

# Jiajian Fu

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

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## PROFESSIONAL SUMMARY

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- 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

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- **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*

## PROJECT EXPERIENCE

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- **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

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- **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

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- **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

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### •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

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### •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

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**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 printing, 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