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Mainpage

RESEARCH OVERVIEW

Keywords: Human-Robot Interaction(HRI), Human-Robot Motion Transfer, Teleoperation, Proactive Safety, Latency-Aware Control, Cloud-Fog Automation, Healthcare Robot

Key Facts: 40+ SCI & EI Papers, 3 Patents, 3 software copyrights, Principal Investigator for 4 national and provincial funded projects, and various funding from industry, won the first prize of the Science and Technology Progress Award of the China Machinery Industry Science and Technology Award, the Excellent Science and Technology Paper Award of the China Association for Science and Technology, the Excellent Paper Award of the Mechanical Engineering Society, and the Excellent Paper Award of the Journal of Mechanical Engineering

EDUCATION

- Zhejiang University** 2018.09 - 2023.12
Ph.D. in Mechatronic Engineering (Mentor: Prof. Geng Yang) Hangzhou, China
- KTH Royal Institute of Technology** 2021.09 - 2022.09
Visiting Ph.D. Student in Information Technology and Robotics (Mentor: Prof. Zhibo Pang) Stockholm, Sweden
- China University of Mining and Technology** 2014.09 - 2018.06
B. Eng. in Mechanical Engineering Xuzhou, China

WORK EXPERIENCE

- School of Mechanical Engineering, Zhejiang University** 2024.03 - present
Research Associate (Postdoctoral Researcher Fellow, Advisor: Academician Huayong Yang) Hangzhou, China
- Communication & Robotics Lab, ABB AB, Corporate Research Center** 2021.12 - 2022.11
Guest Researcher (Traineeship Ph.D., Advisor: Prof. Zhibo Pang, Prof. Alf Isaksson) Västerås, Sweden

PUBLIC FUNDED PROJECTS

- National Natural Science Foundation of China (NSFC)** 2025.01 - 2027.12 (PI)
– Research on Control Method of Teleoperated Assistive Robots for Time-Sensitive Tasks, Grant No. 52405038 (CNY300,000)
- Priority-Funded Postdoctoral Research of China Postdoctoral Science Foundation** 2025.07 (PI)
– Research on Sensing and Control Method of Robot-Assisted Tele-Auscultation with Time-Varying Delay, (CNY180,000)
- Postdoctoral Fellowship Program (Grade B) of China Postdoctoral Science Foundation** 2024.07 (PI)
– China Postdoctoral Science Foundation, Grant No. GZB20240654 (CNY360,000)
- China Postdoctoral Science Foundation** 2024.11 (PI)
– Research on Remote Manipulation Method of Assistive Robots for Latency-Aware Tasks, Grant No. 2024M762812 (CNY80,000)
- Priority-Funded Postdoctoral Research Project, Zhejiang Province** 2024.10 (PI)
– The Zhejiang Provincial Department of Human Resources and Social Security, Grant No. ZJ2024013 (CNY80,000)

- **Supported by the *** Key Laboratory** 2023.12 - 2025.09 (PI)
 - Development of the Multi-Robot Teleoperation System for Assembly Production Line, Grant No. *** (CNY 1000,000)
- **Project from Shenyang Institute of Automation, Chinese Academy of Sciences** 2024.07 - 2026.07 (PI)
 - Design and Implementation of a Physics Training Platform for Industrial Intelligent End-to-End Learning Platform (CNY 100,000)
- **Project from DongFang Electric Corporation Academy of Science and Technology Co** 2024.11 - 2025.11 (PI)
 - Motion Trajectory Visualization Platform for Arc Additive Manufacturing Robot (CNY 272,000)

ACADEMIC DUTIES

- [AD.1] Junior Fellow, Hong Kong Institutes of Medical Engineering Limited (KIME) (2025-)
- [TC.3] Technical Committee Member, IEEE-IES Technical Committee on Industrial Informatics (TC-II) (2025-)
- [TC.2] Technical Committee Member, IEEE IES Technical Committee on Cloud and Wireless Systems for Industrial Applications (TC-CWAIA)(2024-)
- [TC.1] Technical Committee Member, IEEE RAS Human-Robot Interaction & Coordination (TC-HRIC) (2024-)
- [AB.1] Ambassador, IEEE Industrial Electronics Society (IES) Ambassador for IEEE R10 region (Asia and Pacific) (2023-2024)

CONFERENCE SERVICE –ORGANIZATION

- [CO.2] [SYPA Forum Chair], 23nd IEEE International Conference on Industrial Informatics (INDIN2025), Kunming, China, Jul.12-15, 2025.
- [CO.1] [Program Committee Member], 17th International Conference on Intelligent Robotics and Applications(ICIRA2024), Xi'An, China, Jul.31-Aug.2, 2024
- [WS.2] [Workshop Chair], Advanced Haptic Sensors and Devices for Healthcare Robots, at the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2025), Hangzhou, China, Oct. 20, 2025.
- [WS.1] [Workshop Chair], Intelligent Inspection and Security for Industrial Manufacturing Systems, at the 23nd IEEE International Conference on Industrial Informatics (INDIN2025), Kunming, China, Jul.12-15, 2025.
- [SC.2] [Session Chair & Principal Organizer], SS-Advanced Sensing and Control Technologies for Intelligent Human-Robot Interaction, at the 17th International Conference on Intelligent Robotics and Applications(ICIRA2024), Xi'An, China, Jul.31-Aug.2, 2024
- [SC.1] [Session Chair & Principal Organizer], SS-Communication and Control Co-design for Empowering Cloud-Fog Automation Systems at the 33rd International Symposium on Industrial Electronics (ISIE2024), Ulsan, South Korea, Jun.18-21, 2024

ACADEMIC SERVICE

- Editorial Service:
 - [GE.1] Guest Editor, IEEE Journal of Biomedical and Health Informatics(JBHI), SI on Cross-disciplinary research in informatics for neural, mental and psychological health
- Reviewer Service:
 - [JR.22] IEEE/ASME Transactions on Mechatronics
 - [JR.21] Sensors International
 - [JR.20] IEEE Network Magazine
 - [JR.19] IEEE Sensors Journal
 - [JR.18] Journal of Computational Methods in Science and Engineering
 - [JR.17] 机器人 Robot (中文刊)

- [JR.16] IEEE Transactions on Mobile Computing
- [JR.15] IEEE Transactions on Industrial Informatics
- [JR.14] IEEE Transactions on Automation Science and Engineering
- [JR.13] IEEE Robotics & Automation Magazine
- [JR.12] IEEE Journal on Selected Areas in Communications
- [JR.11] Robotics and Autonomous Systems
- [JR.10] IEEE Journal of Biomedical and Health Informatics
- [JR.9] IEEE Robotics and Automation Letters
- [JR.8] IEEE Network Magazine
- [JR.7] IEEE Access
- [JR.6] Scientific Reports
- [JR.5] Discover Applied Sciences
- [JR.4] Intelligent Automation and Soft Computing
- [JR.3] International Journal of Mechanical Engineering and Robotics Research
- [JR.2] Advanced Intelligent Systems
- [JR.1] Cobot
- [CR.4] IEEE International Conference on Intelligent Robots and Systems
- [CR.3] IEEE International Conference on Industrial Informatics
- [CR.2] IEEE/ASME International Conference on Advanced Intelligent Mechatronics (AIM)
- [CR.1] Robotics: Science and Systems

PUBLICATIONS

- Journal Paper:

- [J.27] **Honghao Lyu**, Ruohan Wang, Yuyao Lu, Mengke Wang, Le Li, Huayong Yang Jialin Zhang* and Geng Yang*, “Towards Anthropomorphic Grasping in Food Industries: A Dual-Arm Mobile Robot with Human-like Reaching Function for Adaptive Grasping”, IEEE Internet of Things Journal, Oct. 2025, 10.1109/JIOT.2025.3614869
- [J.26] Ruohan Wang, Ying Yang, Zhengjie Zhu, Chen Li, Xiaoyan Huang, Xiao Yang, Lipeng Chen, Dashun Zhang, Haiteng Wu, Geng Yang, and **Honghao Lyu***, “A Proactive Safety Architecture Based on Proximity Sensing for Enhanced Human-Robot Interaction in Tele-Homecare,” IEEE Transactions on Human Machine Systems, In Press, 2025.
- [J.25] Zhangli Lu, Ruohan Wang, Huiying Zhou, Na Dong*, **Honghao Lyu***, and Geng Yang, “A Novel Gait Identity Recognition Method for Personalized Human-robot Collaboration in Industry 5.0,” Chinese Journal of Mechanical Engineering, vol. 38, 191, Sept. 2025, DOI: 10.1186/s10033-025-01348-x
- [J.24] Qianqian Yang, Bingqiao Li, Mengke Wang, Gaoyang Pang, Yuyao Lu, Jiayan Li, Huayong Yang, **Honghao Lyu**, Kaichen Xu*, Geng Yang*, “Machine Learning-Enhanced Modular Ionic Skin for Broad-Spectrum Multimodal Discriminability in Bidirectional Human–Robot Interaction,” Advanced Materials, e08795, Jul. 2025, DOI: 10.1002/adma.202508795
- [J.23] 吕鸿昊, 诸正杰, 程宇航, 何平, 汪若菡, 陈富国, 杨华勇, 杨赓, 董娜 *, “工业机器人主动安全作业方法与应用”, 机械工程学报, in press.
- [J.22] Depeng Kong, Yuyao Lu, Shuyao Zhou, Mengke Wang, Gaoyang Pang, Baocheng Wang, Lipeng Chen, Xiaoyan Huang, **Honghao Lyu**, Kaichen Xu*, and Geng Yang*, “Super-Resolution Tactile Sensor Arrays with Sparse Units Enabled by Deep Learning”, Science Advances, vol.11, art no.eadv2124, Jun. 2025, DOI: 10.1126/sciadv.adv2124
- [J.21] Zhangli Lu, Huiying Zhou, Longqiang Wang, Depeng Kong, **Honghao Lyu**, Haiteng Wu, Bing Chen, Fuguo Chen, Na Dong, and Geng Yang*, “GaitFormer: Two-Stream Transformer Gait Recognition Using Wearable IMU Sensors in the Context of Industry 5.0”, IEEE Sensors Journal, vol. 25, no. 11, pp.19947-19956, Apr. 2025, DOI: 10.1109/JSEN.2025.3560812

- [J.20] Zhangli Lu, Huiying Zhou, Longqiang Wang, Depeng Kong, **Honghao Lyu**, Haiteng Wu, Bing Chen, Fuguo Chen, Na Dong, and Geng Yang*, “GaitFormer: Two-Stream Transformer Gait Recognition Using Wearable IMU Sensors in the Context of Industry 5.0” , IEEE Sensors Journal, early access, Apr. 2025, DOI: 10.1109/JSEN.2025.3560812
- [J.19] Zhangli Lu, Huiying Zhou, **Honghao Lyu**, Haiteng Wu, Shaohua Tian, and Geng Yang*, “Berg Balance Scale Scoring System for Balance Evaluation by Leveraging Attention-Based Deep Learning with Wearable IMU Sensors” , Bioengineering, vol.12, no.4, 395, Apr. 2025, DOI: 10.3390/bioengineering12040395
- [J.18] **Honghao Lyu**, Anna Bengtsson, Sofie Nilsson, Zhibo Pang, Alf Isaksson, and Geng Yang, “Latency-Aware Control for Wireless Cloud Fog Automation: Framework and Case Study” , IEEE Transactions on Automation Science and Engineering (IEEE TASE), vol.22, pp.5400-5410, Jul. 2024, DOI: 10.1109/TASE.2024.3420770
- [J.17] **Honghao Lyu**, Jing Yan, Jialin Zhang, Zhibo Pang*, Geng Yang, and Alf Isaksson, “Cloud-Fog Automation: Heterogenous Applications over New Generation Infrastructure of Virtualized Computing and Converged Networks” , IEEE Industrial Electronics Magazine (IEEE IEM), vol.18, no.4, pp.30-42, Jun. 2024, DOI: 10.1109/MIE.2024.3407051
- [J.16] **Honghao Lyu**, Zhibo Pang*, Koushik Bhimavarapu, and Geng Yang, “Impacts of Wireless on Robot Control: The Network Hardware-in-the-Loop Simulation Framework and Real-Life Comparisons”, IEEE Transactions on Industrial Informatics (IEEE TII), vol.19, no.9, pp.9255-9265, Sep. 2023. DOI: 10.1109/TII.2022.3227639. (TOP, IF = 12.3)
- [J.15] **Honghao Lyu**, Depeng Kong, Gaoyang Pang, Baicun Wang, Zhangwei Yu, Zhibo Pang, and Geng Yang*, “GuLiM: A Hybrid Motion Mapping Technique for Teleoperation of Medical Assistive Robot in Combating the COVID-19 Pandemic,” IEEE Transactions on Medical Robotics and Bionics (IEEE TMRB), vol.4, no.1, pp.106117, Jan. 2022. DOI: 10.1109/TMRB.2022.3146621 (Popular Article)
- [J.14] **Honghao Lyu**, Geng Yang*, Huiying Zhou, Xiaoyan Huang, Huayong Yang, Zhibo Pang, “Teleoperation of Collaborative Robot for Remote Dementia Care in Home Environments,” IEEE Journal of Translational Engineering in Health and Medicine (IEEE JTEHM), vol.8, art no.1400510, Jun. 2020. DOI: 10.1109/JTEHM.2020.3002384
- [J.13] Geng Yang*, **Honghao Lyu**, Zhiyu Zhang, Liu Yang, Siqi You, Juan Du, Huayong Yang, “Keep Healthcare Workers Safe: Application of Teleoperated Robot in Isolation Ward for COVID-19 Prevention and Control” Chinese Journal of Mechanical Engineering (CJME), vol.33, art no.47, Jun. 2020. DOI: 10.1186/s10033-020-00464-0 (1st author is my supervisor, 2020 Highly-Cited CJME Articles TOP1, the Outstanding Papers of CAST in 2022, 第七届中国科协优秀科技论文)
- [J.12] Ruohan Wang[†], **Honghao Lv[†]**, Zhangli Lu, Xiaoyan Huang, Haiteng Wu, Junjie Xiong, Geng Yang*, “A Medical Assistive Robot for Tele-healthcare During the COVID-19 Pandemic: Development and Usability Study in an Isolation Ward” JMIR Human Factors, vol.10, art. no.e42870, Jan. 2023. DOI: 10.2196/42870 (Co-first author)
- [J.11] Huiying Zhou, **Honghao Lv**, Ruohan Wang, Haiteng Wu, Geng Yang*, “Revitalizing Human-Robot Interaction: Phyigital Twin Driven Robot Avatar for China–Sweden Teleoperation” Chinese Journal of Mechanical Engineering (CJME), vol.36, art. no.124, Oct. 2023. DOI: 10.1186/s10033-023-00956-9
- [J.10] Huiying Zhou, Geng Yang*, **Honghao Lyu**, Zhibo Pang, Xiaoyan Huang, Huayong Yang, “IoT-enabled Dual-arm Motion Capture and Mapping for Telerobotics in Homecare” IEEE Journal of Biomedical and Health Informatics (IEEE JBHI), vol.24, no.6, pp.1541-1549, Nov. 2019. DOI: 10.1109/JBHI.2019.2953885
- [J.9] Geng Yang, **Honghao Lv**, Feiyu Chen, Zhibo Pang, Jin Wang, Huayong Yang, Junhui Zhang*, “A Novel Gesture Recognition System for Intelligent Interaction with a Nursing-Care Assistant Robot” Applied Sciences-Basel, vol.8, no.12, art. no.2349, Dec. 2018. DOI: 10.3390/app8122349 (1st author is my supervisor)
- [J.8] Feiyu Chen, **Honghao Lyu**, Zhibo Pang, Junhui Zhang, Yonghong Hou, Ying Gu, Huayong Yang and Geng Yang*, “WristCam: A Wearable Sensor for Hand Trajectory Gesture Recognition and Intelligent Human-Robot Interaction” IEEE Sensors Journal. vol.19, no.19, pp.8441–8451, Oct. 2018. DOI: 10.1109/JSEN.2018.2877978 (project leader)
- [J.7] Ruohan Wang, Chen Li, **Honghao Lyu**, Gaoyang Pang, Haiteng Wu, and Geng Yang*, “A Smooth

Velocity Transition Framework Based on Hierarchical Proximity Sensing for Safe Human-Robot Interaction,” IEEE Robotics and Automation Letters (IEEE RAL), vol. 9, no.6, pp.49104917, Apr. 2024. DOI: 10.1109/LRA.2024.3385608

- [J.6] Zhiqiu Ye, Gaoyang Pang, Yihao Liang, **Honghao Lv**, Kaichen Xu, Geng Yang*, “Highly Stretchable and Sensitive Strain Sensor Based on Porous Materials and Rhombic-mesh Structures for Robot Teleoperation,” Advanced Sensor Research, vol.2, no.10, art. no.2300044, Oct. 2023. DOI: 10.1002/adsr.202300044
- [J.5] Qianqian Yang, Zhiqiu Ye, Renke Wu, **Honghao Lv**, Chen Li, Kaichen Xu, Geng Yang*, “A Highly Sensitive Iontronic Bimodal Sensor with Pressure-Temperature Discriminability for Robot Skin,” Advanced Materials Technologies, vol.8, no.21, art. no. 2300561, Aug. 2023. DOI: 10.1002/admt.202300561
- [J.4] Depeng Kong, Geng Yang*, Gaoyang Pang, Zhiqiu Ye, **Honghao Lv**, Zhangwei Yu, Fei Wang, Xi Vincent Wang, Kaichen Xu, and Huayong Yang, “Bioinspired Co-Design of Tactile Sensor and Deep Learning Algorithm for Human-Robot Interaction,” Advanced Intelligent Systems, vol. 4, no. 6, art. no.2200050, Jun. 2022. DOI: 10.1002/aisy.202200050 (build the verification platform)
- [J.3] Zakka Vincent Gbouna, Gaoyang Pang, Geng Yang*, Zeyang Hou, **Honghao Lyu**, Zhangwei Yu, and Zhibo Pang, “User-Interactive Robot Skin with Large-Area Scalability for Safer and Natural Human-Robot Collaboration in Future Telehealthcare,” IEEE Journal of Biomedical and Health Informatics, vol.25, no.12, pp.4276-4288, May 2021. DOI: 10.1109/JBHI.2021.3082563 (build the verification platform)
- [J.2] Wenzheng Heng, Geng Yang, Gaoyang Pang, Zhiqiu Ye, **Honghao Lv**, Juan Du, Guodong Zhao, and Zhibo Pang, “Fluid-Driven Soft CoboSkin for Safer Human-Robot Collaboration: Fabrication and Adaptation,” Advanced Intelligent Systems, vol.3, no.3, art. no.2000038, Jun. 2020. DOI: 10.1002/aisy.202000038 (build the verification platform)
- [J.1] Zhiqiu Ye, Gaoyang Pang, Kaichen Xu, Zeyang Hou, **Honghao Lyu**, Yiren Shen, and Geng Yang*, “Soft Robot Skin with Conformal Adaptability for On-body Tactile Perception of Collaborative Robots,” IEEE Robotics and Automation Letters, vol.7, no.2, pp.5127-5134, Apr. 2022. DOI: 10.1109/LRA.2022.3155225 (build the verification platform)

- Conference Paper:

- [C.21] Zemin Zhang, **Honghao Lyu**, Haiteng Wu, Shaohua Tian, Yi Chen, Geng Yang*, “Digital Twin-Enabled Offline Trajectory Generation and Real-Time Control for Robotic Laser Processing on Complex Surfaces” , in the 23rd IEEE International Conference on Industrial Informatics (INDIN 2025), Kunming, China, Jul. 2025. DOI: in press
- [C.20] Guangwei Zhang, Ruohan Wang, Mengke Wang, **Honghao Lyu***, Dapeng Lan, Dashun Zhang, and Geng Yang, “Wearable Exoskeleton-Based Immersive Teleoperation for Industrial Manufacturing Systems: Hardware Design and Verification” , in the 23rd IEEE International Conference on Industrial Informatics (INDIN 2025), Kunming, China, Jul. 2025. DOI: in press
- [C.19] Thien Tran, Jonathan Kua, Minh Tran, **Honghao Lyu**, Thuong Hoang and Jiong Jin, “CFTel: A Practical Architecture for Robust and Scalable Telerobotics with Cloud-Fog Automation” , in the 23rd IEEE International Conference on Industrial Informatics (INDIN 2025), Kunming, China, Jul. 2025. DOI: in press
- [C.18] Ruohan Wang, Guangwei Zhang, Zhengjie Zhu, **Honghao Lyu**, Xiaoyan Huang, Na Dong, Lipeng Chen, M. Jamal Deen, and Geng Yang*, “Advancing Robot Interaction Safety: A Teleoperated Shared-Control Approach Using a Lightweight Force-Feedback Exoskeleton” , in the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2025), Hangzhou, China, Oct. 2025. DOI: in press
- [C.17] Siyuan Liu, Dapeng Lan*, Jia Wang, Dongxiao Hu, Zhibo Pang, **Honghao Lyu**, “How Pretrained Foundation Models and Cloud-Fog Automation Empower the Recycling of Electrical Vehicles” , in the 22nd IEEE International Conference on Industrial Informatics (INDIN2024), Beijing, China, Aug. 2023. DOI: 10.1109/INDIN58382.2024.10774292
- [C.16] **Honghao Lv**, Huiying Zhou, Ruohan Wang, Haiteng Wu, Zhibo Pang and Geng Yang*, “Towards Inter-continental Teleoperation: A Cloud-Based Framework for Ultra-Remote Human-Robot Dual-Arm Motion Mapping” , in the 16th International Conference on Intelligent Robotics and Applications (ICIRA2023), Hangzhou, China, Jul. 2023. DOI: 10.1007/978-981-99-6498-7_12. (Best Student Paper Finalist Award)

- [C.15] **Honghao Lyu**, Zhibo Pang, Geng Yang, “Hardware-in-the-Loop Simulation for Evaluating Communication Impacts on the Wireless-Network-Controlled Robots”, in the 48th Annual Conference of the IEEE Industrial Electronics Society (IECON 2022), Brussels, Belgium, 17-20 October. 2022. DOI: 10.1109/IECON49645.2022.9968471 (IEEE IES Young Professionals & Students Paper Assistance Award)
- [C.14] Deyou Zhang and **Honghao Lyu***, “NOMA Enabled Multi-Access Edge Computing: A Joint MU-MIMO Precoding and Computation Offloading Design” in the 33rd International Symposium on Industrial Electronics (ISIE 2024), Ulsan, Korea, Jun. 2024. DOI: 10.1109/ISIE54533.2024.10595811 (project sponsor)
- [C.13] Ping He, **Honghao Lyu**, Haiteng Wu, and Geng Yang*, “Modeling and Control of Differential-Drive Chassis for a Homecare Assistive Robot” in the 32nd International Symposium on Industrial Electronics (ISIE2023), Helsinki, Finland, Jun. 2023. DOI: 10.1109/ISIE51358.2023.10228142
- [C.12] Jiayan Li, **Honghao Lv**, Haiteng Wu, Geng Yang*, “Design and Realization of a Multi-DoF Robotic Head for Affective Humanoid Facial Expression Imitation” , in the 16th International Conference on Intelligent Robotics and Applications (ICIRA2023), Hangzhou, China, Jul, 2023. DOI: 10.1007/978-981-99-6483-3_3
- [C.11] Ruibin Zhang, **Honghao Lyu**, Huiying Zhou, Yurui Zhang, Chenhao Liu, and Geng Yang*, “A Gait Recognition System for Interaction with a Homecare Mobile Robot”, in the 46th Annual Conference of the IEEE Industrial Electronics Society (IECON 2020), Singapore, 16-20 October. 2020. DOI: 10.1109/IECON43393.2020.9254412 (project leader)
- [C.10] Yuqi Wang, **Honghao Lyu**, Huiying Zhou, Qi Cao, Zikang Li, and Geng Yang*, “A Sensor Glove Based on Inertial Measurement Unit for Robot Teleoperation” , in the 46th Annual Conference of the IEEE Industrial Electronics Society (IECON 2020), Singapore, 16-20 October. 2020. DOI: 10.1109/IECON43393.2020.9254878 (project leader)
- [C.9] Huiying zhou, **Honghao Lyu**, Kang Yi, Zhibo Pang, Huayong Yang, Geng Yang*, “An IoT-Enabled Telerobotic-Assisted Healthcare System Based on Inertial Motion Capture” in the 2019 IEEE International Conference on Industrial Informatics (INDIN 2019), Helsinki, 22-25 Jul., 2019. DOI: 10.1109/INDIN41052.2019.8972195. (co-first author)
- [C.8] Shimin Pan, **Honghao Lyu**, Hong Duan, Gaoyang Pang, Kang Yi, and Geng Yang*, “A Sensor Glove for the Interaction with a Nursing-Care Assistive Robot” , in the 2019 IEEE International Conference on Industrial Cyber-Physical Systems (ICPS 2019), Taipei, 6-9 May, 2019. DOI: 10.1109/ICPHYS.2019.8780354. (project leader)
- [C.7] Mengke Wang, **Honghao Lyu**, Ruohan Wang, Haiteng Wu, Lipeng Chen, Yi Chen, Haihui Yuan, Geng Yang, “Enhancing Robot Teleoperation in Remote Automation Production through an Event-Triggered Control Strategy” , in the 33rd International Symposium on Industrial Electronics (ISIE 2024), Ulsan, Korea, Jun. 2024. DOI: 10.1109/ISIE54533.2024.10595681(project leader)
- [C.6] Lei Wang, Ruohan Wang, **Honghao Lyu**, Na Dong, Zhongwei Zhang, Yungang Hao, Haihui Yuan, Haiteng Wu, Geng Yang, “Liberating Humanity from Heavy Labor: Dual-Arm Coordination and Teleoperation Control for an Assistive Robot” , in the 33rd International Symposium on Industrial Electronics (ISIE 2024), Ulsan, Korea, Jun. 2024. DOI: 10.1109/ISIE54533.2024.10595726
- [C.5] Ruohan Wang, Xi Cui, **Honghao Lv**, Haiteng Wu, Geng Yang*, “Enable Intuitive and Immersive Teleoperation: Design, Modeling and Control of a Novel Wearable Exoskeleton” , in the 16th International Conference on Intelligent Robotics and Applications (ICIRA2023), Hangzhou, China, Jul. 2023. DOI: 10.1007/978-981-99-6486-4_17
- [C.4] Huiying Zhou, Liu Yang, **Honghao Lyu**, Kang Yi, Huayong Yang, and Geng Yang*, “Development of a Synchronized Human-Robot-Virtuality Interaction System using Cooperative Robot and Motion Capture Device” , in the IEEE/ASME International Conference on Advanced Intelligent Mechatronics (AIM 2019), Hongkong, 8-12 Jul. 2019. DOI: 10.1109/AIM.2019.8868447 (build the verification platform)
- [C.3] Guangwei Zhang Ruohan Wang, **Honghao Lyu***, Dashun Zhang, Haihui Yuan, Lipeng Chen and Geng Yang, “Design and Control of a Wearable Upper-Limb Exoskeleton Featuring Force Feedback for Teleoperation” , in the 17th International Conference on Intelligent Robotics and Applications (ICIRA2024), Hangzhou, China, Jul. 2024. DOI: 10.1007/978-981-96-0780-8_18

- [C.2] Ying Yang, Chen Li, Ruohan Wang, Huayu Luo, **Honghao Lyu**, Haiteng Wu, Dashun Zhang, Lipeng Chen, and Geng Yang, “Design of Highly Integrated Microscale Fingertip Tactile Sensor for Robot Dexterous Hand” , in the 17th International Conference on Intelligent Robotics and Applications (ICIRA2024), Hangzhou, China, Jul. 2024. DOI: 10.1007/978-981-96-0780-8_20
- [C.1] Ruohan Wang, Guangwei Zhang, Guangyao Zhang, **Honghao Lv**, Na Dong, Zhongwei Zhang, Yungang Hao, Haihui Yuan, Haiteng Wu, Geng Yang*, “Towards Immersive Teleoperation: Dynamic Identification for Force Feedback of a Wearable Exoskeleton” , in the 7th IFToMM Asian Mechanisms and Machine Science Conference (Asian-MMS 2024), Almaty, Kazakhstan, Aug. 2024. DOI: 10.1007/978-3-031-67569-0_9

INTELLECTUAL PROPERTY

- Patent:

- [P.6] Geng Yang Ruohan Wang Yi Chen Xi Cui **Honghao Lyu** Guangyao Zhang Na Dong Zhongwei Zhang Guohui Xu Peng Lyu, Zhejiang University Dongfang Electric Co., Ltd. Dongfang Electric Yangtze River Delta (Hangzhou) Innovation Research Institute Co., Ltd.; A Wearable Teleoperation Intelligent Equipment for Human-Machine Safe Interaction: ZL 202410867385.5 [P].2024-10-11. (Granted)
- [P.5] Geng Yang Mengke Wang **Honghao Lyu** Huayong Yang, Zhejiang University; A Human-Machine Collaborative Teleoperation Control Method and Device Based on Proactive Force Guidance: 2024116934486 (Invention disclosure, substantive examination)
- [P.4] Geng Yang **Honghao Lyu** Gaoyang Pang Huayong Yang, Zhejiang University; A Dirigible Dual-arm Omni-directional Mobile Nursing-care Robot: ZL 2018 1 0534638.1 [P].2018-10-26. (Granted)
- [P.3] Geng Yang **Honghao Lyu** Ruohan Wang Huayong Yang, Zhejiang University; A movable multi DoFs dual arm collaborative robot: CN115958578A (Invention disclosure, substantive examination)
- [P.2] Geng Yang Ruohan Wang Nan Zhang **Honghao Lyu** Haiteng Wu Huayong Yang, Zhejiang University; Dual Arm Collaborative Robot based on Six DoFs Manipulator: CN115366071A (Invention disclosure, substantive examination)
- [P.1] **Honghao Lyu** Jingbin Hao Kun Jia, China University of Mining and Technology; A Smart Home System Based on LabView and TCP/IP Network Protocol: CN20172169 4857.3[P]. 2017-12-07. (Utility model)

- Software:

- [S.4] Geng Yang Mengke Wang **Honghao Lyu** Dashun Zhang, Zhejiang University; A Software for Object based on template matching V1.0: Registration No. 2024 SR1506855.
- [S.3] Geng Yang **Honghao Lyu** Zhiyu Zhang Huayong Yang, Zhejiang University; A Software for Acquisition and Analysis of Dual-arm Robot’ s Motion Status V1.0: Registration No.2020SR 0061078.
- [S.2] Geng Yang **Honghao Lyu** Ruohan Wang Huayong Yang, Zhejiang University; A Human Motion Capture and Guidance Data Generation Software for Dual-arm robot teleoperation: Registration No.2022 SR0816120.
- [S.1] Geng Yang Le Li **Honghao Lyu** Huayong Yang, Zhejiang University; A Software for Controlling and Monitoring the Robot Torso Motion Status: Registration No.2022 SR0816145.

RESEARCH PROJECTS

- **A Cloud-Based Framework for Ultra-Remote Human-Robot Motion Mapping** 2022.08 - 2022.12
 - Research project during my visiting PhD in Sweden: Intercontinental human-motion-based teleoperation over 7800 kilometers, from Sweden to China, using dual-arm integrated Kinova Gen2 Ultra Robot.
- **Network Latency-Aware Wireless Control Based on Internal Model Control** 2022.03 - 2022.11
 - Research project during my visiting PhD in Sweden: Latency-Aware Control for Wireless Cloud Fog Automation, using a ball & beam balancing platform.

- **Impacts of Wireless on Robot Control** 2021.11 - 2022.03
 – Research project during my visiting PhD in Sweden: Network Hardware-in-the-Loop Simulation for evaluating the impacts of wireless on robot control, using YuMi robot.
- **Human-Robot Motion Transfer for Dual-Arm Kinova Robot** 2020.07 - 2020.12
 – Preparatory Research Supported by a Research Project: Teleoperation technology for dual-arm special robot, Kinova Gen2 Ultra Robot, based on human motion capture.
- **Application of Teleoperated Robot in Isolation Ward for COVID-19** 2020.02 - 2020.08
 – Application of Tele-Robotic Technology for Auxiliary Diagnosis and Treatment of COVID19 in Isolation Ward, using YuMi Robot, to keep healthcare worker safe
- **Human-Robot Collaboration based on Kinect Camera** 2019.11 - 2020.02
 – Projects for Robotics Institute of Zhejiang University: Human-robot Collaborative Assembly Based on Target Recognition Using Kinect and Security Interaction Design, using YuMi Robot
- **Homecare Robot that can Carry and Assist People** 2018.02 - 2018.09
 – An integrated design was developed for a nursing-care assistant robot tailored for home-based elderly care, capable of both carrying individuals like a wheelchair and grasping target objects.
- **WristCam: A Wearable Sensor for Intelligent Human-Robot Interaction** 2018.05 - 2018.11
 – A wearable wrist-worn camera sensor was shown to recognize hand trajectory gestures. The practicability of the proposed system was further demonstrated by controlling a cooperative robot to draw letters on paper.
- **Face Recognition and Voice Control in Remote Smart Home System** 2017.04 - 2018.03
 – Developed a smart home system featuring face recognition, voice control, tele-monitoring, environmental sensing, and real-time appliance control using NI myRIO, Node.js, Siri, and LabVIEW.
- **Development of a portable friction coefficient tester** 2016.04 - 2017.04
 – My first SRTP project in CUMT: A prototype was built by the self-designed mechanical structure with the data processing program based on LabVIEW.

HONORS

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|---|------|
| • 1st Prize for Scientific and Technological Progress in China's Machinery Industry(6/15) | 2024 |
| • Gold Prize, National Machinery Industry Design Innovation Contest(Leader) | 2022 |
| • Gold Prize, "Internet+" Innovation Competition of Zhejiang Province(Leader) | 2020 |
| • 2nd Prize, Zhejiang Challenge Cup Provincial Competition | 2020 |
| • Excellent Paper of CAST (中国科协优秀科技论文) | 2020 |
| • Excellent Paper of CMES (机械工程学会优秀论文) | 2020 |
| • Excellent Paper of CJME (机械工程学报优秀论文) | 2020 |
| • 1st Prize in Robot Innovative Design Competition of ZJU | 2019 |
| • 2nd prize, China Undergraduate Mathematical Contest in Modeling | 2016 |
| • Excellent Graduation Project of CUMT | 2018 |
| • 1st prize, Curriculum Design of Machine Design Contest | 2017 |

AWARDS

- Outstanding Graduates of Zhejiang Province 2023
- National Scholarship (for Doctoral Candidate) 2020
- National Scholarship (for Bachelor Student) 2017
- National Scholarship (for Bachelor Student) 2016
- National Scholarship (for Bachelor Student) 2015
- ZJU Innovation and Entrepreneurship Individual Award 2020
- Sun-Yueqi Outstanding Student Award 2018
- ChapHoyea Scholarship of ZJU 2020
- TOP10 Students of ZJU ME 2021
- Merit Graduate Student of ZJU, Excellent Graduate Student of ZJU 2019, 2020, 2022
- Outstanding Graduates of CUMT 2018
- Merit Student of Jiangsu Province 2017
- Excellent Student Cadre and League Member of CUMT 2015, 2016, 2017
- Outstanding Student Cadre of Shandong Province 2013
- Merit Student of Zibo City 2009

DISSERTATION WORK

- **Ph.D. Thesis** 2023, Zhejiang University, Hangzhou
– Research on Human-Motion-Based Teleoperation and Intelligent Human-Robot Interaction
- **B.Eng. Thesis** 2018, China University of Mining and Technology, Xuzhou
– Collaborative Mobile Platform based on YuMi Robot and Safe Interaction

REFEREES

- **Prof. Geng Yang** Zhejiang University, Hangzhou, China
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