

Yinglei Zhu



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Education

Tsinghua University (THU)

Ph.D. Candidate, Mechanical Engineering

Beijing, China

Sep. 2024 - Present

- Advised by Prof. Huichan Zhao, at 🏢 [THU Soft Robotics Research Group](#)
- Research interest in **Robot Learning and Soft Robotics**
- Vice President of THU Student Entrepreneurship Association

B.S., Mathematics & Physics; Mechanical Engineering

Sep. 2020 - Sep. 2024

- Overall GPA: 3.96, ranked top 5%
- Served as a Teaching Assistant for Calculus and awarded Tsinghua University Five-Star Volunteer
- Vice President of THU Student Scientific Innovation Association

Publications

- [1] **Y. Zhu**[†], X. Dong, ..., **H. Zhao**. “EquiMus: Energy-Equivalent Dynamic Modeling and Simulation of Musculoskeletal Robots Driven by Linear Elastic Actuators,” *IEEE Robotics and Automation Letters (RA-L)*, 2025. [[Paper](#)] [[Webpage](#)] [[Code](#)]
Proposed EquiMus, an energy-equivalent dynamic modeling framework validated through simulations and experiments, enabling effective control strategies for musculoskeletal robots.
- [2] X. Dong[†], Y. Wang, J. Zhou, X. An, **Y. Zhu**, F. Xie, X. Liu, **H. Zhao**. “Design and Control of a Musculoskeletal Bionic Leg With Optimized and Sensorized Soft Artificial Muscles,” *IEEE Transactions on Robotics (T-RO)*, 2025. [[Paper](#)]
Presented a musculoskeletal bionic leg driven by fluidic elastomer actuators, featuring optimized mechanics, embedded sensing, and robust performance in load-bearing, jumping, and walking tasks.
- [3] **Y. Zhu**[†], S. He[†], Z. Qi, Z. Yong, Y. Qin, **J. Chen**. “Whleaper: A 10-DOF Flexible Bipedal Wheeled Robot,” *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2024. [[Paper](#)]
Introduced Whleaper, a 10-DOF bipedal wheeled robot with humanoid hip joint design, enabling enhanced stability, flexibility, and multi-modal motion for complex terrains.

Selected Honors

- 2024 **Honor**: Outstanding Graduate of Beijing
- 2023 **Scholarship**: Tsinghua Most-Excellent Scholarship (Nominee, top 15 in THU)
- 2023 **Competition**: The 41th Tsinghua *Challenge Cup* Innovation Competition (Outstanding Prize, ranked 1st)
- 2022 **Scholarship**: National Scholarship (Top 1%)

Academic Services

Conference Reviewer

- *Conference on Robot Learning (CoRL)*
- *IEEE International Conference on Robotics and Automation (ICRA)*
- *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*

Journal Reviewer

- *IEEE Robotics and Automation Letters (RAL)*
- *IEEE Robotics and Automation Magazine (RAM)*

Organizer for 1st IEEE RAS Hybrid Global Soft Robotics Day (Beijing Chapter)

- Organized and coordinated the Beijing chapter of the 1st *IEEE RAS Hybrid Global Soft Robotics Day*, a 24-hour global celebration of soft robotics featuring continuous talks, hybrid hubs, and community activities.

Technical Skills

Programming & Systems	Python, C/C++, MATLAB
Robotics & Simulation	ROS, MuJoCo, Isaac Gym, Webots
Machine Learning	PyTorch, Reinforcement Learning
Hardware & Control	Actuator and sensor integration, real-time control, basic circuit design
CAD & Prototyping	SolidWorks, AutoCAD, rapid prototyping (3D printing)
Languages	English (Fluent, CET6-640), Chinese (Native)