Irving Fang

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Education

New York University Advisor: Chen Feng   Fall 2023 - 2027 (Expected)
PhD in Computer Science   *Major GPA: 3.917*

New York University Advisor: Chen Feng   Fall 2021 - Spring 2023
MS in Computer Engineering   *Major GPA: 4.00*

University of California, Berkeley Advisor: Alice Agogino   Fall 2016 - Fall 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 robotic manipulation**. I aim to make robots as dexterous, adaptive, and efficient as humans when there is contact between the robot and the manipulated object, the environment, or even the humans around.

I use tools like **deep learning**, **tactile sensing**, **neuromorphic computing**, **model predictive control** and etc.

AI4CE Lab at NYU   New York, NY
Graduate Researcher advised by Prof. Chen Feng   *Sep 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, CVPR** and so on.
- Deploy large-scale training and testing on **NYU HPC's SLURM cluster** for projects in our lab.
- Maintain and service lab's **Linux** cluster.
- Maintain and service lab's **robot manipulators** (Universal Robots, Ufactory).

Mitsubishi Electric Research Laboratories (MERL)   Cambridge, MA
Research Intern advised by Dr. Radu Corcodel   *May 2022 - Aug 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   *Aug 2020 - May 2022*

- Built and trained LSTM models on **fault detection and prediction**
- Combined the idea of **Expected Value of Information** with **ML** to explore **adaptive sensor placement** using tensegrity-structure robots . (Paper accepted by IMECE 2021)

LAPACK Development at UC Berkeley   Berkeley, CA
Undergraduate Researcher advised by Prof. James Demmel and N. Benjamin Erichson. *Sep 2020 - Dec 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 (Under Review)***, 2025. [Online]. Available: https://ai4ce.github.io/FusionSense/, **(* 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," ***ICRA (Under Review)***, 2025. [Online]. Available: https://ai4ce.github.io/SeeDo/.

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 Highlight*** *(11.9% of 2719 accepted papers)*, 2024, **(* 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. [Online]. Available: https://ai4ce.github.io/EgoPAT3Dv2/, **(* 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. [Online]. Available: https://ai4ce.github.io/DeepExplorer/, **(* 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 International Mechanical Engineering Congress and Exposition*, 2021. DOI: 10.1115/IMECE2021-70759, **(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, MATLAB, C/C++, Rust, Verilog/VHDL, TEX
Frameworks/Libraries – PyTorch, ROS 1/2, MuJoCo, HPC Toolkit(Singularity, SLURM, etc.)
Mechanical – Solidworks, 3D Printing (FDM, SLA)
Languages – English (Bilingual), Mandarin (Bilingual), Japanese (Limited Working)

Projects

Please refer to this Github repo for all my public 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*

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

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 *Aug 2020 - Dec 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 *May 2020 - Aug 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 *February 2019 - August 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 *September 2018 - December 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 *March 2018 - October 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.