

YUNCHU ZHANG

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EDUCATION

Carnegie Mellon University M.S. in Robotics, School of Computer Science	<i>Aug. 2020 - Aug. 2022</i> GPA: 4.0 / 4.0
University of California, Los Angeles (UCLA) M.S. in Mechanical Engineering	<i>Sept. 2017 - June. 2019</i> GPA : 3.84 / 4.0
Dalian University of Technology (DUT) B.S. in Electrical & Electronics Engineering (Automation Major) Rank : 3/129	<i>Sept. 2013 - June. 2017</i> GPA : 3.81 / 4.0

RESEARCH EXPERIENCE

Carnegie Mellon University <i>Advisors: Christopher G. Atkeson , Katerina Fragkiadaki</i>	Pittsburgh, PA <i>Aug. 2020 - Aug. 2022</i>
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- Built a hierarchical architecture which utilizes learned view-invariant, affordance aware representations to select the behaviors that can successfully perform tasks across various objects, camera views.
- Proposed a model that maps spatial rearrangement instructions to goal scene configurations via gradient descent on a set of energy functions; Utilized low-level vision-based policies for instruction following.
- Proposed a framework that PLAns with Spatial and Temporal Abstraction (PASTA) to solve the challenging sequential deformable object manipulation task.

University of California, Los Angeles <i>Course Project Advisor: Veronica Santos</i>	Los Angeles, CA <i>April 2018 - June 2018</i>
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- Developed a system that can detect randomly shuffled Rubik's cube's pattern and generate the optimal motion solution; Utilized Inverse Kinematics, hybrid control to actuate the motion solution plan.

PUBLICATIONS

(* indicates equal contribution)

Jingyun Yang^{*}, Hsiao-Yu Fish Tung^{*}, **Yunchu Zhang^{*}**, Gaurav Pathak, Ashwini Pople, Christopher G. Atkeson, Katerina Fragkiadaki. "Visually-Grounded Library of Behaviors for Manipulating Diverse Objects across Diverse Configurations and View", **Conference on Robot Learning (CoRL), 2021.**

Xingyu Lin^{*}, Carl Qi^{*}, **Yunchu Zhang**, Zhiao Huang, Katerina Fragkiadaki, Yunzhu Li, Chuang Gan, David Held. "Planning with Spatial-Temporal Abstraction from Point Clouds for Deformable Object Manipulation", **Conference on Robot Learning (CoRL), 2022.**

Yunchu Zhang^{*}, Liyiming Ke^{*}, Abhay Deshpande, Abhishek Gupta, Siddhartha Srinivasa. "Cherry-Picking with Reinforcement Learning" underreview **Robotics: Science and Systems (RSS), 2023.**

Nikolaos Gkanatsios^{*}, Ayush Jain^{*}, Zhou Xian, **Yunchu Zhang**, Katerina Fragkiadaki. "Spatial reasoning as Object Graph Energy Minimization", underreview **International Conference on Learning Representations (ICLR), 2023.**

AWARDS

Freescale Smartcar Competition, Regional Second Prize	2015
Electronic Design Competition, Nationwide Second Prize (control a special wind pendulum)	2015
Scholarship for Outstanding Merits (DUT)	2014, 2015, 2016
Endress+Hauser Scholarship for Outstanding Student	2015

SKILLS

Programming skills: Python, C++, MATLAB, Julia, Embedded system programming

Framework / Libraries: ROS, PyTorch, Tensorflow, OpenCV, Mujoco, Pybullet

Hardware skills: PCB circuit design, CAD design, mechatronics system design and manufacturing