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Github

Mingshan He

EDUCATION

Seoul National University *Sept. 2022 - July. 2024(expected)*
M.S. in Mechanical and Aerospace Engineering *Seoul, Korea*
Advised by Dr. Ahn Sunghoon

Northeastern University *Sept. 2017 - July. 2021*
B.S. in Robotic Engineering, GPA:84.24/100 (Rank: 15/64) *Shenyang, China*

VISITING EXPERIENCE

Smart Sensing and Robotics Group (SSR) *Jun. 2022 - Aug. 2022*
Advised by Prof. Ding Wenbo *Tsinghua University, ShenZhen(China)*

Autonomous Robot Group *Aug. 2021 - Feb. 2022*
Advised by Prof. Zhang Hualiang and Prof. He Yuqing *Chinese Academy of Sciences, Shenyang(China)*

Big Data and Industrial Intelligence Technology Laboratory *Jun. 2021 - Aug. 2021*
Advised by Engineer Bing Han *Beihang University, Hangzhou(China)*

RESEARCH EXPERIENCE

Robot Control System Development 2021 - 2022
Research Assistant *State Key Laboratory of Synthetical Automation for Process Industries*

- Learned the communication between Low-level servo drivers and host computer in Ethercat and CAN.
- Self defined and tested ros controllers in 'ros control' framework.

Dual-Mode Teleoperation with Variable Admittance Control 2020-2021
Undergraduate Student Research Assistant *NEU Human Robot Collaborate Lab*

- Designed and developed an innovative teleoperating framework with 2 IMU sensors and a robotic arm manipulator.
- Researched control algorithms for a robotic arm manipulator with variable admittance control.

Multi-mode Control Technologies of Exoskeleton Robot Undergraduate Thesis
Undergraduate Student Research Assistant *NEU Human Robot Collaborate Lab*

- Developed robot hardware interface module with ROS2 Framework in real-time control.
- Designed and developed the compliant control algorithm on this robot to enhance the human machine collaboration ability.

Hybrid Robot for Following and Grasping project Course Design
Group Leader *Faculty of Robot Science and Engineering*

- Designed and developed a control system for hybrid robot (6-DoF Robotic Arm and Mobile Platform) to follow the target and grasp it.

SERVICES

Chinese Association of Automation 2021-present

- Member Beijing,China

AWARDS AND HONORS

2022 "Master Candidate", China Scholarship Council (CSC)
2021 "Best Individual", Cambridge University Winter Camp
2021 "Best Group", Cambridge University Winter Camp
2021 "First Class Scholarship", Northeastern University
2020 "First Prize", National Robot Competition
2020 "First Prize", National Marine Vehicle Design and Manufacture Competition
2020 "Meritorious Winner", Mathematical Contest in Modeling(MCM/ICM)
2020 "First Class Scholarship", Northeastern University
2019 "Third Prize", National Mathematics Competition
2019 "Second Class Scholarship", Northeastern University
2018 "Second Class Scholarship", Northeastern University
2017 "Third Prize", The 33th National Physics Competition

LANGUAGES & SKILLS

- Chinese (native), Korean (native), English (fluent)
- MATLAB, C/C++, Python, HTML
- Robotic softwares (ROS, Coppeliasim, MuJoCo), CAD/CAE softwares (Solidworks, Auto CAD), PCB software (Altium Design), OpenCV, Docker, MicroControl Chips(STM32, Ardunio)
- LaTeX, Microsoft Office, Ubuntu, MAC, Windows

SELECTED PUBLICATIONS

Patents

1. Experimental device for teaching mechanical engineering 2018

Conference

1. Adaptive impedance control of lower exoskeleton based on gait classification CCC(Accepted)
2. Dual-Mode Teleoperation with Variable Admittance Control ICRA(Rejected)

FIELD OF INTEREST

Robotic perception, Compliant Control, Adaptive Control, Optimal Control, 3D reconstruction, DIY for Hardware with SolidWorks and Altium Design.

TEACHING & ADVISING

[A047619] Mobile Robot Control Experiment *Spring 2022*
Undergraduate Elective Major *Teaching Assistant*

Undergraduate Thesis Program
Chair / Co-chair

· Boyang Zhang (B.Eng. in Robotics Engineering) 2022