

# Yongjie HU

School of Robotics and Advanced Manufacture, Harbin Institute of Technology, Shenzhen, 518052, China

Tel: (+86)18850282378 | E-mail: hu.yongjie.robot@gmail.com

Research Interests: Cable-Driven Parallel Robots (CDPRs) & Soft Grippers

## EDUCATION

### Harbin Institute of Technology (Shenzhen), China

- School of Robotics and Advanced Manufacture  
M.Eng. in Mechanical Engineering (GPA: 3.331/4.0) *Sept. 2023 – Expected Apr. 2026*
- School of Mechanical Engineering and Automation  
B.Eng. in Mechanical Design, Manufacturing, and Automation (GPA: 85.365/100) *Sept. 2019 – Jun. 2023*

## PUBLICATION

Y. Hu, H. Liu and H. Yuan, "[A Portable Cable-Suspended Parallel Robot and Its Applications in Indoor Inspection](#)" in *IEEE Robotics and Automation Letters*, vol. 9, no. 11, pp. 10644-10651, Nov. 2024

## RESEARCH EXPERIENCES

### Design, Modeling, and Control of Portable Cable-Driven Parallel Robots

*Individual research during the master's degree* *Sept. 2023 – Present*

- Designed two integrated cable-driven parallel robots of different sizes and load capacities, featuring all necessary hardware embedded on the moving platform;
- Established a kinetostatic (kinematics-statics coupled) model of underactuated cable-driven parallel robots;
- Proposed an oscillation suppression method based on reaction wheels for underactuated cable-driven parallel robots;
- Proposed a self-calibration method that does not require external measuring devices, such as a laser tracker;
- Developed a hardware control system based on STM32F4 and a host computer software using Qt;
- Carried out experimental validation of the proposed model and method on a prototype.

### Research on Microgravity Environment Simulation System using Cable-Driven Parallel Robots

*Participant in a collaborative project with an institute of aerospace research* *Oct. 2024 – May. 2025*

- Designed movable cable-driving modules for the microgravity cable-driven experimental platform;
- Investigated a gravity compensation method using an eight-cable configuration;
- Conducted experiments on the motion of space robots in the simulated microgravity environment.

### Variable Stiffness Fin Ray Gripper for Extreme Environments

*Participant responsible for the structural design and experimental validation* *May. 2024 – Aug. 2024*

- Designed a variable stiffness fin ray gripper using springs as flexible components, capable of operating in extreme environmental conditions such as extremely high or low temperatures and chemically aggressive environments;
- Measured multiple stiffness of the designed fin ray finger;
- Conducted flexible grasping experiments on objects of various shapes.

### Autonomous Vision-based Robotic Grasping System

*Participant responsible for control system integration* *Nov. 2024 – Dec. 2024*

- Set up communication between the host computer and UR5 robotic arm via TCP/IP;
- Integrated visual detection, robotic arm control, and gripper operation;
- Developed a workflow for autonomous vision-based robotic grasping.

## SKILLS

- Proficient in the structural design of robots using SolidWorks and AutoCAD;
- Familiar with robotic modeling and simulation using MATLAB;
- Familiar with the manufacturing technologies such as 3D printing, CNC, and laser cutting;
- Familiar with STM32-based development for robot control and Qt-based development for host-side software;
- Skilled in academic writing and effective communication in English (CET-6: 554, preparing for IELTS).