

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 the 12th "Challenge Cup" Jiangsu Student Entrepreneurial Plan Competition 2022-2023
- The 3rd Prize of 2022 Changzhou "International Smart" Innovation and Entrepreneurship Competition Robotics and Intelligent Hardware Challenge 2022-2023
- 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**

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| <ul style="list-style-type: none"> Planned and prepared event proposals on the theme of tea | |
| <i>Liaison Minister, XJTLU G-Master Robot Club</i> | 03.2021-03.2022 |
| <ul style="list-style-type: none"> 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"> <i>YIS2 & Y2S1 Unlocking robotic hands</i> 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)