Ruolin Ye

cathyye2000@sjtu.edu.cn | YoruCathy.github.io | Github:YoruCathy

Education

Shanghai Jiaotong University Shanghai, China
Bachelor of Engineering in Information Engineering GPA:3.5 *Sep. 2018 – June 2022(expected)*

No. 2 High School Attached to East China Normal University
Shanghai, China *Sep. 2015 – June 2018*

Research Interest

Computer Vision, Robot Learning

Experience

Undergraduate Research Intern Aug. 2019 – Present
MVIG Lab, SJTU *Mentor: Prof. Cewu Lu*

- I start from computer vision and I am heading towards robot learning, honored to be advised by Prof. Lu in MVIG Lab, where I learn a lot about research and practice a lot on coding.

Projects

USD-Seg | *Instance segmentation* Sep. 2019 – May 2020

- Build a fast instance segmentation framework named USD-Seg, which simultaneously regresses bounding box position and coefficients for mask
- The mask is reconstructed by the linear combination of coefficients and dictionary learning generated bases.

Universal Representation for Object Shape | *3D reconstruction* June 2020 – July 2020

- Separate an object as different parts, each with its own intrinsic dimension, i.e. 1D(line), 2D(plane)and 3D(block)
- Represent each part with a GMM with its correlated dimension, then project back the points to 3D. e.g. Represent a stick with 1D GMM, for its intrinsic dimension is 1D.
- This project fails for lack of information when projecting points from low dimension to high dimension.

H2O Dataset | *Human object handover* Dec. 2020 – Mar. 2021

- Build a large scale dataset with RGBD frames, hand pose of giver and receiver, and object 6D pose to support the comprehensive visual analysis of object handover process
- Measure part of human hand pose with magnetic sensors, and calculate full hand pose with inverse kinematics
- Transfer human hand pose to robot shadow hand pose, showing the possibility for robot to learn from human
- Propose a method to predict receiver grasp type with given object pose and giver hand pose

Instruction Predicting for Robot Instruction | *Planning of instruction* Mar. 2021 – Present

- Predict low level instruction primitives based on given high level instruction and visual information

Publication

USD-Seg: Learning Universal Shape Dictionary for Realtime Instance Segmentation arXiv
Tutian Tang, Wenqiang Xu*, **Ruolin Ye**, Lixin Yang, Cewu Lu*

Selected Courses

Introduction to Engineering: A **Modeling and Simulation of Engineering Issues**: A
Machine Learing: A **Artificial Intelligence**: A- **Video Coding and Communication**: A-
Thinking and Approach of Programming(Python):A **Thinking and Approach of Programming(C++)**:A-

Technical Skills

Languages: Python, C++, MATLAB
Frameworks: PyTorch, Keras, Pybullet