

Hayden M. Webb

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832.480.2225

Rice University,
Department of Computer Science
Houston, TX

EDUCATION

2021-Present **B.S., Rice University** (Major: Mechanical Engineering & Minor: Engineering Design) - Houston, TX

PROFESSIONAL EXPERIENCE

- 2023 - Present* **Undergraduate Researcher**, Rice University George R. Brown School of Engineering - Houston, TX
Advisors: Dr. Kaiyu Hang
Projects: Wearable Roller Ring & Versatile Roller Glove
Developed versatile robotic devices to further the in-hand manipulation capabilities of existing robot & human hands
- 2021 - 2024* **Robotics Engineer**, Rice University Robotics Club - Houston, TX
Aided in the design of a battery cell storage unit, underactuated arm capable of mirroring human movement, and leg chassis for a jumping cat-bot
- 2022* **Undergraduate Researcher**, Mentored Independent Project, Rice University Office of Innovation - Houston, TX
Advisors: Dr. Paul Cherukuri, Grant Belton
Project: Smart Helmet Material Fabrication
Fabricated new forms of 3D-printed Nylon & Carbon nanotube composite materials for the application in an electronic 3D-printed helmet
- 2022* **Extern**, Blue Origin - Houston, TX
- 2021 - 2022* **Project Design Engineer**, Oshman Engineering Design Kitchen, Houston, TX
Advisors: Deirdre Hunter & Robert Read
Manufactured an underactuated robotic glove for client with Arthrogryposis Multiplex Congenita (AMC) in their hands & Developed a convective body cooling suit for individuals to wear during 95+% humidity
- 2019 - 2020* **Intern**, NASA (High School Aerospace Scholar) - Houston, TX
Developed engineering skills through year-long course and on-site internship via cumulative team-led engineering projects relating to NASA missions

LEADERSHIP EXPERIENCE

- 2023 - 2024 President, Rice University Robotics Club**
Managed 100+ students and 10+ teams on the development of their projects & Assisted in collecting \$5000+ through Funds & Fellowships
- 2022 - 2023 Manufacturing Team Lead, Rice University Robotics Club**
Led 10+ students on the mechanical design & creation of an underactuated arm device capable of mirroring a user's movements
- 2021 Doerr Institute for New Leaders Program, Rice University**
Learned strategies & skills for effective leadership in engineering settings
- 2020-2021 President, National English Honor Society, Conroe High School**
Promoted literacy in surrounding schools through reading programs and community events for grade school students
- 2019-2020 Team Lead, NASA (Highschool Aerospace Scholar)**
Led 20+ students on the mechanical design of a Lunar Lander

HONORS AND AWARDS

- 2024 Student Mechanism and Robot Design Finalist - ASME MRC**
- 2021 AP Scholar with Distinction - College Board**

PUBLICATIONS

- Wearable Roller Rings to Enable Robot Dexterous In-Hand Manipulation through Active Surface
H. Webb, P. Changrunmaneeikul., S. Yuan, and K. Hang, *arXiv 2403.13132, 2024*

PRESENTATIONS

- 2024**
- H. Webb, P. Changrunmaneeikul., S. Yuan, and K. Hang;** Wearable Roller Rings to Enable Robot Dexterous In-Hand Manipulation through Active Surfaces. ASME Mechanism and Robotics Committee [Talk & Poster]
- H. Webb, P. Changrunmaneeikul., S. Yuan, and K. Hang;** Wearable Roller Rings to Enable Robot Dexterous In-Hand Manipulation through Active Surfaces. Texas Regional Robotics Symposium (TEROS) [Poster]
- 2022**
- H. Webb, R. Lee, J. Chang;** Body Cooling Device for the Cooling of Humans in Heat Waves. Rice University Engineering Design Showcase [Poster]

TEACHING EXPERIENCE

- 2022 - Present* **Teaching Assistant, Rice University**
Assisted undergraduate & graduate students with team projects and individual competencies through led instruction in ENGI 210 - Prototyping & Fabrication
- 2024* **Teaching Assistant, Rice University**
Assisted with teaching & grading in MECH 315 - Stress Analysis
- 2023-2024* **Teaching Assistant, Rice University**
Assisted with teaching & grading in MECH 310 - Rigid Body Dynamics
- 2022* **IBB Summer Academy Assistant, Rice University**
Assisted with a week-long course for highschool students on learning engineering design tools, devices, and processes
- 2020 - 2021* **Teaching Assistant, Conroe High School**
Assisted with teaching and grading for Honors Chemistry
- 2019 - 2021* **Tutor, Conroe High School**
Head lead for AP Fellow Program to tutor high school students

COMMUNITY SERVICE

RICE UNIVERSITY

2021-2022 OEDK New Student Ambassador (50+ Hours)

CONROE HIGH SCHOOL

2020-2021 National Math Honor Society (50+ Hours)
2019-2021 National English Honor Society (150+ Hours)
2019-2021 National Honor Society (50+ Hours)
2015-2021 CISD Police Jr. Leadership (1000+ Hours)
2017-2020 Interact Club (100+ Hours)

PROFESSIONAL SOCIETIES

American Society for Mechanical Engineers (ASME)
Institute of Electrical and Electronics Engineers (IEEE)