YUCHEN ZHOU

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EDUCATION

Ph.D at UC San Diego, United States September 2025 - Now
Major: Computer Science and Engineering
Advisor: Prof. Hao Su

Master at UC San Diego, United States September 2023 - March 2025
Major: Computer Science and Engineering
Advisor: Prof. Hao Su
GPA: 3.855/4.00

Bachelor at Tsinghua University, China September 2019 - June 2023
Major: Software Engineering
Advisor: Prof. Yang Gao
GPA: 3.76/4.00

EXPERIENCE

Department of Computer Science and Engineering **UC San Diego**
Advisor: Professor Hao Su, Dr. Jiayuan Gu May 2022 - Now

Real-Time Poindcloud-Native Promptable Segmentation
· **Time**: Dec 2023 - May 2024
· **Publication**: [ICLR 2025] Point-SAM: Promptable 3D Segmentation Model for Point Clouds.
· Designed and implemented a promptable pointcloud segmentation model from scratch following Segment Anything. Our model achieves real-time interactive segmentation on pointclouds.
· Designed and implemented a data engine to collect data for scaling up.
· Designed several baselines and evaluated the results. Our Point-SAM achieves SOTA on different datasets. Point-SAM achieves 85.8 IoU on KITTI360 while the previous SOTA was 49.6.

Enhancing Low-Shot 3D Part Segmentation via EM Algorithm
· **Time**: Aug 2023 - Nov 2023
· **Publication**: [ICCV 2025 Workshop] PartSLIP++: Enhancing Low-Shot 3D Part Segmentation via Multi-View Instance Segmentation and Maximum Likelihood Estimation.
· Explored the existing lift-based 3D SAM methods, and designed an EM algorithm which is more generic instead of the previous grouping method for instance segmentation.
· Our method significantly outperforms previous method by 7.7 mAP (48.0 vs. 40.3) on PartNet-Mobility.
· During this period, I was working on improving the effectiveness and efficiency of existing lift-based methods, however, although our method discards the heavy heuristic grouping design, it still can't achieve real-time generalizable segmentation, therefore, I realized that pointcloud-native method is the right way to make the generalizable segmentation scalable.

Department of Robotics **Hillbot Inc.**
Advisor: Professor Hao Su, Dr. Zhiao Huang June 2024 - March 2025

Building up the Shelving Robot System
· **Time**: June 2024 - November 2023
· Participate in the shelving robot system project of Hillbot.

· Develop and train the RL algorithms and achieve a shelving policy with over **98%** success rate.
· Develop the infrastructure for scaling up foundation RL policys.

Sim2Real VLA Training
· **Time**: November 2024 - March 2023
· Reproduce the training process of Pi0 and accelerate it by transferring Pi0 from PyTorch to JAX.
· Pretrain a point cloud diffusion model for 3D asset reconstruction to learn general-purpose representations as the input of the vision encoder.
· Collect VLA data in simulation by training RL experts across diverse tasks.

Institute for Interdisciplinary Information Sciences **Tsinghua University**
Advisor: Professor Yang Gao Sept 2020 - May 2022

Early Exploration in Representation Learning and Image Segmentation
· **Time**: June 2021 - May 2022
· During my internship in Professor Yang Gao's group, I gained valuable experience about 2D representation learning and image segmentation. As a junior undergraduate, I reviewed papers about representation learning, such as MAE, BYOL and image segmentation, such as FPN and MaskR-CNN. I also accumulated knowledge about optical flow, SIFT, HoG, DoG and so on. I received solid programming and research training in these explorations.
· After reviewing literature, I practiced on a project to fine-tune MAE with a pyramid structure for multi-granularity features. Then I tested on COCO dataset for semantic and instance segmentation and the result was slightly improved over MAE.

PUBLICATIONS

Point-SAM: Promptable 3D Segmentation Model for Point Clouds. ICLR 2025

PartSLIP++: Enhancing Low-Shot 3D Part Segmentation via Multi-View Instance Segmentation and Maximum Likelihood Estimation. ICCV 2025 Workshop

AWARDS

Scholarship for Excellent Academic Performances of Tsinghua University Oct 2022
Excellent Admissions Volunteer of Tsinghua University Sept 2021