

Hao Zhang

School of Mechanical Engineering, Shanghai Jiao Tong University, China
Tel: +86-139 3910 5401 | Email: 2545080736@sjtu.edu.cn
Personal Website: <https://panda-mist.github.io/>

EDUCATION

Shanghai Jiao Tong University

MSc Energy and Power Engineering

Sep 2022 – Jun 2025

GPA: 3.24/4

Shanghai Jiao Tong University

B.S. Mechanical Engineering

Sep 2018 – Jun 2022

GPA: 3.26/4.3

Main Courses: Calculus II (99), Theoretical Mechanics (99), Advanced Fluid Dynamics in Engineering (93), Data Structure (92), Mathematical Methods in Physics (99), Modeling Analysis and System Control (91), Design and Manufacture I (91), Introduction to Engineering (92)

PROJECT EXPERIENCES

Golden Sand Grows With Vigor: Desert Shrub Automatic Planter

Founder of the social entrepreneurship project

Sep 2023 - Present

- Created an innovative dry sand planting machine, covered by top 5 media in China (China Daily, Nan Fang Daily)
- Achieved control over the internal components of rotating machinery by inventing a compact hinge mechanism that utilized only 5% of the chamber space to operate the tip of the rotary hollow drill
- Designed an electromechanical system, in which the tip closed during drilling and opened upon reaching the bottom, allowing saplings in the hollow cavity to remain in the sand and achieving a planting depth of 50cm
- Devised and launched the fifth iteration of the handheld planter and desert bush automatic planting cart
- Initiated negotiations with 10+ foundation managers, successfully raised \$150,000 from the Soong Ching Ling Foundation, Tencent Public Welfare and Shanghai Technology Entrepreneurship Foundation for Graduates, etc.

Amphibious Bionic Detective Turtle

Project Leader of China-US Young Maker Contest

Feb 2023 - Sep 2023

- Engineered and assembled the turtle, which consisted of a communication kitelike float box, eight external waterproof steering gears, a swim bladder, internal circuitry, and a removable waterproof housing
- Devised a turtle fin kinematics mechanism inspired by freestyle swimming, securing \$70,000 investment of DJI

Covid-19 Robot: Food Delivery Truck For Quarantine Buildings

Project Leader of National Undergraduate Mechanical Innovation Contest

Feb 2021 - Jul 2021

- Engineered a chopstick mechanism that can proficiently retrieve food from storage bins and affix it to L-shaped doorknobs with 30% increased speed and 10% enhanced accuracy relative to conventional robotic arms
- The chopstick mechanism mentioned above greatly simplified control complexity, enabling control of the food movement system just with an Arduino UNO

Intelligent Shoe Cabinet for Elderly: Automatic Storage and Wearing/Doffing

Project Leader of National Undergraduate Mechanical Innovation Contest

Jun 2020 - Dec 2020

- Devised a machinery that enabled the extension mechanism to triple its length in three directions during rotation, while the grab structure maintains its direction (utilized a T-slot-clapper structure to lock the direction during the rotation of the extension mechanism after the retracted state)
- Invented a compact structure (occupied merely 20% of the shoe cabinet) which integrated an extendable shoe-pulling mechanism for automated access and assistance in wearing and removing shoes

SKILLS AND INTERESTS

SOLIDWORKS: Arbitrary design, Engineering drawing, Kinematic simulation, Topological optimization

AutoCAD (machining process, tolerances), **ANSYS** (Vibration, Fluid-Structure), **Python**, **MATLAB**

Microcontrollers: **Arduino** (Excellent), **Jetson Nano** (Serial communication, remote control, automatic control, etc.)

Engineering: Selection of mechanical components and circuits; Assembly of the electromechanical platform; 3D printing

Interests: Robotics, Mechatronics, Bionic mechanism, Agricultural machinery, Machine vision

AWARD AND SCHOLARSHIP

First Prize in the "Co-creating the Future" China-US Young Maker Contest	2024
First Prize in the Shanghai Chongming District of China Creates Youth Program	2024
Funding Project of Tencent Technological Public Welfare Innovation (III)	2024
Light Public Welfare Innovation Project of Tencent Charity (Highest Award)	2024
Micro-entrepreneur of the Year Award from China Youth Daily	2023
First Prize in the Shanghai of China-US Young Maker Contest	2023
Grand Prize in the Shanghai Mechanics Contest	2022
First Prize in the Shanghai Mechanical Innovation Design Contest	2021
First Prize in the National Undergraduate Mechanical Innovation Design Contest	2020
National Encouragement Scholarship	2019

THESIS

Hao Zhang, Liang Gong*, Innovative Design of Automated Shrub Planting Vehicles for Desert Management
[C]International Conference on Agricultural Engineering and Mechanical Automation (ICAEMA 2024). (submitted)

PATENT

Hao Zhang, A Hollow Rotary Bit Based on a Controllable Tip (patent pending). 2024-05-19

PROFESSIONAL EXPERIENCES

Zhiyuan Robot (AgiBot)	Shanghai
<i>AgiBot-A1 series humanoid robot</i>	<i>Jun 2023 - Sep 2023</i>
<ul style="list-style-type: none">Engineered the thumb mechanism of the SkillHand, which possessed 12 degrees of freedomExecuted the process marking of 43 parts in the SkillHand with SOLIDWORKS SLDDRWEngaged in the engineering testing of joint motors, conducting assessments of maximum torque, maximum speed, and vibration amplitude across three motor variants	
SenseTime	Shanghai
<i>Camp counselor teacher for AI robot design</i>	<i>Jun 2021 - Aug 2021</i>
<ul style="list-style-type: none">Guided two summer camp participants in the development of the "Taijiquan Instruction and Assessment System Utilizing Human Pose Recognition and Machine Learning Technologies," which won first prize at the 4th Yangtze River Delta Youth Artificial Intelligence Olympic Challenge	
Teaching Assistant	Shanghai
<i>Courses in Career Development and Planning</i>	<i>2022 Fall - Present</i>
<ul style="list-style-type: none">Four semesters of outstanding teaching assistant - Top Prize 1/50Maintained 160 online student folders and reviewed over 4 million words of homework in five semestersAssisted in 130 hours of classes and received gifts from classmates at the end of each semester	

COMMUNITY INVOLVEMENT

Library Administrator	
<i>at Shanghai Jiao Tong University Library</i>	2021 Fall - Present
Volunteer	
<i>for Tree planting in the Tengger desert: a total of 90+ days</i>	Jun 2020 - Present

PERSONAL SUMMARY

- Possessing exceptional expertise in mechanical and mechatronic design
- With exceptional leadership skills, I have served as a project leader and event organizer over 20 times
- Owning extraordinary hands-on skills, I have constructed over 30 distinct mechanisms using standard components
- Demonstrating a strong passion, steadfast commitment, and deep responsibility towards my professional endeavors