

HANG YUAN

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EDUCATION

Xi'an Jiaotong-Liverpool University (XJTLU)

Year 3 | Major in Mechatronics and Robotics Systems

Honours & Awards:

- The 1st Prize of 2022 RoboMaster University Championship in the 21st National University Robot Competition *National Regional* 2022-2023
- The 1st Prize of 2022 RoboMaster University Championship in the 21st National University Robot Competition *Eastern China Regional* 2022-2023
- The 1st Prize of 2022 RoboMaster University Championship in the 21st National University Robot Competition *Sentry Robot Strength Award (NO.1)* 2022-2023
- The 1st Prize of 2022 RoboMaster University Championship in the 21st National University Robot Competition *Standard Robot Strength Award* 2022-2023
- The 2nd Prize of 2022 RoboMaster University Championship in the 21st National University Robot Competition *Engineer Robot Strength Award* 2022-2023
- The 2nd Prize of 2022 RoboMaster University Championship in the 21st National University Robot Competition *Hero Robot Strength Award* 2022-2023
- The 3rd Prize of 2022 RoboMaster University Championship in the 21st National University Robot Competition *Aerial Robot Strength Award* 2022-2023
- The 3rd Prize of 2022 RoboMaster University Championship in the 21st National University Robot Competition *Dart System Strength Award* 2022-2023
- The 2nd Prize of 2022 RoboMaster University Technical Challenge in the 21st National University Robot Competition "Standard Racing and Smart Firing" *Eastern China Regional* 2022-2023
- The 2nd Prize of 2021 RoboMaster University Championship in the 20th National University Robot Competition *South China Regional* 2021-2022
- The 2nd Prize of 2021 RoboMaster University Technical Challenge in the 20th National University Robot Competition "Standard Racing and Smart Firing" *National Regional* 2021-2022
- The 3rd Prize of 2021 RoboMaster University Championship in the 20th National University Robot Competition *National Regional* 2021-2022
- The 1st Prize of 2021 China Engineering Robotics Competition and International Open Championship Vision Robotics Project Vision Robot Recognition Competition (Undergraduate) Project Competition 2021-2022
- The 2nd Prize of 2021 Jiangsu Intercollegiate League 1V1 Confrontation in the 20th National University Robot Competition *Standard Robot Matchups* 2021-2022
- The 3rd Prize of 2021 Jiangsu Intercollegiate League 3V3 Confrontation in the 20th National University Robot Competition *Sentry Robot Strength Award* 2021-2022
- The 3rd Prize of 2022 China-U.S. Young Maker Competition Suzhou Division (6/77) 2022-2023
- The No. 1 in China "Internet+" Student Innovation and Entrepreneurship Competition of XJTLU 2022-2023
- The No. 1 in China "Internet+" Student Innovation and Entrepreneurship Competition of XJTLU 2021-2022

RESEARCH EXPERIENCES

Research on microfluidic field

01.2022-Current

XJTLU Intelligent Microsystems Laboratory

XJTLU research assistant and SURF project member

Supervisor: Pengfei Song & Quan Zhang

- Engaged in the field of microfluidic research, using centrifugal devices to assist biological detection
- Design and manufacture of machines, test strips, and sample solutions for lateral flow immunoassays (LFIA) to achieve increased biological detection sensitivity
- Write a review of the *C. elegans* sorting using microfluidic devices

Research on Humanoid Robot and Bionic Robot

10.2021-10.2022

XJTLU research assistant

Supervisor: Min Chen & Quan Zhang

- Arrange robotic action sets and display processes
- Design and build simple humanoid robots using 3D printing, Arduino, steering gear, etc

Research on Parametric and Lightweight Design of Free Shape Exoskeleton

05.2021-09.2021

XJTLU Summer Undergraduate Research Fellowships (SURF) Project

SURF project volunteer

Supervisor: Min Chen

- Use simulation software ANSYS (workbench) in designing exoskeletal robots to implement parameterization
- Completed the mechanical part and the biped robot technical report and participated in a national robot competition

Research based on 20th and 21st ROBOMASTER National University Robot Competitions

11.2020-10.2022

XJTLU Embedded Artificial Intelligence Hardware Universities-Enterprises Joint Key Laboratory

Mechanical Group Member-Sentry developer/ Investment Manager

Supervisor: Chun Zhao

- Developed and designed the whole sentry robot and the chassis drawings of the engineering robot in RoboMaster
- Improved quick disassembly structure and Single muzzle head
- Took charge of the team's investment (Received sponsorship totaling 60,000 RMB in 2022)

PUBLICATIONS

- [1] **Yuan H.**, Zhang W. (2019) A Novel Hedgehog-Inspired Pin-Array Robot Hand with Multiple Magnetic Pins for Adaptive Grasping. In: Yu H., Liu J., Liu L., Ju Z., Liu Y., Zhou D. (eds) Intelligent Robotics and Applications. ICIRA 2019. Lecture Notes in Computer Science, vol 11744. Springer, Cham. https://doi.org/10.1007/978-3-030-27541-9_56
- [2] **Hang Yuan.** Research Status and Prospects of Adaptive Robotic Hands [J]. Science and technology & Innovation, 2019(04):10-11+15. DOI:10.15913/j.cnki.kjycx.2019.04.010.

PATENTS

- [1] **Hang Yuan**, Wenzeng Zhang. Adaptive robotic hand device for force-controlled rapid gripping of pole gripper groups:, CN109571539A[P]. 2019.
- [2] **Hang Yuan.** Hedgehog-like magnetic drive rod ball adaptive robotic hand device:, CN109397278A[P]. 2019.
- [3] **Hang Yuan.** A magnetic drive linkage leveling robot hand device:, CN109531610A[P]. 2019.

INTERNSHIP EXPERIENCES

Summer internship, Suzhou Non-Fish Cultural Media Company Limited

08.2021-09.2021

- Deep exposure to industrial robots, AGVs, AR/VR/MR real-scene applications and project planning
- Communicate with suppliers and make working memos to provide reasonable purchasing solutions

EXTRACURRICULAR ACTIVITIES

President & Liaison Minister, XJTLU Sagittarius Astronomy Club

03.2021-03.2022

- Planned and organized astronomical observation activities
- Gave lectures on astronomy to high school students of XJTLU-affiliated schools

Vice President, XJTLU Tea Club

12.2020-12.2021

- Planned and prepared event proposals on the theme of tea

Liaison Minister, XJTLU G-Master Robot Club

03.2021-03.2022

- Designed and organized activities related to intra-school robot battles

<i>Project Leader, XJTLU College student entrepreneurship project-Inkless</i>	05.2021-05.2022
<ul style="list-style-type: none"> • Write part of business plan and do roadshow presentation • Provide technical support and operation of projects with 3D printing 	
<i>Project Leader, XJTLU College student entrepreneurship project-ESGrow</i>	05.2022-05.2023
<ul style="list-style-type: none"> • Write part of business plan and do roadshow presentation • Provide technical support for urban farm intelligent solutions 	
<i>Student lecturer, XJTLU Optional Course</i>	03.2021-12.2021
<ul style="list-style-type: none"> • Y1S2 & Y2S1 Unlocking robotic hands optional course • Taught students the basics of mechanical and robotic hands 	
<i>Student Mentor, XJTLU-Affiliated school</i>	09.2021-08.2022
<ul style="list-style-type: none"> • Teach astronomy, tea art, incense, robotics, 3D printing, etc. 	
<i>Outstanding Class Buddy, XJTLU</i>	03.2022-03.2023
<i>Outstanding Class Cadre, XJTLU</i>	09.2020-07.2021
<i>Excellent Student Cadre, XJTLU</i>	12.2020-12.2021
<i>Excellent Student Cadre, Jiangsu Province</i>	05.2022-05.2023
<i>Entrepreneurship Star, 2022 XJTLU i-Star</i>	05.2022-05.2023
<i>Pioneer Award, 2020 I-Link of XJTLU</i>	01.2021-04.2021
<i>Excellent model, 2020 Military training of XJTLU</i>	11.2020-12.2020

OTHERS

Computer Skills & Software:

- SolidWorks, AutoCAD, 3ds Max, Rhino, SketchBook
- ANSYS (workbench), MATLAB, LTspice, Dr. Frame2D
- Adobe Premiere, KeyShot, Snagit
- C language, Arduino

Language: Mandarin (Native), English

Hobbies:

- Astronomy (The President of XJTLU Sagittarius Astronomy Club and Luoyang NO.1 Senior High School Astronomy Club)
- Robotics (Four designed robotic hand inventions)
- Tea culture (The Vice President of the tea club)
- 3D printing (Familiar with FDM and LCD 3D printers, and the relevant project won the championship of the school competition)