Yunshuang Li

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Education

University of Pennsylvania, M.S. in Robotics **09/2022 – present**
Department of Computer and Information Science, Advisor: Dinesh Jayaraman *GPA: 4.00/4.00*

Zhejiang University, B.S. in Automatic Control **09/2018 – 06/2022**
Chu Kochen Honors College, Dual degree in Mechanical Engineering *Major GPA: 3.98/4.00*

Publication

1 **Universal Visual Decomposer : Long-Horizon Manipulation Made Easy**
Zichen Zhang, **Yunshuang Li***, Osbert Bastani, Abhishek Gupta, Dinesh Jayaraman, Yecheng Jason Ma†, Luca Weihs†*
CoRL Learning Effective Abstractions for Planning workshop (**Oral, Best Paper Award**), 2023;
NeurIPS Foundation Models for Decision Making worshop(**Oral**), 2023;
ICRA 2024, in Submission. [PDF] [Website]

2 **Im2Contact: Vision-Based Contact Local- ization Without Touch or Force Sensing**
*Leon Kim, **Yunshuang Li**, Michael Posa, Dinesh Jayaraman*
7th Annual Conference on Robot Learning (CoRL), 2023 [PDF] [Website]

3 **PEg TRAnsfer Workflow recognition challenge report: Does multi-modal data improve recognition?**
*Arnaud Huaulmé, Kanako Harada, (et al., including **Yunshuang Li**)*
Computer Methods and Programs in Biomedicine, 2023 [PDF]

4 **Control of Pneumatic Artificial Muscles with SNN-based Cerebellar-like Model**
__Yunshuang Li__, Hongbo Zhang*, Yipin Guo*, Xinyi Chen, Qinyuan Ren*
International Conference on Social Robotics (ICSR), 2021 [PDF]

5 **Collaborative Recognition of Feasible Region with Aerial and Ground Robots through DPCN**
__Yunshuang Li__, Zheyuan Huang, Zexi Chen, Yue Wang, Rong Xiong
IEEE International Conference on Real-time Computing and Robotics (RCAR), 2021 [PDF]

Ongoing Research Projects

One-shot personalized Online Learning From Third-person Human Videos **10/2023-present**
Re-targeted hand trajectories of human videos to a robot as a base policy.
Trained a residual policy adapting from base policy to a preferenced policy with one-shot human demonstrations.

Tag-assisted Manipulation in Highly Dynamic Scenarios **07/2023-present**
Established a testing pipeline to calibrate the wireless sensor with ground truth data from a motion capture system.
Trained a predictive model for a highly dynamic object in simulation.
Proposed a manipulation strategy with active perception enabling the robot to attach the sensor to selected objects for acquiring privileged information.

R2D2: A Large-Scale Interaction Dataset for Broad Robot Generalization **8/2023-present**
Established and maintained the pipeline, guaranteeing its efficiency and functionality across the entire project lifecycle.
Led data collection across diverse scenarios.

Course Projects

Navigation Recovery RL: Safe Navigation Using Learned Recovery Zones **03/2023-05/2023**
Investigated Recovery RL that can leverage offline data of constraint violations to learn about constraints before interacting with the environment.

Image Translation Toward Multimodality **12/2022**
Proposed a novel module based on BicycleGAN to handle with multimodal image translation problem.

MBTI Personality Trait Classification Using Textual Data **12/2022**
Tackled the complex problem of personality trait classification problem based on a combination of textual data.

3D Scene Reconstruction For Lung Bronchoscopic Surgical Robots **03/2022-07/2022**
Senior Thesis: Developed a system that processes raw sequential RGB image data from image-guided bronchoscopy, reconstructing the 3D lung structure.

Awards

Best Paper Award at CoRL LEAP workshop 2023
CoRL 2023 Travel Grant 2023
GAPSA Career Services Summer Funding at University of Pennsylvania 2023
Chiang Chen Oversea Graduate Scholarship 2022
National Scholarship issued by Ministry of Education of the People's Republic of China 2021
Champion of International Robotic Workflow Recognition Challenge in MICCAI 2021 2021
Gold medal in the Internet+ Innovation and Entrepreneurship Competition 2020
Gold medal in the National Challenge Cup Competition 2020

Service

Reviewer for NeurIPS FMDM workshop 2023
Teaching Assistant for CIS 5200 - Machine Learning. Fall 2023
Teaching Assistant for MEAM 5200 - Introduction to Robotics. Spring 2023

Industry Experience

Research Scientist Intern, Research Institute of HIKVISION Summer 2022
Research Scientist Intern, 2012 Lab, HUAWEI Co. Ltd Summer 2019

Miscellaneous Experience

Board Member of Penn Chinese Dance Club 2023
Volunteer for 5th Annual Learning for Dynamics & Control Conference (L4DC) June 2023
Instructor of Python Club at Carver Engineering and Science High School, Philadelphia Spring 2023
Volunteer for GRASP ROBO Master's Student Open House March 2023
Volunteer Instructor for a Rural High School, Yunnan, China Summer 2020

Technical Skills

Languages: Python, MATLAB, C, C++, HTML/CSS, LaTeX
Developer Tools: VS Code, Anaconda, Docker
Technologies/Frameworks: Linux, ROS, PyTorch, Tensorflow, AutoCAD, Solidworks, GitHub