Jianzhuang Zhao

Gender: Male
Date of Birth: *06.01.1996*
Nationality: P.R.China
Major: Bioengineering
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Address: Via S. Quirico, 19d, 16163 Genova GE, Italy
Language Skills: Chinese (Mother Tongue), English (Fluent)
Research Interests: Robot Learning, Mobile Manipulation, Impedance Control

EDUCATION

November 2021 - Present
Politecnico di Milano & Istituto Italiano di Tecnologia (IIT), Italy
Supervisor: Prof. Elena De Momi & Dr. Arash Ajoudani
Ph.D candidate of Bioengineering, Degree Expected *December 2024*

September 2018 – June 2021
School of Mechanical Engineering, Xi'an Jiaotong University, China
Shaanxi Key Lab of Intelligent Robots
Master of Mechanical Engineering (with the highest honor)

September 2014 - July 2018
School of Mechanical Engineering, Zhengzhou University, China,
Bachelor of Mechanical Engineering (with the highest honor)

HONORS & AWARDS

- **Finalist of IROS 2022 Best Paper Award on Mobile Manipulation**, *October 2022*
- DAAD Short Term Scholarships, *DAAD, July 2020*
- Pacemaker to Outstanding Student Award **(Highest Honor in XJTU),** *October 2020*
- National Scholarship **(top 1%),** *China Ministry of Education, October 2019, 2020* ***(twice)***
- Outstanding Graduate of Henan Province, *June 2018*
- National Encouragement Scholarship, *Education Department of Henan, December 2017*
- Special Baosteel Scholarship**,** *BAOSTEEL GROUP, November 2017* (**Only 25 persons per year in China from undergraduate to Ph.D candidate**)
- **First Prize of IEEE ICRA 2019 RoboMaster AI Challenge,** *IEEE RAS, May 2019*
- First Prize of China Robot Competition & RobCup open Competition*, October 2015*
- Second Prize of China Robot Innovation Competition for Graduate Students*, October 2020*
- Second Prize of 2019 World Robot Contest Champions, *August 2019*

PUBLICATIONS

- **Jianzhuang Zhao**, et al. A Hybrid Learning and Optimization Framework to Achieve Physically Interactive Tasks with Mobile Manipulators, IEEE Robotics and Automation Letters & IROS 2022 **(Finalist of IROS Best Paper Award on Mobile Manipulation**)

- **Jianzhuang Zhao**, et al. "Impact-Friendly Object Catching at Non-Zero Velocity based on Hybrid Optimization and Learning." arXiv preprint arXiv:2209.12563 (2022), **(Submitted to ICRA 2023**)
- **Jianzhuang Zhao**, et al. Design and Kinematic Analysis on A Novel Serial-Parallel Hybrid Leg for Quadruped Robot, The 12th International Conference on Intelligent Robotics and Applications (**ICIRA 2019**)

ACADEMIC SERVICES

- Journal reviewer: IEEE Robotics and Automation Letters (RA-L), Robotica
- Conference reviewer: ICRA 2020, 2021, IROS 2022

THESIS PROJECT

Research on Vehicle-arm Integrated Modeling and Whole-body Impedance Control of Mobile Manipulator

Master Thesis, ***September 2019 – May 2021***

- Hardware: Franka Emika Panda Arm ＋ Omni-directional Mobile Platform
- Software: Robotic Operating System (ROS)
- **Achieved Goals:** Designed a novel coordinated Whole-body impedance control approach for the mobile manipulator; Learned from human demonstration by combining DMPs frameworks and GMM/GMR approach; Opened a door without knowing the size; Designed three motion modes to achieve motion assignment of the arm and mobile platform

Kinematic Analysis and Experimental Study of A Novel Quadruped Metamorphic Robot

Bachelor Thesis, ***January 2018 – June 2018***

Outstanding Bachelor Thesis of Zhengzhou University (Ranking: 1/344)

- Introduced closed-loop six-barrel metamorphic mechanism as the body configuration of a quadruped robot; Designed a novel serial-parallel hybrid leg, built the kinematics model of the serial-parallel hybrid leg; Made a prototype with steering engine and MCU; Proved the correctness of the above analysis by experiment

INTERNSHIP & COMPETITION

RoboMaster Robot Team of Xi'an Jiaotong University

Robot Algorithm Engineer, ***January 2019 – June 2019***

- Applied cascade double loop PID with velocity feedforward control algorithm to the 2-DOF (yaw & pitch) gimbal to follow and strike enemy robots
- Went to Montreal, Canada, took part in the **IEEE ICRA 2019 RoboMaster AI Challenge,** and communicated with related researchers worldwide

Underwater Robot Lab of Zhengzhou University

Leader of Mechanical Group, ***June 2015 – June 2017***

- Designed two types of underwater robots and end-effectors (hand) to complete different manipulation tasks in a pool
- Managed about 10 members of the group and participated in two years of the China Robot Competition & RobCup Open Competition