Yunshuang Li

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Education

University of Pennsylvania, Philadelphia, United States 09/2022 – present

M.S. in Robotics, GRASP Lab, Advisor : Dinesh Jayaraman
GPA: 4.00/4.00

Zhejiang University, Hangzhou, China 09/2018 – 06/2022

B.S. in Automatic Control (Dual degree: Mechanical Engineering), Chu Kochen Honors College

Publications

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

2 **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]

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

4 **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]

$*$ denotes equal contribution † denotes equal advising

Patent

- **Chinese Invention Patent:** A Scene Reconstruction Method For Lung Bronchoscopic Surgical Robots. **Yunshuang Li**, Yue Wang, Haojian Lu, Rong Xiong, Jingyu Zhang. (In Processing)

Research Experience

Visuo-Tactile based Panda Manipulator Grasping tasks 06/2022 - 09/2022

Advisor: Prof. Jiajun Wu Stanford University, Palo Alto

- Built Pybullet environment with Panda robot to generate image and tactile information while grasping.
- Used the tactile information obtained in Pybullet to complete tactile-MPC work.
- Generalized tactile-MPC to Visuo-MPC, Visuo-Tactile-MPC to compare grasping performance with different sensor information.

3D Scene Reconstruction Methods for Surgical Robots 01/2022 - 05/2022

Advisor: Prof. Rong Xiong Zhejiang University, Hangzhou

- Trained a specific U-Net (segmentation neural network) for lung medical image segmentation.
- Built an innovative pipeline for 3D reconstruction during pulmonary bronchoscopic surgery.
- Applied a Chinese invention patent about the methods.

Workflow Recognition Task of A Manipulator Robot 07/2021 - 10/2021

Advisor: Prof. Qi Dou The Chinese University of Hong Kong, Hong Kong

- Used SVNet for single modal task of workflow recognition and MRGNet for multi-modal task.
- Made the MRG-Net into an end-to-end network to increase the efficiency in training process.
- Won the challenge in MICCAI 2021 for a single modal task and ranked the 3^{rd} in the other two tasks.

Industry Experience

Research Institute of HIKVISION 02/2022 - 04/2022
Research Scientist Internship Hangzhou, Zhejiang
Improved the methods for few-shot image generation problems based on Style-Gan2. With the enlarged dataset, improved the performance of classification task of a certain product.

2012 Lab, HUAWEI Company 07/2019 - 09/2019
Research Scientist Internship Hangzhou, Zhejiang
Improved the resolution of the images from the mobile phone with state-of-the art high resolution methods.

Awards

Travel Funding for CoRL 2023 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

Teaching

Teaching Assistant for CIS 5200 - Machine Learning Fall 2023
Teaching Assistant for MEAM 5200 - Introduction to Robotics Spring 2023

Miscellaneous Experience

- **Instructor for Python Club** Spring 2023
  Carver Engineering and Science High School, Philadelphia
- **Volunteer for 5th Annual Learning for Dynamics & Control Conference (L4DC)** June 2023
  University of Pennsylvania, Philadelphia

Skills

Python, Pytorch, ROS, Tensorflow, C++, Git, LaTeX