FACULTY MENTOR
Xiaolong Wang

PROJECT TITLE
Learning Dexterous Manipulation

PROJECT DESCRIPTION
Study learning-based method for dexterous hand, multi-finger hand manipulation.
- Research examples: https://xiaolonw.github.io/publication6.html
- RSS workshop: https://learn-dex-hand.github.io/rss2023/

Check Alumni to see where my interns go: https://xiaolonw.github.io/group.html.

This project will be in person.

INTERNS NEEDED
➢ 3

PREREQUISITES
➢ Experience in Reinforcement Learning, 3D Vision, Simulation, and Hardware design.
➢ Students who aim for PhD studies.
➢ A publication record in CoRL, RSS, ICRA, and IROS is encouraged to apply.

FACULTY MENTOR
Xiaolong Wang

PROJECT TITLE
Generalizable 3D Representation Learning

PROJECT DESCRIPTION
Learning Generalization in Neural Radiance Fields.
- Our work in vision:
  - https://www.anjiecheng.me/TUVF
  - https://jitengmu.github.io/ActorsNeRF/
  - https://jianglongye.com/featurenerf/
  - https://oasisyang.github.io/mononerf/
- Our work in Robotics:
  - https://yanjieze.com/GNFactor
- My talk at ICLR: https://iclr.cc/virtual/2023/14095

Check Alumni to see where my interns go: https://xiaolonw.github.io/group.html.

This project will be in person.

INTERNS NEEDED
➢ 3

PREREQUISITES
➢ Experience in Reinforcement Learning, 3D Vision, Simulation, and Hardware design.
➢ Students who aim for PhD studies.
➢ A publication record in CVPR, ICCV, ECCV, ICML, NeurIPS, CoRL, RSS, ICRA, IROS is encouraged to apply.

FACULTY MENTOR
Xiaolong Wang

PROJECT TITLE
LLM for Robotics

PROJECT DESCRIPTION
Two directions: (i) Learning VLM and rich semantic representations for open-vocabulary and long-horizon planning, manipulation; (ii) Using LLM to write code to generate simulation environments and tasks for scaling up the simulation, as GenSim below.

- GenSim: https://liruiw.github.io/gensim/ won the best paper award in Workshop on Language and Robot Learning at CoRL 2023.

Check Alumni to see where my interns go: https://xiaolonw.github.io/group.html.

This project will be in person.

INTERNS NEEDED
➢ 3

PREREQUISITES
➢ Experience in Reinforcement Learning, LLM, Simulation, and Hardware design.
➢ Students who aim for PhD studies.
➢ A publication record in CVPR, ICCV, ECCV, ICML, NeurIPS, CoRL, RSS, ICRA, and IROS is encouraged to apply.

FACULTY MENTOR
Xiaolong Wang

PROJECT TITLE
Learning-based Mobile Manipulation

PROJECT DESCRIPTION
Focusing on whole-body control of legged robot: Controlling arms and legs at the same time for flexible manipulation. In the past, we have been focusing on quadruped locomotion control:
- https://rchalyang.github.io/
- https://rchalyang.github.io/VIM/ won the best paper award at the CoRL Deployable Workshop.

Now we do legs and arms at the same time:
- https://drive.google.com/file/d/1o9srxj4qTwnqIje-3pTVUM9rqCOOqAzQ/view?usp=sharing

Check Alumni to see where my interns go: https://xiaolonw.github.io/group.html.

This project will be in person.

INTERNS NEEDED
➢ 3

PREREQUISITES
➢ Experience in Reinforcement Learning, 3D Vision, Simulation, and Hardware design.
➢ Students who aim for PhD studies.
➢ A publication record in CoRL, RSS, ICRA, and IROS is encouraged to apply.

FACULTY MENTOR
Xiaolong Wang

PROJECT TITLE
Generative AI with LLM

PROJECT DESCRIPTION
Projects surrounding diffusion models, NeRF, and LLMs.

This project will be in person.

INTERNS NEEDED
➢ 3

PREREQUISITES
➢ Already published a paper in CVPR, ICCV, ECCV, ICML, NeurIPS, or equivalent level of work.

FACULTY MENTOR
Xiaolong Wang

PROJECT TITLE
Reinforcement Learning for Racing

PROJECT DESCRIPTION
We apply model-based RL for racing, specifically using Formula Indy or Formula 1 simulators.

Check Alumni to see where my interns go: https://xiaolonw.github.io/group.html.

This project will be in person.

INTERNS NEEDED
➢ 1

PREREQUISITES
➢ Experience in Reinforcement Learning and racing car simulation.
➢ People with racing car simulation experience are highly recommended for this project.