LETIAN FU

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EDUCATION

University of California, Berkeley *August 2023 - Present*
PhD. Electrical Engineering and Computer Sciences.
University of California, Berkeley *August 2022 - May 2023*
M.S. Electrical Engineering and Computer Sciences.
University of California, Berkeley *August 2018 - May 2022*
B.A. Computer Science and Applied Mathematics.

PUBLICATIONS

(*denotes equal contribution)

- Huang Huang*, Fangchen Liu*, **Letian Fu***, Tingfan Wu, Mustafa Mukadam, Jitendra Malik, Ken Goldberg, Pieter Abbeel. Early Fusion Helps Vision Language Action Models Generalize Better. *In submission to 2025 International Conference on Machine Learning.*
- **Letian Fu***, Huang Huang*, Gaurav Datta*, Lawrence Yunliang Chen, William Chung-Ho Panitch, Fangchen Liu, Hui Li, Ken Goldberg. In-Context Imitation Learning via Next-Token Prediction. *To appear at 2025 IEEE International Conference on Robotics and Automation.*
- Andrew Goldberg, Kavish Kondap, Tianshuang Qiu, Zehan Ma, **Letian Fu**, Justin Kerr, Huang Huang, Kaiyuan Chen, Kuan Fang, Ken Goldberg. Blox-Net: Generative Design-for-Robot-Assembly Using VLM Supervision, Physics Simulation, and a Robot with Reset. *To appear at 2025 IEEE International Conference on Robotics and Automation.*
- Kaiyuan Chen, **Letian Fu**, Siyuan Fu, Lawrence Yunliang Chen, Huang Huang, Kush Hari, Ashwin Balakrishna, Pannag R Sanketi, John Kubiatowicz, Ken Goldberg. Robo-DM: Efficient Robot Big Data Management. *To appear at 2025 IEEE International Conference on Robotics and Automation.*
- **Letian Fu***, Long Lian*, Renhao Wang, Baifeng Shi, Xudong Wang, Adam Yala†, Trevor Darrell†, Alexei A Efros†, Ken Goldberg†. Rethinking Patch Dependence for Masked Autoencoders. *In submission to Transactions on Machine Learning Research.*
- **Letian Fu**, Gaurav Datta*, Huang Huang*, William Chung-Ho Panitch*, Jaimyn Drake*, Joseph Ortiz, Mustafa Mukadam, Mike Lambeta, Roberto Calandra, Ken Goldberg. A Touch, Vision, and Language Dataset for Multimodal Alignment. *Proceedings of 2024 International Conference on Machine Learning* (Oral). Vienna, Austria. July 2024.
- Adam Rashid, Chung Min Kim, Justin Kerr, **Letian Fu**, Kush Hari, Ayah Ahmad, Kaiyuan Chen, Huang Huang, Marcus Gualtieri, Michael Wang, Christian Juette, Nan Tian, Liu Ren, Ken Goldberg. Lifelong LERF: Local 3D Semantic Inventory Monitoring Using FogROS2. *Proceedings of 2024 IEEE International Conference on Robotics and Automation.* Yokohama, Japan. May 2024.
- Ilija Radosavovic, Baifeng Shi, **Letian Fu**, Ken Goldberg, Trevor Darrell, Jitendra Malik. Robot Learning with Sensorimotor Pre-training. *Proceedings of 2023 Conference on Robot Learning* (Oral). Atlanta, US. Nov, 2023.
- **Letian Fu**, Huang Huang, Lars Berscheid, Hui Li, Ken Goldberg, Sachin Chitta. Safely Learning Visuo-Tactile Feedback Policies in Real For Industrial Insertion. *Accepted by 2023 IEEE International Conference on Robotics and Automation.* London, UK. May, 2023.
- Justin Kerr, **Letian Fu**, Huang Huang, Jeffrey Ichnowski, Matthew Tancik, Yahav Avigal, Angjoo Kanazawa, Ken Goldberg. EvoNeRF: Evolving NeRF for Sequential Robot Grasping. *Proceedings of 2022 Conference on Robot Learning* (Oral). Auckland, NZ. Dec. 2022.
- Huang Huang*, **Letian Fu***, Michael Danielczuk, Chung Min Kim, Zachary Tam, Jeffrey Ichnowski, Anelia Angelova, Brian Ichter, Ken Goldberg. Mechanical Search on Shelves with Efficient Stacking and

Destacking of Objects. *Proceedings of 2022 International Symposium on Robotics Research.* Geneva, Switzerland. Sep, 2022.

- **Letian Fu**, Michael Danielczuk, Ashwin Balakrishna, Daniel S. Brown, Jeffrey Ichnowski, Eugen Solowjow, Ken Goldberg. LEGS: Learning Efficient Grasp Sets for Exploratory Grasping. *Proceedings of 2022 IEEE International Conference on Robotics and Automation.* Philadelphia, PA. May, 2022.
- Huang Huang, Michael Danielczuk, Chung Min Kim, **Letian Fu**, Zachary Tam, Jeffrey Ichnowski, Anelia Angelova, Brain Ichter, Ken Goldberg. Mechanical Search on Shelves using a Novel Bluction Tool. *Proceedings of 2022 IEEE International Conference on Robotics and Automation.* Philadelphia, PA. May, 2022.
- Yeshwant Reddy Chillakuru, Kyle Kranen, Vishnu Doppalapudi, Zhangyuan Xiong, **Letian Fu**, Aarash Heydari, Aditya Sheth, Youngho Seo, Thienkhai Vu, Jae Ho Sohn. High precision localization of pulmonary nodules on chest CT utilizing axial slice number labels. *BMC Med Imaging* 21, 66 (2021).

RESEARCH AND WORK

Graduate Student Researcher *January 2021 - Present*
Berkeley Artificial Intelligence Research, AUTOLAB

Advised by Prof. Ken Goldberg. Currently working on vision, multimodal, and sensorimotor pre-training so that robots can quickly adapt and learn new skills; works accepted to ICML, ICRA, ISRR, and CoRL.

Research Intern *January 2025 - Present*
NVIDIA

Advised by Linxi Fan and Prof. Yuke Zhu under the Generalist Embodied Agent Research team. Research on creating more general and scalable vision language action models for robotics.

Robotics Research Intern *March 2022 - September 2022*
Autodesk

Advised by Sachin Chitta and Hui Li; researched on enabling robots to safely perform industrial insertion tasks with vision, tactile, and force-torque feedback; research conducted on a Franka Emika robot; the resulting publication is submitted to ICRA 2023.

Machine Learning Intern *June 2020 - September 2020*
Apple

Advised by Daniel Ulbricht and Mohammad Haris Baig; applied computer vision and deep learning to internal development; researched, designed and implemented real-time semantic segmentation algorithms; improved semantic segmentation performance by leveraging geometrical priors; designed new metrics and benchmarked the developed algorithms; developed model evaluation and visualization pipelines.

Undergraduate Research Apprentice *September 2019 - September 2020*
University of California, San Francisco

Advised by professor Youngho Seo and Jae Ho Sohn, MD, MS to apply computer vision algorithms to clinical data. Develop a toolkit to visualize lung tumor data from LUng Module Analysis (LUNA) and The National Lung Screening Trial (NLST). Search for lung tumors via CenterNet and RetinaNet; work accepted at BMC Med Imaging.

Undergraduate Research Apprentice *September 2018 - September 2019*
Berkeley Institute for Data Science

Advised by Maryam Vareth, PhD to apply deep learning algorithms to medical imaging. Co-organized biweekly seminar on computer vision papers. Analyzed brain magnetic resonance imaging (MRI) scans from the Multimodal Brain Tumor Segmentation Challenge (BraTS) and created a novel architecture based on Convolutional LSTM to perform brain tumor segmentation.

TEACHING

EECS127 (Fall 2021): Optimization Models in Engineering.
CS 182/282A (Spring 2021): Deep Neural Network Architecture
CS 170 (Fall 2020): Efficient Algorithms and Intractable Problems.
Math 1B (Summer 2019): Calculus II

MISC.

Reviewer: ICLR, ICML, NeurIPS, ICRA, IROS, ISRR, CASE, CoRL, RAL, L4DC
Programming languages: Python, Java, C, MATLAB
Robots that I worked with: ABB YuMi, Fetch, Franka Emika
Packages: PyTorch, Numpy, ROS, Keras, Fusion 360

INVITED TALKS AND PANELS

Aligning Touch, Vision, and Language for Multimodal Perception. NeurIPS: 2nd Workshop on Touch Processing. Dec 2024.
In-Context Imitation Learning as Next-Token Prediction. Google DeepMind Robotics. September 2024.
Aligning Touch, Vision, and Language for Multimodal Perception. Multimodal AI webinar at Twelve Labs. June 2024.
Aligning Touch, Vision, and Language for Multimodal Perception. Embodied AI Seminar at the Fundamental AI Research (FAIR) team at Meta. Mar 2024.