

Jesse Xu

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EDUCATION

Rice University

Houston, TX

Bachelor of Science in Mechanical Engineering, Minor in Engineering Design and Business

Expected May 2029

- Engineering Leadership Certificate
- Rice Trustee Scholarship Recipient
- Relevant Coursework: Thermodynamics, Engineering Computation, Engineering Leadership, Engineering Design

SKILLS

Technical: CAD, CNC Machining, Machine Operation, Robot Fabrication, Micro Robots, ROV

Languages: Java, Python, C++, MATLAB

Interpersonal: Event Organization, Technical Communication, Team Leadership, Public-Speaking, Technical Pitching

Others: Bilingual – English and Mandarin

EXPERIENCE

Lead Undergraduate Soft-body Robotics Researcher

April 2024 – August 2026

Paid Internship @ University of Hawaii at Manoa College of Engineering

Honolulu, HI

- Investigated biomimetic soft-robotics using fluid actuators for delicate marine conservation
- Recreated octopus tentacles and flexible arms using stacked plates and string tensioning systems
- Redefined uses of magnetic torque, created 5 wireless propulsion systems: pump jets and micro propellers
- Created 30+ ROVs on the millimeter scale to discover the potential of minaturized and nano robots

NASA Senior Structural Engineer Extern

November 2025 – February 2026

NASA Johnson Space Center

Houston, TX

- Reviewed structural and thermodynamic reports for spacecraft subsystem design
- Shadowed aerospace engineers in NASA's structural discipline group over a multi-day externship

Student Director for RCEL

May 2026 – Present

Rice Center for Engineering Leadership

Houston, TX

- Team Chair for Outreach, overlooking all RCEL Outreach events and Interclub Relations
- Organized events and competitions welcoming all 20 Technical Clubs and 2000 engineering students at Rice
- Networked with real engineers in the field to invite them for showcases and recruitments on campus

Team Captain, FIRST Robotics Regional Champion

February 2023 – May 2025

Saint Louis Robotics Team 4270

Honolulu, HI

- Mentored 40+ students through the full design-fabrication-programming cycle
- Raised \$15,000 in sponsorship funding to fund essential team operations
- Hosted two international robotics regionals with 2,000+ students each

Robotics Event Organizer and Director

November 2024 – Present

Robotics Education & Competition Foundation

Honolulu, HI

- Organized the two largest robotics tournaments in Hawaii, hosting 400+ students statewide
- Raised \$10K+ per tournament to support robotics education initiatives across Hawaii
- Coordinated logistics, judging, and competition flow for multi-day regional events

PROJECTS

Capstan Drive: Autodesk Inventor, Cable-Drive Design, Low-Backlash Transmissions

May – August 2025

- Redesigned an open-source capstan drive using only personally available materials
- Impact: Lifted 50x its own weight with greatly reduced backlash

Robot Arm: Inverse Kinematics, Motor Control, Arduino, C++

August 2026 – Present

- Created and investigated inverse kinematics and motor control behind robotic arms
- Impact: Built a foundation in motion planning and closed-loop control for future robotics work

AWARDS

- 4x VEX Robotics **National Champion**
- FIRST Robotics **World Championship Divisionals Runner-Up**
- Honolulu Science Fair **NASA Earth System Science Award**