JIANG Zixing

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EDUCATION

M.Phil. Surgery, CUHK, In progress 2024–

B.Eng. Electronic Information Engineering, *First-Class Honors*, CUHK-Shenzhen, 2023

EXPERIENCE

2023–24 Research Assistant, Advanced Bio-Medical Robotics Laboratory, CUHK

2020–23 Research Intern, Robotics & Artificial Intelligence Laboratory, CUHK-Shenzhen

RESEARCH INTERESTS

Robotics

Medical Devices and Systems

PUBLICATIONS

Journal Articles

2025 Y. Sun, R. Xu, **Z. Jiang**, Y. Xian, Z. Chen, H. C. Yip, P. W. Y. Chiu, and Z. Li, "A Novel Wireless Magnetic Master Device for Six-DoF Robotic Teleoperation Control with Expandable Workspace," *IEEE Transactions on Automation Sciences and Engineering*, vol. 22, pp. 24470-24484, doi: 10.1109/TASE.2025.3628650.

2025 L. Lei*, Y. Hu*, **Z. Jiang***, J. Miao, X. Luo, Y. Zhang, Q. Wang, S. Wang, Z. Li, and P.-A. Heng, "Towards Lung Ultrasound Automation: Fully Automonous Robotic Longitudinal and Transverse Scans Along Intercostal Spaces," *IEEE Transactions on Medical Robotics and Bionics*, vol. 7, no. 2, pp. 768–781, doi: 10.1109/TMRB.2025.3550663 (* indicates co-first authors).

2024 R. Xu, **Z. Jiang**, B. Liu, Y. Wang, and H. Qian, "Confidence-Aware Object Capture for a Manipulator Subject to Floating-Base Disturbances," *IEEE Transactions on Robotics*, vol. 40, pp. 4396–4413, doi: 10.1109/TRO.2024.3463476.

Conference Proceedings

2025 X. Luo, **Z. Jiang**, M. C. Lei, Y. Xian, Y. Hu, A. Dong, P. K. F. Chiu, and Z. Li, "Design and Geometry-Aware Planning of a Novel Probe-Scanning Manipulator with RCM Constraint," *2025 IEEE/RSJ International Conference on Intelligent Robots and Systems,* Hangzhou, China, pp. 1764-1770, doi: 10.1109/IROS60139.2025.11246081 (Best Paper Award on Robot Mechanisms and Design Finalists).

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*, Datong, China, pp. 206-211, doi: 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 IEEE International Conference on Robotics and Automation*, Philadelphia, PA, USA, pp. 1162-1168, doi: 10.1109/ICRA46639.2022.9812270.

Patents

2024 C. Liu, Z. Cao, **Z. Jiang**, R. Xu, X. Ji, and H. Qian, *Unmanned Aerial Vehicle Landing System, Landing Method and Storage Medium*, Chinese patent CN115167522B.

2023 **Z. Jiang**, X. Ji, C. Liu, and H. Qian, *Four-wing Flapping Wing Micro Water Surface Aircraft and Flight Method*, Chinese patent CN114889821B.

2022 X. Ji, Z. Song, **Z. Jiang**, and H. Qian, *Flapping Wing Mechanism and Miniature Water Surface Flapping Wing Aircraft*, Chinese patent CN217320745U.

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.

CONFERENCE ACTIVITY

Workshop Presentation

2024 **Z. Jiang**, Y. Hu, X. Luo, J. Miao, Y. Zhang, L. Lei, S. Wang, P.-A. Heng, and Z. Li, "A Collaborative Robotic System with In-Plane Orientation Adjustment for Lung Ultrasonography," presented at ICRA 2024 workshop *Autonomy in Robotic Surgery: State of the art, technical and regulatory challenges for clinical application*, Yokohama, Japan, May 13. [Poster] [Abstract]

AWARDS AND HONORS

2025 China International College Students' Innovation Competition
Gold Prize, Team: *Magnetic Retraction System for Endoscopic Submucosal Dissection*.

2025 Prof. Charles K. Kao Student Creativity Awards, CUHK
Finalist, Team: *A Novel Robotic System for Minimally Invasive Transperineal Prostate Biopsy with Enhanced Safety.*

2024 The 14th "Challenge Cup" China College Students' Entrepreneurship Competition
Bronze Prize, Project: *ColoMAG: Magnet-assisted Colorectal Cancer Screening and Early Surgical Treatment System*.

2023 School of Science and Engineering Dean's List Award, CUHK-Shenzhen

2021–22 The 17th–19th Undergraduate Research Award, CUHK-Shenzhen
Project: *Bioinspired Robot for Aquatic-Aerial Hybrid Locomotion.*

SERVICE

Academic Journal Peer Review

IEEE Robotics and Automation Letters

Conference Peer Review

IEEE International Conference on Robotics and Automation

IEEE/RSJ International Conference on Intelligent Robots and Systems

IEEE International Conference on Robotics and Biomimetics

COURSE TAUGHT

BMEG5750 Medical Robotics, CUHK (Teaching Assistant, 2025–26)

OPEN SOURCE CONTRIBUTIONS

Maintained

- minimal_handeye_ros2: A minimal ROS2 node for calculating the hand-eye calibration problem
- ndi_ros2_driver: ROS2 driver for Northern Digital Inc. (NDI) optical tracking systems
- dvrk_description: Unofficial URDF description for the da Vinci Research Kit (dVRK) surgical robots

Contributed

- cartesian_controllers: A set of Cartesian controllers for the ROS1 and ROS2-control framework
- PLUS: Public software Library for UltraSound

SKILLS

Programming

Python, C, C++, MATLAB

Software Tools / Frameworks

ROS, ROS2, Isaac Sim, Isaac Lab, SOFA, 3D Slicer, Blender, SolidWorks

Hardware Systems / Platforms

Robots: Universal Robots UR5(e), Franka Emika Panda, Interbotix WidowX-250

Micro-controllers: STM32, Arduino, ESP32

Sensors: RGB-D cameras, ultrasound imaging, optical, force/torque, haptic, magnetic field

Languages

Chinese (native), English (fluent)

Last update: January 2026