Fan Yang

Email: fanyang3@andrew.cmu.edu
Website: https://fanyangcmu.github.io/
Google scholar: https://scholar.google.com/citations?user=Gi1y7DAAAAAJ&hl=en

## Education Background

**Carnegie Mellon University**, Pittsburgh, PA — Aug. 2021 – 2023
- Master of Science in Robotics (MSR) — GPA 4.08/4.0

**Stanford University,** Palo Alto, CA — Jun. 2018-Aug. 2018
- Summer Session — GPA 4.0/4.0

**Tsinghua University**, Beijing — Aug. 2016-Jul. 2020
- Bachelor of Engineering in Engineering Mechanics (Qian Class, Tsien Excellence in Engineering Program)

## Publications

1. **Fan Yang**, Wenxuan Zhou, Harshit Sikchi, David Held. "Self-Paced Policy Optimization with Safety Constraints.". *ICML Safe Learning for Autonomous Driving Workshop, 2022*
2. **Fan Yang**, Chao Yang, Huaping Liu, and Fuchun Sun. "Evaluations of the Gap between Supervised and Reinforcement Lifelong Learning on Robotic Manipulation Tasks." In *Conference on Robot Learning*, pp. 547-556. PMLR, 2022.
3. **Fan Yang**, Chao Yang, Di Guo, Huaping Liu, and Fuchun Sun. "Fault-Aware Robust Control via Adversarial Reinforcement Learning." In *2021 IEEE 11th Annual International Conference on CYBER Technology in Automation, Control, and Intelligent Systems (CYBER)*, pp. 109-115. IEEE, 2021.
4. Jiachen Li, **Fan Yang**, Hengbo Ma, Srikanth Malla, Masayoshi Tomizuka, and Chiho Choi. "RAIN: Reinforced Hybrid Attention Inference Network for Motion Forecasting" *IEEE/CVF International Conference on Computer Vision (ICCV) (2021)*
5. Jiachen Li*, **Fan Yang***, Masayoshi Tomizuka, and Chiho Choi. "EvolveGraph: Multi-Agent Trajectory Prediction with Dynamic Relational Reasoning." *Advances in Neural Information Processing Systems (NeurIPS)* (2020) (* denotes equal contributions).

## Research Experience

Research Assistant at **Carnegie Mellon University**, Pittsburgh, PA — Aug. 2021 - Now

*Advisor: David Held, Assistant Professor at Robotics Institute*
- Research focuses on combining motion planning and reinforcement learning to solve safe RL tasks in navigation and autonomous driving domain.
- Research focuses on applying motion planning as a higher level planner in manipulation tasks with long-horizon reasoning.
- Research focuses on extracting better representations of point cloud for manipulation tasks inspired by semantic features, e.g., contact points.

Research Assistant at **Tsinghua University**, Beijing — Aug. 2020 – Jun. 2021

*Advisor: Huaping Liu, Professor at the Department of Computer Science and Technology*
- Develop an adversarial training method to make robots robust to joint damage.
- Develop a benchmark and evaluate the performance of state-of-the-art continual learning algorithm in reinforcement learning domain.

Research Assistant at **University of California,** Berkeley, CA — Sep. 2019-Dec.2019

*Advisor: Masayoshi Tomizuka, Professor at the Department of Mechanical Engineering*
- Develop an algorithm that can extract the relation between multiple agents and predict the trajectory of them in a highly interactive and dynamical system, e.g. traffic.
- Combine RL with hybrid attention mechanism by pruning unimportant attention and improve the performance in motion forcasting applciations.

Research Assistant at **Stanford University**, Palo Alto, CA June. 2019-Aug. 2019

*Advisor: Oussama Khatib, Professor at the Computer Science Department*

- Develop an operational-space compliant control method, which can grasp objects accurately without any force or vision sensing. E.g., we can grasp light-weight objects accurately without perturbation.

Research Assistant at **Purdue University**, West Lafayette, IN Aug.2018 – Jan 2019

*Advisor: Richard Voyles**,** Professor of Engineering Technology*

- Develop mathematical formulations for an operational space hierarchical controller for Unmanned Aerial Vehicles with a parallel manipulator, including Jacobian matrix, mass matrix, and null space control.

## Academic Services

Reviewer of ICRA, Conference on Robotic Learning, Intelligent Vehicles Symposium.

## Awards and Honors

- Academic Excellence Scholarship (Awarded to the top 30% students) Sep. 2018 & Sep. 2017
- Xuetang Scholarship (Awarded to 200 out of 3000 students) Sep. 2019 & Sep. 2018 & Sep. 2017
- Overall Excellence Award of School of Aerospace Engineering (awarded to 10% of the students) Sep. 2018

## Competition

4th in MineRL Competition of NeurIPS 2020, advised by Prof. *Lin Shao* and Prof. *Jiankun Wang*