Jiajian Fu

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GitHub Profile
Personal Site

Master's degree candidate
Mechanical and Aerospace Engineering, University of California San Diego

Professional Summary

- Extensive hands-on experiences with structure design / robot control / 3D printing
- Have leadership experience of a robot competition team
- Attend multi-disciplinary related professional courses, master multiple skills to complete engineering projects

Education

•National Elite Institute of Engineering, Chongqing University, China *Sep.2020-Jun.2024*
B.Eng. in Robotics Engineering (X-Innovation Engineering Program) GPA:3.56/4.0 (WES evaluation)

•Mechanical and Aerospace Engineering, University of California San Diego, USA *Sep.2024-Present*
MS. in Mechanical Engineering Current GPA:4.0

Project Experience

•DJI RoboMaster Robotics Competition *Dec.2020-Present*
Guided by Yuanxin Luo (Prof. of Chongqing University) Chongqing,China

- **Motivation: Master engineering skills in practice through robotics competitions and get in touch with cutting-edge robotics**
- MechaX robots overview link
- MX_2 Engineer robot technical document link
- **Season 2020** —— Actively participated as an intern member in the design of an engineering robot that successfully met the functional requirements of the competition
- **Season 2021** —— Contributed as an official member to the redesign of a new generation of engineering robots, focusing on achieving a more streamlined and concise design
- **Season 2022** —— Designed an innovative HERO robot featuring a self-locking screw gimbal structure, significantly enhancing the accuracy of long-range shooting. Achieved a remarkable 70% hit rate for parabolic strikes on target with a diameter of 1m within a 20-meter range. The robot's overall ultra-lightweight effect (21kg) was achieved through topology optimization
- **Season 2023** —— Trained and mentored new team members in basic skills and served as a technical consultant, guiding the design of robots

•National College Students Mechanical Innovation Design Competition *May.2022-Sep.2022*
Guided by Hengbing Ren (Prof. of Chongqing University) Chongqing,China

- **Motivation: Transform my creative ideas into tangible reality by utilizing the skills and knowledge I have acquired through participating in robotics competitions.**
- Bionic ostrich robot technical document link
- Designed a bionic ostrich robot and proposed a novel metamorphic structure for seamlessly transitioning between wheel mode and foot mode
- Utilized 3D printing and CNC engraving techniques to manufacture carbon fiber plate parts, which were then assembled to create a robot prototype for testing its functionality
- The work won the national second prize. Patent application for the metamorphic structure is currently pending

•Research on Metal-to-Plastic Joinery in Automotive Manufacturing *Jan.2023-Apr.2023*
Guided by Diana Haidar (Prof. of Carnegie Mellon University) Online

- **Motivation: Learn to read relevant literature and write research papers, including the process of publication, to enhance my understanding and contribute to the field**
- Paper introduction link
- Extensively studied the research direction of cutting-edge machinery and gained valuable insights into its advancements and trends
- Acquired comprehensive knowledge and skills in paper writing and literature reading, and have explored over 100 research documents specifically focusing on mechanical connections
- Successfully led a group in the collaborative effort of researching, writing, and publishing a review paper within our specific field of interest

•Cambridge AI Academic Programm *Jun.2022-Jul.2022*

Guided by Pietro Liò (Prof. of University of Cambridge) Online

- **Motivation: Gain a comprehensive understanding in AI technologies and their potential in enhancing manufacturing processes and robotics, preparing myself for future access to AI in these industries**
- Mastered essential concepts and topics in the fields of AI and machine learning
- Implemented a basic artificial neural network using Python
- Designed a LSTM-based model for stock prediction and achieved significant success in generating accurate forecasts

Publications

- **Invention Patent** "A Device with Thermoelectric Power Generation and Heat Dissipation Functions and a Thermoelectric Power Generation Method", publication number CN112953307A, June 2021
- **Journal** "A Review of Metal-to-Plastic Joinery in Automotive Manufacturing", DOI: 10.54254/2755-2721/12/20230337, September 2023

Honors & Awards

- **Second Prize** of The 10th National College Student Mechanical Innovation Design Competition, September 2022
- **Second-class Excellent Student Comprehensive Scholarship** at Chongqing University, 2021-2022 academic year
- **Silver Award** of The 8th China International "Internet +" College Students Innovation and Entrepreneurship Competition Chongqing Division, August 2022
- **Third Prize** of The 14th National College Students Energy Conservation, Emission Reduction and Technology Competition, August 2021
- **Third Prize and Individual All-around Third Prize** of The 14th National College Students Advanced Mapping Technology and Product Information Modeling Innovation Competition, June 2021

Work Experience

•DJI RoboMaster Department Internship *Spring 2023*

Online

- Conducted an extensive study on the assembly and debugging requirements of the DJI RoboMaster referee system modules, gaining comprehensive knowledge and expertise in their assembly and troubleshooting processes
- Provided assistance to DJI in hosting the RoboMaster competition at Chongqing University, contributing to the smooth organization and execution of the event
- Successfully completed the deployment of field electronic facilities during the competition, took on the role of a referee, and efficiently adjudicated all robot competitions

Leadership Experience

•Leader of the Robot Team MechaX *Sep.2021-Jun.2022*

Chongqing,China

- MechaX introduction link
- Served as the leader of a 30-member robot team, spearheading the preparation for the highly anticipated RoboMaster 2022 competition
- Collaborated with the instructor to manage and oversee the entire laboratory, encompassing responsibilities such as coordinating funding, tracking project development progress, and managing procurement processes

•President of the Student 3D Printing and Additive Manufacturing Association *Oct.2021-Jun.2022*

Chongqing,China

- Association introduction link
- Acquired knowledge of additive manufacturing through participation in the association and successfully assembled two 3D printers
- Effectively maintained all equipment within the association, ensuring their optimal performance and reliability, as the association provides free manufacturing services
- Held 3D printing training courses and competitions

Skills

3D Design and Simulation: SOLIDWORKS, Fusion 360, Autodesk CAD, ANSYS Workbench, Comsol
Hardware design: Lceda, Altium Designer
Coding: Python, C++, C, Markdown
Engineering data processing and analysis: Matlab, Origin
Engineering processing skills: 3D pringing, CNC, Conventional machining
Office skills: Apple Keynote, Numbers, Pages; Microsoft PowerPoint, Excel, Word
Soft Skills: Intrinsically driven learning, first-principles thinking, critical thinking, multidisciplinary integrated thinking, teamwork ability, independent learning ability, hands-on ability