YI LI

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EDUCATIION

University of Washington *Sep. 2018 -*
Ph.D. student, advised by Prof. Dieter Fox Computer Science and Engineering
Tsinghua University *Aug. 2014 - Jun. 2017*
Master of Science (Summa Cum Lauda in Beijing) Department of Automation
Tsinghua University *Aug. 2010 - Jun. 2014*
Bachelor of Engineering (National Scholarship) Department of Automation

PUBLICATIONS

(* indicates equal contribution)

Yi Li, Muru Zhang, Markus Grotz, Kaichun Mo, Dieter Fox
STOW: Discrete-Frame Segmentation and Tracking of Unseen Objects for Warehouse Picking Robots
In *Conference on Robot Learning (CoRL)*, 2023

Markus Grotz, Soofiyan Atar, **Yi Li**, Paolo Torrado, Boling Yang, Nick Walker, Michael Murray, Maya Cakmak and Joshua R. Smith
Towards robustly picking unseen objects from densely packed shelves
In *International Conference on Computer Vision (ICCV)*, 2023 (workshop)

Xingyu Liu, Gu Wang, **Yi Li**, Xiangyang Ji
CATRE: Iterative Point Clouds Alignment for Category-level Object Pose Refinement
In *European Conference on Computer Vision (ECCV)*, 2022

Yi Li, Gu Wang, Xiangyang Ji, Yu Xiang, Dieter Fox
DeepIM: Deep Iterative Matching for Object Pose Estimation
In *International Journal of Computer Vision (IJCV)*, 2020
In *European Conference on Computer Vision (ECCV)*, 2018 (oral)

Jifeng Dai*, Haozhi Qi*, Yuwen Xiong*, **Yi Li***, Guodong Zhang*, Han Hu, Yichen Wei
Deformable Convolutional Networks
In *International Conference on Computer Vision (ICCV)*, 2017 (oral).

Yi Li*, Haozhi Qi*, Jifeng Dai, Xiangyang Ji, Yichen Wei
Fully Convolutional Instance-aware Semantic Segmentation
In *Computer Vision and Pattern Recognition (CVPR)*, 2017 (spotlight)

Jifeng Dai, **Yi Li**, Kaiming He, Jian Sun
R-fcn: Object detection via region-based fully convolutional networks
In *Advances in Neural Information Processing Systems(NeurIPS)*, 2016

Jifeng Dai, Kaiming He, **Yi Li**, Shaoqing Ren, Jian Sun
Instance-sensitive fully convolutional networks
In *European Conference on Computer Vision (ECCV)*, 2016

RESEARCH EXPERIENCE

NVIDIA AI Robotics Research Lab Dec. 2023 - Present
Research Intern *supervised by Dr. Ankit Goyal*

· Perception and Planning Model for Robot Manipulation

We are developing a diffusion-based perception model for robotic manipulation tasks. Conditioned on the current observation image and language command, we ask the network to predict robot gripper trajectories. In this way, we have disentangled perception and planning from previous behavior cloning methods, enabling the robot to benefit from data across different domains and generalize its skills to unseen objects and properties.

Robotics and State Estimate Lab, University of Washington Sep. 2018 - Present
Research Assistant *supervised by Prof. Dieter Fox*

· Leading the perception team in Amazon-UW-Robotics-Manipulation-Research

The project aims to have the robot arm to pick products from amazon pods automatically.

identify and track the segmentation of each object given a sequence of images which are captured every time a human operator put an object into the pod

· Research on unseen object detection, pose estimation and tracking
· Research on object pose estimation and tracking with only RGB images

DeepIM, a novel approach to provide high-accuracy 6D pose estimation

NVIDIA AI Robotics Research Lab Sep. 2021 - March. 2022
Research Intern *supervised by Dr. Arsalan Mousavian and Dr. Lucas Manuelli*

· General object embedding for multiple robotic manipulation tasks like grasping and pushing etc.

Introduce the idea of bipartite matching into grasp pose prediction to solve the problem that annotation only cover a subset of the whole solution space.

Visual Computing Group, Microsoft Research Asia Nov. 2015 - Jun. 2017
Research Intern *supervised by Dr. Jifeng Dai and Dr. Yichen Wei*

· Developed Deformable Convolution Network accepted in ICCV 2017 (oral)

Propose a novel way to do roi-pooling method which can help the network better deal with the variance of scale and rotation of objects in images

Get the state-of-the-art performance in object detection and semantic segmentation

· Developed instance-aware segmentation framework FCIS accepted in CVPR 2017 (spotlight)

Pushed forward the state-of-the-art performance by at least 30 relative percent

Won the first prize in the MS COCO Object Detection(SEGM) Challenge 2016 by a large margin

· Participated in developing fast and accurate object detection method R-FCN accepted in NIPS 2016

Achieve competitive results on the PASCAL VOC dataset

· Participated in developing Instance FCN accepted in ECCV 2016

A novel method to generate instance-level segment candidates

HONORS

Reviewer of AAAI, ICCV, CVPR, ECCV, ICRA, IROS, ICLR, RA-L

Outstanding 2017 Master Thesis by Chinese Institute of Electronics (10 in China)

1st Prize in MSCOCO 2016 Object Detection Challenge Outstanding 2016 Intern in MSRA

2017 Summa Cum Lauda in Beijing 2013 National Scholarship

SKILLS

Python, Pytorch, Computer Vision, Robotics, Diffusion Model, CUDA, RoS