

Grant Gao

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EDUCATION

University of Wisconsin–Madison

Bachelor of Science in Mechanical Engineering GPA: 3.75

Madison, WI

Expected May 2029

EXPERIENCE

Founder and Co-President

Oct 2025 – Present

WiscoHumanoids - UW Madison Humanoid Robotics Team

Madison, WI

- Founded and organized WiscoHumanoids, UW–Madison’s first humanoid robotics team; recruited over 150 members across ME/EE/CS.
- Architected the full-body kinematic chain, optimizing actuator ordering/power transmission for legs, hips, arms, and shoulder joint geometry, ensuring high-fidelity motion transfer for robust Sim-to-Real.
- Secured critical operational resources by pitching technical proposals to college leadership, finalizing lab space allocation, and defining the V1 hardware budget.
- Designed a lightweight rack-and-pinion parallel jaw gripper with 100 mm stroke for SO-101 arms (Hugging Face).

Undergraduate Researcher

Dec 2025 – Present

RT² Lab - UW Madison

Madison, WI

- Developing a multi-modal robot demonstration framework to study how training modality fusion (natural, kinesthetic, teleoperated) impacts learned diffusion policies.

President

June 2021 – June 2025

Stuy Fission 310 - FIRST Tech Challenge Robotics Team

New York, NY

- Designed 4-stage coaxial telescoping arm in Onshape, achieving 60 in/s extension speed while supporting 30 lb loads; validated structural integrity through FEA analysis
- Reduced telescoping arm weight by 30% versus linear-slide systems using CNC-routed pocketed aluminum boxtubing with UHMWPE cable-driven extension mechanism
- Managed 50-person team operations and raised \$25,000 in sponsorships as president (2023-2025)

STEM Center Intern

July 2024 – Aug 2024

Cornell Tech NYC FIRST

New York, NY

- Designed a custom mounting frame for the TIAGo mobile robotic base, enabling modular attachment of healthcare-specific embodiments for medical professional applications
- Created laser-cut cardboard robot kit and curriculum using Adobe Illustrator, teaching 40 elementary students engineering principles and digital fabrication techniques

PROJECTS

16 DOF Exoskeleton Glove | *Onshape, Robot Learning, Data Collection*

November 2025 – Present

- Designed a 16 DOF exoskeleton, with 1:1 kinematic mapping to the Orca hand with RDC506018A Encoders at each DOF to capture joint angles.
- Integrated an iPhone for visual odometry (SLAM) and a wrist-mounted camera, replicating the Universal Manipulation Interface pipeline for portable real-world data collection.
- Fabricated a passive mechanical prototype to conduct ergonomic fit-checks, iterating on linkage lengths to ensure user comfort during extended teleoperation sessions.

Hollow Shaft QDD Actuator | *Onshape, Actuator Design*

December 2025 – Present

- Designed a 3D Model for a quasi-direct-drive actuator featuring a 12.6 mm hollow shaft for internal cable management and passive thermal dissipation.
- Integrated a crossed roller bearing and a 20:1 two-stage planetary gearbox, focusing on precise component stack-up and axial space optimization.
- Integrated a dual-encoder sensing architecture, enabling backlash compensation essential for high-fidelity force-sensitive control.

SKILLS

Design: Onshape, SolidWorks, Fusion 360, FEA, CFD, GD&T (ASME Y14.5)

Manufacturing: CNC Mill, Waterjet, Laser Cutter, 3D Printing (FDM, SLA), Hand Tools

Programming: Java, Python, Javascript

ACHIEVEMENTS

FIRST Tech Challenge: 3rd Place Worldwide in Sample Offensive Power Rating out of 7000 teams (2025), World Championship Playoffs (Top 48/7000, 2024), Dean’s List Semi-Finalist (2024)