Qixian Wang

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EDUCATION

Sep.2020-Jun.2024 (estimated) **Bachelor in Engineering, Zhejiang University**
Ocean Engineering, Ocean College
Cumulative GPA: 3.96/4.0; 90.6/100 (Rank 3/146)

Aug.2023-Feb.2024 (estimated) **Undergraduate student researcher, Georgia Institute of Technology**
Robotics, School of Mechanical Engineering

RESEARCH INTERESTS

Legged Robot, Soft Robot, Robot Manipulation, Control Strategy

PUBLICATIONS

Papers:

[1] **Wang Q**, Wibowo I, Malhotra V, Wong I, Yu K, Zhao Y. Design and Validation of Reconfigurable Foot for Bipedal Locomotion. (In progress, targeting on TMech/AIM focused section) [pdf]

[2] **Wang Q**, Qi M, Xia Y, Chen Z. Precision control and simulation verification of hydraulic manipulator under unknown load. The 16th International Conference on Intelligent Robotics and Applications (ICIRA), vol 14271. Springer, Singapore. (Oral). [pdf]

[3] **Wang Q**, Qi M, Xia Y, Zhou S, Chen Z. Adaptive robust control of multi-DOF hydraulic manipulator with precise online load estimation. Journal of the Franklin Institute (under review). [pdf]

[4] Xia Y, **Wang Q**, Qi M, Zhou S, Lv L, Chen Z. Advanced motion control of hydraulic manipulator with precise compensation of dynamic friction. IEEE Trans. Industrial Informatics (under review)

[5] Zhang Y*, **Wang Q***, Han J, Xie Y. Effects of unsteady stream on hydrodynamic behavior of flexible hydrofoil in semi-passive mode. Renewable energy, 206 (2023) 451-475. [pdf]

[6] Han J, Xie Y, Wang Y, **Wang Q**, Zhang Y, Ju J, Zhang X, Pan Z. Investigation on unstable fluid load compensation of a diverged flow poppet valve. Energy Reports, 8 (2022) 12237-12254 [pdf]

Patents:

[1] **Wang Q**. A fish tail type tidal current power generation device. CN 108035841 A, China. [pdf]

RESEARCH EXPERIENCE

Aug. 2023-Feb. 2024 (estimated)
Research Assistant

Bipedal locomotion foot design and contact sensing
School of mechanical engineering, Georgia Institute of Technology *Supervisor: Prof. Ye Zhao*

- Designed tarsal segments and deployable cleats of humanoid robot foot which can adaptively increase traction. Finished 80% of the paper [1].
- Built the dynamic model and torque controller of the foot.
- Developed tactile sensors for multi-model contact sensing.
- Guided nine Gatech undergraduates in robotics scientific research projects.

Sep. 2022-Jul. 2023 **Adaptive robust control of hydraulic manipulator with payload estimation and friction compensation**

Research Assistant

Ocean college, Zhejiang University *Supervisor: Prof. Zheng Chen*

- Constructed the dynamic model of the manipulator with payload compensation by use of Simscape.
- Constructed a DIARC controller. Modified parameter adaptation law to accurately estimate the mass of payload online. Published paper [2] and submitted paper [3], contributing to 70% of the total workload of the project.
- Involved LuGre friction model into the dynamic modeling.
- Actively participated in the experiment of friction compensation, co-authored paper [4].

Jul. 2019-Aug. 2022 **Analysis on the flexible hydrofoils and renewable energy**

Research Assistant *School of Mechanical Engineering, Shandong University* *Supervisor: Prof. Yudong Xie*

- Analyzed the hydrodynamic characteristics of a flexible oscillating hydrofoil in the tidal current by *Fluent*. The significant contributions include modeling and data analysis of flexible hydrofoils. Published paper [5].
- Invented a fish tail shaped tidal power generation mechanism that applied for a Chinese patent. See patent [1].
- Developed a *Savonius* type power generator for tidal current energy.

TEACHING EXPERIENCE

Aug. 2023-Dec. 2023	Supervisor in Vertical Integration Program (VIP) in Georgia Tech
Jan. 2022-Aug. 2022	Teaching assistant in Materials Mechanics and Digital Circuit in ZJU

HONORS & SCHOLARSHIPS

Jun. 2023	Course Award of Underwater Robotics Design Competition
Nov. 2022	China Harbor First Class Scholarship (awarded to top 1% students)
Jan. 2022	Provincial Third-class Prize in National College Physics Competition
Nov. 2021	Second-class Prize in Zhejiang Marine Science and Technology Competition
Sep. 2021	Second prize scholarship of Zhejiang University (Received three times)

SKILLS

Foreign Language	IELTS:7.5, GRE:326+4 (Verbal:156/Quantitative:170)
Computer Skills	C++, Matlab, Solidworks, CAD, Python, Ansys, Multisim.
Experimental Skills	3D-printing, Arduino, STM32.

EXTRACURRICULAR ACTIVITIES

Jun. 2022-Aug. 2022	International Summer Campus of Korea University (GPA:4.5/4.5)	
Jun. 2021-Present	*Hongde* College Entrance Examination Analysis Company	Co-founder
Jul. 2021	Summer Campus of University of Auckland	
Feb. 2021-Jun. 2022	Underwater Robot Association of Zhejiang University	Organizer