaptation. US10773382.

Teaching Experience

Teaching Assistant, Stanford University. 2021
CS231A: Computer Vision, From 3D Reconstruction to Recognition

Teaching Assistant, Stanford University. 2018
CS231A: Computer Vision, From 3D Reconstruction to Recognition

Guest Lecturer, Stanford University. 2021
CS422: Interactive and Embodied Learning

Outreach

Mentor, BAIR Undergraduate Mentoring Program, UC Berkeley. 2021 - 2022
Advise undergraduates from underrepresented groups to get started in pursuing a career in AI.

Instructor, AI4All Program, Stanford University. 2020
Teach and mentor students from underserved and underrepresented communities in the field of AI.

Mentor, CURIS Program, Stanford University. 2020
Advise Computer Science undergraduate students on research projects for 10 weeks.

Mentor, Undergraduate Visiting Research (UGVR) Program, Stanford University. 2018 - 2019
Advise international undergraduate students on research projects.

Mentoring

PhD Research

Kevin Black
Toki Migimatsu
Vivek Myers
Homer Walke

Masters Research

Andrey Kurenkov (now PhD student at Stanford)
Te-Lin Wu (now PhD student at UCLA)

Undergraduate Research

Ademi Adeniji (now PhD student at UC Berkeley)
Viraj Mehta (now PhD student at CMU)
Zengyi Qin (now PhD student at MIT)
Mona Anvari
Daniel Cai
Sriram Somasundaram
Gilbert Feng
Philippe Hansen-Estruch
Charles Xu
Matt Yan
Patrick Yin

Academic Service

Workshop Organization

RSS Workshop on Visual Learning and Reasoning for Robotics 2021
RSS Workshop on Visual Learning and Reasoning for Robotics 2020
IROS Tutorial on Deep Representation and Estimation of State for Robotics 2020

Conference Reviewing

Computer Vision and Pattern Recognition (CVPR) [**Outstanding Reviewer 2020**], International Conference on Computer Vision (ICCV), European Conference on Computer Vision (ECCV), Conference on Robotics and Automation (ICRA), International Conference on Intelligent Robots and Systems (IROS), Conference on Robot Learning (CoRL), Neural Information

Processing Systems (NeurIPS), International Conference on Learning Representations (ICLR), AAAI Conference on Artificial Intelligence (AAAI)

Journal Reviewing

IEEE Transactions on Robotics (T-RO), IEEE Robotics and Automation Letters (RAL), IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI), IEEE Transactions on Multimedia (MM)