

FACULTY MENTOR

Xiaolong Wang

PROJECT TITLE

Imitation Learning for Dexterous Manipulation

PROJECT DESCRIPTION

Description: We study on learning complex dexterous skills from human videos.

Example project: <https://yzqin.github.io/dexmv/>

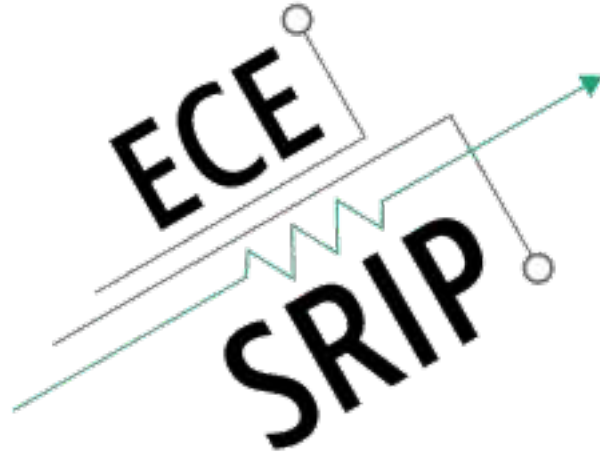
This project can accommodate both remote and in-person students.

INTERNS NEEDED

2 Students

PREREQUISITES

1. Research experience and publication in reinforcement learning and 3D computer vision;
2. Experience with MANO/SMPL models, 6D object pose
3. Familiar with undergraduate-level linear algebra and calculus
4. Experience with real robots/hardware motors and sensors



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Xiaolong Wang

PROJECT TITLE

Vision-Guided Locomotion Control

PROJECT DESCRIPTION

Description: We study on learning complex dexterous skills from human videos.

Example project: <https://yzqin.github.io/dexmv/>

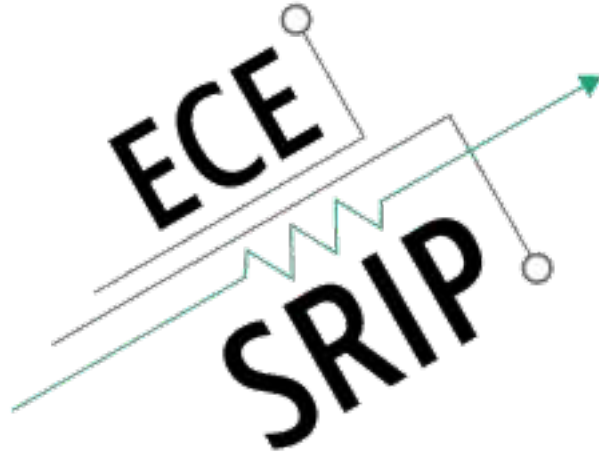
This project can accommodate both remote and in-person students.

INTERNS NEEDED

2 Students

PREREQUISITES

1. Research experience and publication in reinforcement learning and computer vision;
2. Experience with Arduino and Raspberry Pi
3. Familiar with undergraduate-level linear algebra and calculus
4. Strong coding skills in C++
5. Experience with real robots/hardware motors and sensors



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PROJECT TITLE

Robot Arm Manipulation with Reinforcement Learning

PROJECT DESCRIPTION

Description: We studied vision-based RL policy for diverse manipulation tasks.

Example project: <https://nicklashansen.github.io/lookcloser/>

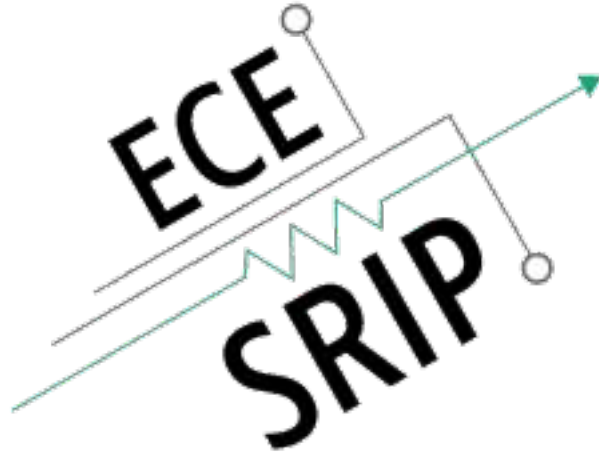
This project can accommodate both remote and in-person students.

INTERNS NEEDED

2 Students

PREREQUISITES

1. Research experience and publication in reinforcement learning;
2. Experience with Arduino and Raspberry Pi
3. Experience with ROS framework
4. Familiar with undergraduate-level linear algebra and calculus
5. Strong coding skills in C++
6. Experience with real robots/hardware motors and sensors



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PROJECT TITLE

Self-Supervised Learning of 3D from Videos

PROJECT DESCRIPTION

Description: Learning 3D structure and motion from videos. Example project: <https://zlai0.github.io/VideoAutoencoder/>

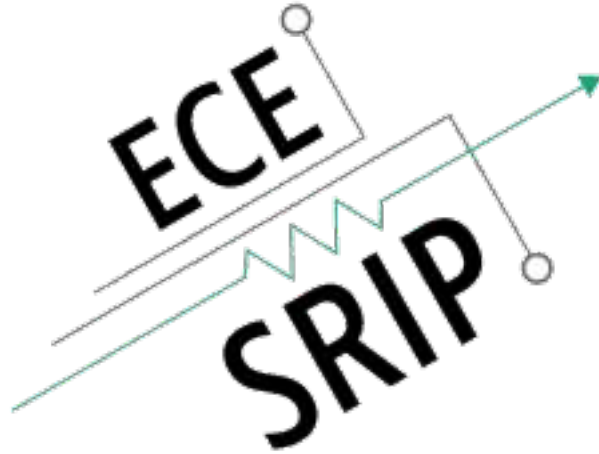
This project can accommodate both remote and in-person students.

INTERNS NEEDED

2 Students

PREREQUISITES

1. Experience with 3D vision and deep learning
2. Familiar with undergraduate-level linear algebra and calculus



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PROJECT TITLE

Learning to Generate Grasps

PROJECT DESCRIPTION

Description: Generate a natural and physical plausible grasp / motion given an input 3D object. Example project: <https://hwjiang1510.github.io/GraspTTA/>

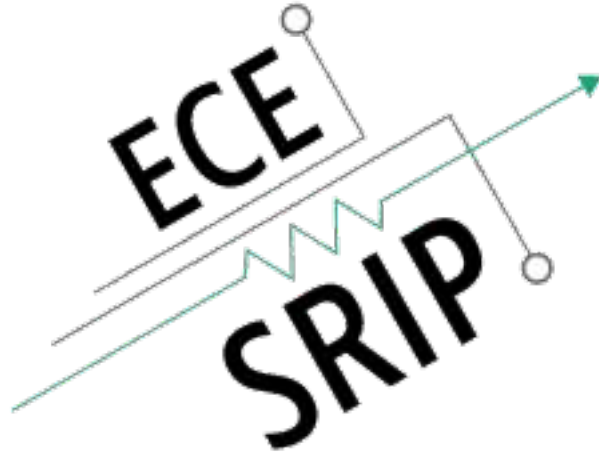
This project can accommodate both remote and in-person students.

INTERNS NEEDED

2 Students

PREREQUISITES

1. Experience with 3D vision and deep learning
2. Familiar with undergraduate-level linear algebra and calculus



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PROJECT TITLE

Trifinger Manipulation

PROJECT DESCRIPTION

Description: We are searching for interns who are interested in robotics research with hardware experience. Specifically, the intern will work on a recent built TriFinger robot in our lab by MAE students (<https://drive.google.com/file/d/1CHQfUowxHkvB-DhiI0Us0cXQS8qDplVl/view?usp=sharing>).

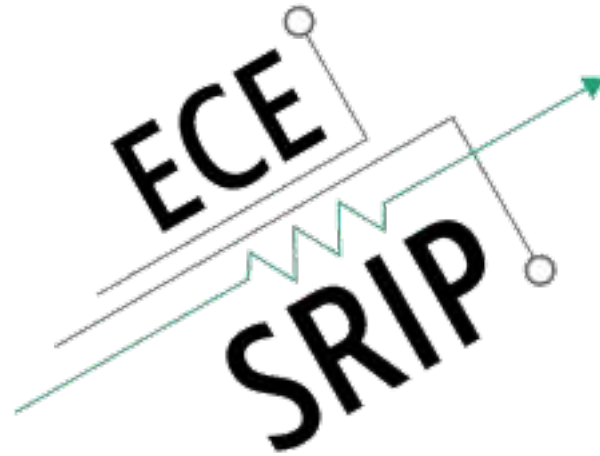
This project will be in person.

INTERNS NEEDED

2 Students

PREREQUISITES

1. Experience with Arduino and Raspberry Pi
2. Familiar with undergraduate-level linear algebra and calculus
3. Strong coding skills in C++
4. Experience with real robots/hardware motors and sensors

**FACULTY MENTOR**

Xiaolong Wang

PROJECT TITLE

Self-Supervised Representation Learning from Videos

PROJECT DESCRIPTION

Description: We are interested in learning generalizable representation from videos with self-supervised learning. Example project: [https://](https://jerryxu.net/VFS/)

jerryxu.net/VFS/

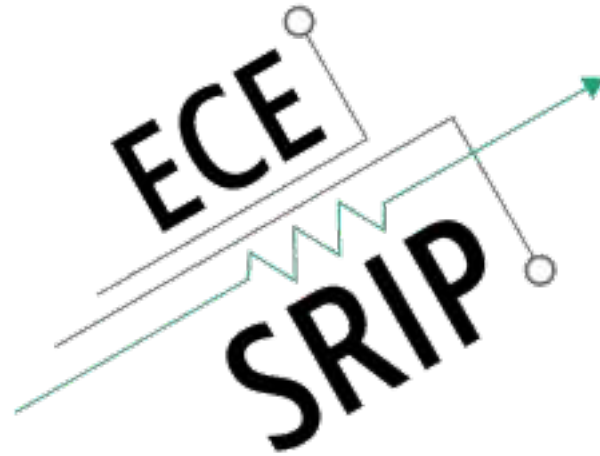
This project can accommodate both remote and in-person students.

INTERNS NEEDED

2 Students

PREREQUISITES

1. Experience in large scale visual representation learning



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PROJECT TITLE

Content Generation with Implicit Functions

PROJECT DESCRIPTION

Description: We are interested in using implicit function in image and video synthesis tasks. Example project: <https://yinboc.github.io/liif/>

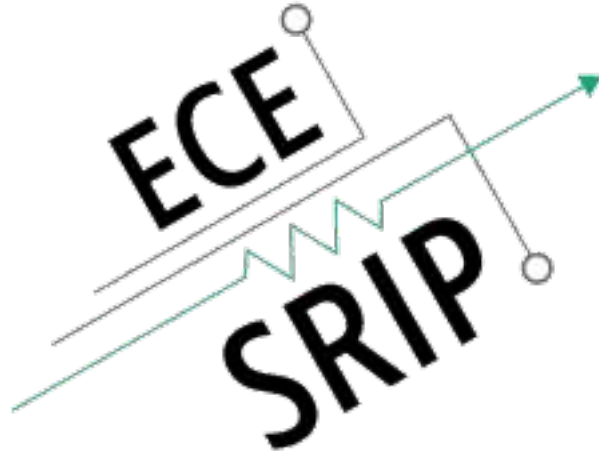
This project can accommodate both remote and in-person students.

INTERNS NEEDED

2 Students

PREREQUISITES

1. Experience in content generation;
2. Experience in 3D deep learning.



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PROJECT TITLE

3D Articulation Modeling

PROJECT DESCRIPTION

Description: We are interested in using implicit function to model general articulated object. Example project: <https://jitengmu.github.io/A-SDF/>

This project can accommodate both remote and in-person students.

INTERNS NEEDED

2 Students

PREREQUISITES

1. Experience with 3D vision and deep learning
2. Familiar with undergraduate-level linear algebra and calculus