Binghao Huang

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EDUCATION BACKGROUND

University of California San Diego Aug 2021- now

- Major: Mechanical Engineering, Degree: Master of Science
- GPA: 3.662/4.0

Zhejiang University of Technology Sep 2015 – Jun 2019

- Major: Mechanical Engineering, Degree: Bachelor of Engineering
- Average Score: 83.9/100

PUBLICATION/POSTER

CoRL 2022. Generalizable Point Cloud Policy Learning for Sim-to-Real Dexterous Manipulation
Yuzhe Qin*, **Binghao Huang***, Zhao-Heng Yin, Hao Su, Xiaolong Wang.
[Webpage],[Paper]

Under Review. Learning Continuous Grasping Function with a Dexterous Hand from Human Demonstrations
Jianglong Ye*, Jiashun Wang*, **Binghao Huang**, Yuzhe Qin, Xiaolong Wang.
[Webpage],[Paper]

FPTC 2021. Speech Recognition and User-Interactive Robot Skin for Natural and Safer Human-Robot Interaction
(2021 International Conference on Fluid Power Transmission and Control, Poster Session)
[Poster]

RESEARCH &WORKING EXPERIENCES

UC San Diego Sep2021- now

Research Assistant, Advisor: Prof. Xiaolong Wang

- **Hardware:** designed an arm-hand system based on XArm and Allegro-Hand and manufactured the connector; attached 16 Force Sensitive Resistor (FSR) sensors to the Allegro hand.
- **System Engineering:** developed a ROS-based control pipeline for the hand-arm system; replicate the real-world setting inside simulator.
- **Reinforcement Learning:** trained RL policy for dexterous manipulation with Point Cloud input to solve grasping and door-opening tasks.
- **Sim2Real:** transferred the grasping and door opening policy trained in SAPIEN simulator to the real robot; designed controllers to transfer the bimanual ball throwing and catching policy trained in IsaacGym to the real system.

Zhejiang University Aug2020-Aug2021

Research Assistant, Lab of Flexible Sensors and Intelligent Equipment

- **Hardware:** designed a mobile robot system with two arms; designed the speech recognition module based on Arduino and attached it to the robot.
- **System Engineering:** developed a ROS-based control pipeline for the navigation system combined with 2D-Lidar and depth camera; achieved a Speech offline Control Strategy by using Pocketsphinx.
- **Computer Vision:** designed a vision tracking method for obstacle avoidance of a mobile robot by using object detection algorithm (YOLOv4).

SKILLS & INTERESTS

- **Technical Skills in ME:** AutoCAD, Catia, Solidworks, Ansys, Matlab, PLC, 3D printing, Electronic Circuits Design (Altium Designer)
- **Technical Skills in CS:** C++, Python, Reinforcement Learning, Computer Vision, ROS, SLAM
- **Other Skills and Interests: 2 years of Teaching experience**, Graphic design, Model Making, Drawing, Video production (**Content Creator in Robotics** with 63000+ fans: [My Video Channel])

WORKING EXPERIENCE

Geely Volvo, *Research and Development Assistant Intern* Jun – Sep 2019

- Collected and analyzed the statistics on the current suspension schemes through market research.
- Compared each scheme and check the mechanical structure and optimization with Ansys; learned the advantages and disadvantages accordingly and determined the final scheme to optimize the comfort and safety.

General Electric Energy co.LTD, *Intern* Jun – Sep 2018

- Observed and learned the processing of large engine components.
- Researched and analyzed the safety issues in the production and processing of large parts of turbine.

Zhejiang Nanotech Automation Technology co., Ltd, *Electrical Engineering Intern* Jun – Aug 2015

- Took charge of automatic dispensing robot processing and assembly; the process included batching process such as punching, tapping, grinding, lathe processing, grinding machine processing.
- Design and manufacture of electronic components of the robot arm with 3 DOF used for industrial automatic production.

OTHER ACTIVITIES

NEXTEV Formula Student Electric China (FSEC), *Member* Oct 2016 – Sep 2017

- In charge of the steering system design part in the team, completed engineering drawing, commissioned factory processing, and finally assembled with other departments into a formula car.
- Selected a reasonable steering trapezoidal layout through Matlab optimization; corrected and manufactured the corresponding steering assembly, pressing device, and adjust tie rod with Adams.
- Applied for a patent**[Google Patent]**: University student's equation motorcycle race steering, manufacture and its installation method:2017105998790.1

Zhejiang College Student Mechanical Innovation Design Competition Project, *Leader* Dec 2016 – Aug 2017

- Designed a machine that helped the baby do exercises for the purpose of replacing the manual labor.
- The action of the machine was programmed according to the current action of artificial baby exercise.
- Prepared a platform for the baby to lie and to carry out the device for assisting the movement; a motor drove the hand joints, the other controlled the leg joints; controlled the motor rotation sequence by PLC programming.

HONORS & AWARDS

Excellent Graduation Thesis *Tracked Chassis Design* Jun 2019
Second-class Scholarship of Zhejiang University of Technology Sep 2018
National third prize in NEXTEV Formula Student Electric China (FSEC) Sep 2017
Second-class Scholarship of Zhejiang University of Technology Sep 2017
Third prize in Zhejiang Student Mechanical Innovation Design Competition Aug 2017
Second-class Scholarship of Zhejiang University of Technology Sep 2016