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RESEARCH OVERVIEW

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

Key Facts: 50+ SCI & EI Papers, 16 as first/corresponding author, 6 Patents, 5 software copyrights, Principal Investigator for 4 national and provincial funded projects; won the 1st Prize of Science and Technology Progress Award of China Machinery Industry, Excellent Science and Technology Paper Award of CAST, Excellent Paper Award of CMES, and Excellent Paper Award of CJME; Reviewer for 30+ journals including Nature Communications and IEEE TMECH; Guest Editor of IEEE JBHI; Member of IEEE IES TC-II and multiple technical committees.

WORK EXPERIENCE

- Institute of Advanced Machines, Zhejiang University** 2026.02 - present
Assistant Professor (ZJU 100 Young Professor Program) Hangzhou, China
- School of Mechanical Engineering, Zhejiang University** 2024.03 - 2026.02
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

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

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 (CNY 300,000)
- 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 (CNY 180,000)
- Postdoctoral Fellowship Program (Grade B) of China Postdoctoral Science Foundation** 2024.07 (PI)
– China Postdoctoral Science Foundation, Grant No. GZB20240654 (CNY 360,000)
- China Postdoctoral Science Foundation** 2024.11 (PI)
– Research on Remote Manipulation Method of Assistive Robots for Latency-Aware Tasks, Grant No. 2024M762812 (CNY 80,000)

- **Priority-Funded Postdoctoral Research Project, Zhejiang Province** 2024.10 (PI)
 - The Zhejiang Provincial Department of Human Resources and Social Security, Grant No. ZJ2024013 (CNY 80,000)
- **Zhejiang Province “Spearhead and Leading Goose” R&D Program** 2025.12 (Sub-project PI)
 - Key Technologies of Intelligent End-Effectors and Multi-modal Sensing Systems for Precision Industrial Operations
- **National Key R&D Program – Intelligent Manufacturing Systems and Robotics** 2025.12 (Task Leader)
 - Development and Validation of Autonomous Robotic Platform Products
- **Defense Science and Industry Laboratory Stable Support Program** 2023.12 - 2025.09 (PI)
 - Development of Teleoperation Control System for Robotic Arm
- **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)
- **National Natural Science Foundation of China (NSFC), General Program** 2020.01 - 2023.12 (Participant)
 - Research on Affective Cognition and Behavioral Interaction Methods for Dual-Arm Collaborative Robots for Safe Elderly Assistance
- **CIE–Tencent Robotics X “Rhino-Bird” Special Research Program** 2023.12 - 2024.12 (Participant)
 - Research on Safe Interaction Technologies for Home Assistive Robots Driven by Multi-Source Perception
- **Yangtze Delta Innovation Community Joint Research Program** 2024.01 - 2026.12 (Participant)
 - Development and Application of Intelligent Live-Line Working Robots for Distribution Networks

PUBLICATIONS

- Book:

[B.1] **Honghao Lyu**, Geng Yang, Huayong Yang, “Human Motion Awareness and Robot Teleoperation: Perception, Communication and Control”, Springer, eBook ISBN 978-981-96-6545-7, Oct. 2025, 10.1007/978-981-96-6545-7

- Journal Paper:

[J.32] Baocheng Wang[†], Depeng Kong[†], Zhiao He[†], Jikai Liang, Yuyao Lu, Zikang Deng, Honghe Li, Mengke Wang, M. Jamal Deen, Zhiqiu Ye, Shuyao Zhou, Huayong Yang, **Honghao Lyu***, Jun Chen, Kaichen Xu, and Geng Yang*, “Customizing Tactile Sensors via Machine Learning-driven Inverse Design,” *Advanced Science*, In Press, Jan. 2026, 10.1002/advs.202524250

[J.31] Lican Zheng, Yuyao Lu*, **Honghao Lyu**, Tianyu Li, Songya Cui, Yuhong Xu, Zimo Cai, Yuyu Hou, Yibo Li, Qianqian Yang, Zhiqiu Ye, Geng Yang*, and Kaichen Xu*, “Laser Fabrication of Flexible Electrodes for Bioelectronics,” *Biosensors and Bioelectronics*, 298, 118386, Jan. 2026, 10.1016/j.bios.2026.118386

[J.30] **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.29] 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*, 56(1), 135-146, Dec. 2025, 10.1109/THMS.2025.3627542
- [J.28] Kang Liu, Yefeng Yang, **Honghao Lyu***, Wenyu Yang, Yifei Zhang, Zheng Tan, and Chih-Yung Wen*, “Adaptive Predefined-Time Disturbance Observer-Based Fast Nonsingular Sliding Mode Control Strategy for Consumer Quadrotor UAVs: Theory and Experiments,” *IEEE Transactions on Consumer Electronics*, vol. 71, 4, Sept. 2025, 10.1109/TCE.2025.3615655
- [J.27] 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, 10.1186/s10033-025-01348-x
- [J.26] 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, 10.1002/adma.202508795
- [J.25] 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*, vol.61, no.15, Aug. 2025, 10.3901/JME.2025.15.174
- [J.24] 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, 10.1126/sciadv.adv2124
- [J.23] Ruohan Wang, **Honghao Lyu**, Zhengjie Zhu, Ying Yang, Xiaoyan Huang, Haiteng Wu, Na Dong, Lipeng Chen, and Geng Yang*, “Safety-Aware Shared Control for Teleoperated Robotic Precision Tasks under Dynamic Interference”, *IEEE Robotics and Automation Letters*, vol. 10, no. 9, pp.9328-9335, Jul. 2025, 10.1109/LRA.2025.3592086
- [J.22] **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, 10.1109/TASE.2024.3420770
- [J.21] **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, 10.1109/MIE.2024.3407051
- [J.20] **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, 10.1109/TII.2022.3227639 (TOP, IF = 12.3)
- [J.19] **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.106-117, Jan. 2022, 10.1109/TMRB.2022.3146621 (Popular Article)
- [J.18] **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, 10.1109/JTEHM.2020.3002384
- [J.17] 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, 10.1186/s10033-020-00464-0
- [J.16] Ruohan Wang[†], **Honghao Lyu**[†], 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, 10.2196/42870 (Co-first author)

- [J.15] Huiying Zhou, **Honghao Lyu**, Ruohan Wang, Haiteng Wu, Geng Yang*, “Revitalizing Human-Robot Interaction: Phygital Twin Driven Robot Avatar for China–Sweden Teleoperation”, *Chinese Journal of Mechanical Engineering (CJME)*, vol.36, art. no.124, Oct. 2023, 10.1186/s10033-023-00956-9
- [J.14] 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, 10.1109/JBHI.2019.2953885
- [J.13] Geng Yang, **Honghao Lyu**, 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, 10.3390/app8122349
- [J.12] 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, 10.1109/JSEN.2018.2877978
- [J.11] Zhangli Lu, Huiying Zhou, Gaoyang Pang, Shuyao Zhou, Weijing Sui, **Honghao Lyu**, and Geng Yang*, “Personalized Stroke Rehabilitation via Stratified Interpretable Modeling with Wearable IMUs”, *IEEE Transactions on Neural Systems and Rehabilitation Engineering*, vol. 33, pp.4325-4337, Oct. 2025, 10.1109/tnsre.2025.3625159
- [J.10] 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, 10.1109/JSEN.2025.3560812
- [J.9] 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, 10.3390/bioengineering12040395
- [J.8] Shuyao Zhou, Depeng Kong, Mengke Wang, Baocheng Wang, Yuyao Lu, **Honghao Lyu**, Zhangli Lu, Yong Tao, Kaichen Xu, and Geng Yang*, “Unlocking Dynamic Subtle Stimuli Tactile Perception: A Deep Learning-Enhanced Super-Resolution Tactile Sensor Array with Rapid Response”, *Advanced Intelligent Systems*, vol.7, no.5, art no.2400913, Jun. 2025, 10.1002/aisy.202400913
- [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.4910-4917, Apr. 2024, 10.1109/LRA.2024.3385608
- [J.6] Zhiqiu Ye, Gaoyang Pang, Yihao Liang, **Honghao Lyu**, 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, 10.1002/adsr.202300044
- [J.5] Qianqian Yang, Zhiqiu Ye, Renke Wu, **Honghao Lyu**, 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, 10.1002/admt.202300561
- [J.4] Depeng Kong, Geng Yang*, Gaoyang Pang, Zhiqiu Ye, **Honghao Lyu**, 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, 10.1002/aisy.202200050
- [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, 10.1109/JBHI.2021.3082563
- [J.2] Wenzheng Heng, Geng Yang, Gaoyang Pang, Zhiqiu Ye, **Honghao Lyu**, 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, 10.1002/aisy.202000038

[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, 10.1109/LRA.2022.3155225

- 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. 10.1109/INDIN64977.2025.11279706

[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. 10.1109/INDIN64977.2025.11279561

[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. 10.1109/INDIN64977.2025.11279161

[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. 10.1109/iros60139.2025.11247393

[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. 2024, 10.1109/INDIN58382.2024.10774292

[C.16] **Honghao Lyu**, Huiying Zhou, Ruohan Wang, Haiteng Wu, Zhibo Pang and Geng Yang*, “Towards Intercontinental 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, 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, Oct. 2022, 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, 10.1109/ISIE54533.2024.10595811

[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, 10.1109/ISIE51358.2023.10228142

[C.12] Jiayan Li, **Honghao Lyu**, 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, 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, Oct. 2020, 10.1109/IECON43393.2020.9254412

[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, Oct. 2020, 10.1109/IECON43393.2020.9254878

- [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, Jul. 2019, 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, May 2019, 10.1109/ICPHYS.2019.8780354
- [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, 10.1109/ISIE54533.2024.10595681
- [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, 10.1109/ISIE54533.2024.10595726
- [C.5] Ruohan Wang, Xi Cui, **Honghao Lyu**, 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, 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), Hong Kong, Jul. 2019, 10.1109/AIM.2019.8868447
- [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, 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, 10.1007/978-981-96-0780-8_20
- [C.1] Ruohan Wang, Guangwei Zhang, Guangyao Zhang, **Honghao Lyu**, 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, 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.; 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 (Granted)
- [P.4] Geng Yang, **Honghao Lyu**, Gaoyang Pang, Huayong Yang, Zhejiang University; A Dirigible Dual-arm Omnidirectional 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-DoF Dual-Arm Collaborative Robot: CN115958578A (Under examination)

[P.2] Geng Yang, Ruohan Wang, Nan Zhang, **Honghao Lyu**, Haiteng Wu, Huayong Yang, Zhejiang University; Dual-Arm Collaborative Robot Based on Six-DoF Manipulator: CN115366071A (Under 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, Granted)

• Software Copyright:

[S.5] Geng Yang, Depeng Kong, **Honghao Lyu**, Yuyao Lu, Huayong Yang, Zhejiang University; Interactive Software for Braille Recognition: Reg. No.2024 SR1647532.

[S.4] Geng Yang, Mengke Wang, **Honghao Lyu**, Dashun Zhang, Zhejiang University; A Software for Object Recognition Based on Template Matching V1.0: Reg. 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 Motion Status V1.0: Reg. 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: Reg. 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: Reg. No.2022 SR0816145.

HONORS & AWARDS

- 1st Prize, Science & Technology Invention Award, China General Chamber of Commerce (3/6) 2025
- 1st Prize for Scientific and Technological Progress in China Machinery Industry (6/15) 2024
- Entrepreneurship Achievement Award, China Invention Association (6/6) 2025
- Technology Breakthrough Award, China Robot Industry (Team) 2024
- 1st Prize, Zhejiang Province Technology Demand Competition (2/10) 2024
- Gold Prize, National Machinery Industry Design Innovation Contest (Leader) 2022
- Excellent Paper of CAST 2020
- Excellent Paper of CMES 2020
- Excellent Paper of CJME 2020

PERSONAL 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
- Gold Prize, “Internet+” Innovation Competition of Zhejiang Province (Leader) 2020
- 2nd Prize, Zhejiang Challenge Cup Provincial Competition 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

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

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