

JIANG Zixing

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EDUCATION

M.Phil. Surgery, The Chinese University of Hong Kong (CUHK), China, In progress 2024–
B.Eng. Electronic Information Engineering *First-Class Honors*, CUHK-Shenzhen, China, 2023

EXPERIENCE

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|---------|---|---|
| 2023–24 | CUHK Department of Surgery Research Assistant, Advanced Bio-Medical Robotics Lab | Hong Kong, China 2023.11–2024.07 |
| 2020–23 | CUHK-Shenzhen Robotics & AI Lab (RAIL) Student Research Intern, SUN Lab (surgical robots and medical devices) Student Research Intern, Advanced Marine Robotics Group | Shenzhen, China 2023.02–2023.08 2020.09–2023.02 |

RESEARCH INTERESTS

Robotics / Medical Robotics / Surgical Robotics
Robot-Assisted Imaging
Image-Guided Robotic Interventions

SELECTED PROJECTS

2023–24 Autonomous Robotic Lung Ultrasound — *Research project I participated in at CUHK, supervised by Prof. LI Zheng and Prof. Pheng-Ann Heng. This project aimed to use robots to perform autonomous point-of-care lung ultrasound examinations in ICUs to prevent clinicians from infection during pandemics. I contributed to this project as the robot development lead, prototyped an robotic lung ultrasound system (software + hardware) and assisted in its preclinical validation. A video demo of this project is available at zixingjiang.com/projects/robotic-lus/.*

2020–23 Manipulator-Assisted UAV Landing on Disturbed Aquatic Platforms — *Research project I participated in at CUHK-Shenzhen, supervised by Prof. QIAN Huihuan. This project aimed to use a manipulators to assist the landing of unmanned aerial vehicles (UAVs) on aquatic platforms subject to wave disturbances. I contributed to this project by assisting Ph.D. students in the development and validation of the manipulators' end-effectors and motion planning algorithms for the landing assistance task. For more information, please see zixingjiang.com/projects#marine-robotics.*

PUBLICATIONS

Journal Article¹

2024 R. Xu, **Z. Jiang**, B. Liu, Y. Wang, and H. Qian[†], “Confidence-Aware Object Capture for a Manipulator Subject to Floating-Base Disturbances,” in *IEEE Transactions on Robotics (T-RO)*, Early Access, doi: [10.1109/TRO.2024.3463476](https://doi.org/10.1109/TRO.2024.3463476).

¹Notations: * co-first authors, [†] corresponding authors

Conference Proceedings^{1,2}

- 2023 Y. Jiang, R. Xu, **Z. Jiang** and H. Qian[†], “Design, Modeling and Control of A Novel USV-Manipulator System,” *2023 IEEE International Conference on Real-time Computing and Robotics (RCAR)*, Datong, China, 2023, pp. 206-211, doi: [10.1109/RCAR58764.2023.10249802](https://doi.org/10.1109/RCAR58764.2023.10249802).
- 2022 C. Liu, **Z. Jiang**, R. Xu, X. Ji, L. Zhang and H. Qian[†], “Design and Optimization of a Magnetic Catcher for UAV Landing on Disturbed Aquatic Surface Platforms,” *2022 International Conference on Robotics and Automation (ICRA)*, Philadelphia, PA, USA, 2022, pp. 1162-1168, doi: [10.1109/ICRA46639.2022.9812270](https://doi.org/10.1109/ICRA46639.2022.9812270).

Patents

- 2023 **Z. Jiang**, X. Ji, C. Liu, and H. Qian, “Four-wing flapping wing micro water surface aircraft and flight method,” Chinese patent [CN114889821B](#), granted February 24, 2023.
- 2022 X. Ji, Z. Song, **Z. Jiang**, and H. Qian, “Flapping wing mechanism and miniature water surface flapping wing aircraft,” Chinese patent [CN217320745U](#), granted August 30, 2022.
- 2022 X. Ji, Z. Song, **Z. Jiang**, and H. Qian, “Flapping wing mechanism based on double cranks and micro water surface flapping wing aircraft,” Chinese patent [CN217320744U](#), granted August 30, 2022.
- 2022 C. Liu, Z. Cao, **Z. Jiang**, R. Xu, X. Ji, and H. Qian, “Landing system, landing method and storage medium for unmanned aerial vehicle,” Chinese patent [CN115167522A](#), published October 11, 2022, patent pending.

CONFERENCE ACTIVITY

Workshop Abstract Presented^{1,2}

- 2024 **Z. Jiang**, Y. Hu, X. Luo, J. Miao, Y. Zhang, L. Lei, S. Wang, P.-A. Heng, Z. Li[†], “A Collaborative Robotic System with In-Plane Orientation Adjustment for Lung Ultrasonograph”, presented at workshop *Autonomy in Robotic Surgery: State of the art, technical and regulatory challenges for clinical application*, 2024 IEEE International Conference on Robotics and Automation (ICRA), Yokohama, Japan, May 13, 2024. — Abstract, poster, video demos available at zixingjiang.com/icra2024/.

SERVICE

Academic Conference Reviewer

The IEEE International Conference on Robotics and Automation (ICRA), 2025

The IEEE International Conference on Robotics and Biomimetics (ROBIO), 2023

LEADERSHIP

- 2020–22 President of RAIL Student Robotics Association, CUHK-Shenzhen — *Responsibilities: recruiting members, coordinating events, providing weekly robotics tutorials.*

AWARDS

- 2023 School of Science and Engineering Academic Year 2022–23 Dean’s List Award, CUHK-Shenzhen
- 2021–22 The 17–19th rounds of Undergraduate Research Award, CUHK-Shenzhen

²Conference presenting author *italicized* if other than the first author

TECHNICAL SKILLS

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|----------|---|
| Coding | Python, C++, C, MATLAB |
| Robotics | Full-stack skills with a particular emphasis on motion planning and control |
| Img Proc | Spatial-temporal filtering, segmentation, registration |
| Software | Robotics development: ROS, MoveIt, Gazebo, CoppeliaSim Computing / Data analysis / Machine Learning: Eigen, NumPy, pandas, PyTorch, scikit-learn 2D & 3D vision: OpenCV, Open3D, 3D Slicer CAD: SolidWorks Miscellaneous: Docker, DaVinci Resolve, \LaTeX |
| Hardware | Developing platforms: Linux, Arduino, Raspberry Pi, STM32, ESP32, FPGA Robots: manipulator, ornithopter, UAV, USV, UGV Sensors: RGB-D camera, force/torque sensor, optical tracker Interfaces: haptic devices, joysticks Clinical ultrasound: Wisonic Medical, BK Medical |

LANGUAGES

| | |
|---------|--------------------------|
| Chinese | Mandarin – Native |
| English | Professional proficiency |

REFERENCES

Prof. LI Zheng ✉ zhengli@cuhk.edu.hk

Associate Professor

Department of Surgery

The Chinese University of Hong Kong

Relationship: M.Phil. supervisor; Research supervisor

Prof. QIAN Huihuan (Alex) ✉ hhqian@cuhk.edu.cn

Associate Professor

School of Science and Engineering

The Chinese University of Hong Kong, Shenzhen

Relationship: Undergraduate final year project supervisor; Research supervisor