Irving Fang

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Education

New York University Advisor: Chen Feng   09/2023 - 05/2027 (Expected)
PhD in Computer Science   *Major GPA: 3.939*
New York University Advisor: Chen Feng   09/2021 - 05/2023
MS in Computer Engineering   *Major GPA: 4.00*

University of California, Berkeley Advisor: Alice Agogino   08/2016 - 12/2020
BAs in Data Science (Robotics Emphasis) and Pure Mathematics.   *DS Major GPA: 3.56*
Minors in EECS and Japanese

Major Experiences

I am interested in **contact-rich robotics**. I aim to make robots as dexterous, adaptive, and efficient as humans when interacting with objects, the environment, or even other people through **contact**.

I use tools like **deep learning**, **tactile sensing**, **model predictive control**, **vision-language-action models** etc.

AI4CE Lab at NYU   New York, NY
Graduate Researcher advised by Prof. Chen Feng   *09/2021 - Present*

- Please refer to my publication section for my research activity focusing on **robotics, deep learning**, etc that leads to publications in **RSS, ICRA, IROS, CVPR** and so on.
- Maintain and service lab's **Linux** cluster and **robot manipulators** (Universal Robots, Ufactory).

RoboPIL Lab at Columbia University   New York, NY
Visiting Researcher advised by Prof. Yunzhu Li   *08/2025 - Present*

- Working on **robot learning**, **compositional generative modeling** and **tactile sensing**

Analog Devices   Cambridge, MA
Research Intern advised by Dr. Tao Yu & Dr. Saleh Nabi   *05/2025 - 08/2025*

- Worked on **robot learning** and **tactile sensing** for contact-rich manipulation under industrial setting.

Mitsubishi Electric Research Laboratories (MERL)   Cambridge, MA
Research Intern advised by Dr. Radu Corcodel   *05/2022 - 08/2022*

- Worked on using proprietary **tactile sensors** and **deep reinforcement learning** to facilitate **dexterous robotic manipulation**.

BEST Lab at UC Berkeley & Squishy Robotics   Berkeley, CA
Undergraduate Researcher advised by Prof. Alice Agogino   *08/2020 - 05/2022*

- Trained LSTM models for **fault detection and prediction** to rapidly deploy tensegrity-structure mobile robots. (Paper accepted by IMECE 2021)

LAPACK Development at UC Berkeley   Berkeley, CA
Undergraduate Researcher advised by Prof. James Demmel and N. Benjamin Erichson.   *09/2020 - 12/2020*

- Implemented **Randomized Kaczmarz method** using Python
- Benchmarked least square solvers such as **Blendenpik method and LSRN method** for the development of **next generation LAPACK and ScaLAPACK** that focus on **randomized linear algebra algorithm**.

Publications

2025

I. Fang*, K. Shi*, X. He*, S. Tan, Y. Wang, H. Zhao, H.-J. Huang, W. Yuan, C. Feng, and J. Zhang, "**FusionSense: Bridging Common Sense, Vision, and Touch for Robust Sparse-View Reconstruction**", ICRA (2025), * for equal contribution.

B. Wang, J. Zhang, S. Dong, **I. Fang**, and C. Feng, "**VLM See, Robot Do: Human Demo Video to Robot Action Plan via Vision Language Model**", IROS (2025).

I. Fang*, J. Zhang*, S. Tong, and C. Feng, "**From Intention to Execution: Probing the Generalization Boundaries of Vision-Language-Action Models**", RA-L (Under Review) (2025), * for equal contribution.

S. Li, Z. Jiang, G. Chen, C. Xu, S. Tan, X. Wang, **I. Fang**, K. Zyskowski, S. McPherron, R. Iovita, C. Feng, and J. Zhang, "**GARF: Learning Generalizable 3D Reassembly for Real-World Fractures**", ICCV (2025).

2024

J. Zhang*, **I. Fang***, H. Wu, A. Kaushik, A. Rodriguez, H. Zhao, J. Zhang, Z. Zheng, R. Iovita, and C. Feng, "**LUWA Dataset: A First Look at the Underexplored Vision Problems on Stone Tool Use**", CVPR (2024), Highlight (11.9% of 2719 accepted paper), * for equal contribution.

I. Fang*, Y. Chen*, Y. Wang*, J. Zhang, Q. Zhang, J. Xu, X. He, W. Gao, H. Su, Y. Li, and C. Feng, "**EgoPAT3Dv2: Predicting 3D Action Target from 2D Egocentric Vision for Human-Robot Interaction**", ICRA (2024), * for equal contribution.

2023

Y. He*, **I. Fang***, Y. Li, and C. Feng, "**Metric-Free Exploration for Topological Mapping by Task and Motion Imitation in Feature Space**", RSS (2023), * for equal contribution).

2021

A. Agogino, H. Y. Jang, V. Rao, R. Batra, F. Liao, R. Sood, **I. Fang**, R. L. Hu, E. Shoichet-Bartus, and J. Matranga, "**Dynamic Placement of Rapidly Deployable Mobile Sensor Robots Using Machine Learning and Expected Value of Information**", ASME IMECE (2021), Authors ordered by department affiliation, not contribution.

2020

T. Zhao, **I. Fang**, J. Kim, and G. Friedland, "**Multi-modal Ensemble Models for Predicting Video Memorability**", MediaEval2020 (2020).

Skills and Qualifications

Programming Languages – Python, C++, Rust, C, MATLAB, Verilog/VHDL, TEX
Frameworks/Libraries – PyTorch, Jax, ROS 1/2, MuJoCo, Isaac Lab/Sim, Singularity, SLURM, Docker
Mechanical – Solidworks, 3D Printing (FDM, SLA)
Languages – English (Bilingual), Mandarin (Bilingual), Japanese (Limited Working)

Projects

Please refer to this GitHub repo for all my personal projects: `https://github.com/IrvingF7/my_project_`

`list`, which contains pointers to several projects involving deep learning, robotics, control, traditional computer vision, RSIC-V, and some other fields that I dabbled in.

Awards

The Myron M. Rosenthal Award for Best MS Academic Achievement in Electrical and Computer Engineering, 2023

- Given to MS students in electrical or computer engineering who have achieved excellent academic performance.

Teaching Experiences

ROB-GY 6203 Robot Perception   New York, CA
Teaching Aide   *Fall 2022, 2023, 2025*

ROB-UY 3203 Robot Vision   New York, CA
Teaching Aide   *Spring 2022, 2023, 2025*

CS 61B: Data Structures and Algorithms   Berkeley, CA
Lab Assistant   *Summer 2017*

Other Work Experiences

Multimedia Group at UC Berkeley   Berkeley, CA
Undergraduate Researcher advised by Prof. Gerald Friedland   *08/2020 - 12/2020*

- Implemented **multi-modal** ensemble models to predict videos' short-term and long-term **memorability**. (Best Model for MediaEval 2020 on this track)

California Institute of Technology   Remote
Research Intern advised by Prof. Matthew Shum   *05/2020 - 08/2020*

- Used **fine-grained classification** model on streetview images collected via Baidu API to conduct gender detection on pedestrians and explored its relationship with economic inequality and gender mobility

Wahve & CITRIS Institute   Berkeley, CA
Software Engineering Intern   *02/2019 - 08/2019*

- Set up and maintained Jupyterhub on Google Cloud Platform for the team
- Used decision tree and NLP techniques to predict outcome/yield rate of applicants with successful rate over 95%, and explored what factors are affecting the outcome and yield rate

Snipfeed   Berkeley, CA
Software Engineering Intern   *09/2018 - 12/2018*

- Used Gensim's doc2vec to optimize the search engine of the APP to better query article from the internal database.

Berkeley Social Interaction Lab   Berkeley, CA
Undergraduate Researcher advised by Dr. Yang Bai   *03/2018 - 10/2018*

- Used Gensim and NLTK to implement **LDA (latent Dirichlet allocation)** model and **TF-IDF** model to analyze survey data and Tweets collected via Twitter API as a part of the Cal Project Awe.