

9:40–10:10, Tuesday, Aug. 18, 2026

Keynote Talk I

Intelligent Human-Machine Interaction in Rehabilitation Robots

Lin Wang

Professor, Chinese Academy of Sciences



Biography: Professor Lin Wang is Director of the Shenzhen lower limb intelligent rehabilitation device engineering research center at Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences. Her research interests lie on Embodied motion rehabilitation robot and intelligent human machine interaction technology in neuromusculoskeletal dysfunction.

Abstract: The natural and efficient assistance of walking assistive robots is an urgent need for human movement and rehabilitation. Currently, the actuation strategies of rehabilitation robots are lack functional bionics. This work describes the key technologies of the precise human motion sensing and feedback, efficient transmitting mechanical drives from human to robot, and intelligent control of the natural force driven rehabilitation system with human in the loop.

10:30–11:00, Tuesday, Aug. 18, 2026

Keynote Talk II

Spatial Perception and Action Learning for Cognitive Navigation

Yufeng Yue

Professor, Beijing Institute of Technology &
Vice Dean, School of Automation



Biography: Dr. Yufeng Yue is the Full Professor and Vice Dean at the School of Automation, Beijing Institute of Technology. He received the B.Eng. degree in automation from the Beijing Institute of Technology, Beijing, China, in 2014, and Ph.D. degree from Nanyang Technological University, Singapore in 2019. He served as a Research Fellow with Nanyang Technological University, Singapore, from 2018 to 2020. He was a visiting scholar with University of California, Los Angeles in 2019. He has authored a book in Springer, and published more than 60 journal/conference papers, including IJRR, IEEE TRO/TNNLS/TMech/TII/TIE/TITS/RAL, and NeurIPS/CVPR/ICCV/ICRA/IROS. He is the recipient of IROS 2025 New Generation Star Project. He has received the 2020 IEEE ICARCV Best Paper Award and 2021/2023/2024 IEEE ICUS Best Paper Award. He serves as AE for IEEE TRO/RAL/ICRA/IROS.

Abstract: Cognitive navigation is an emerging navigation paradigm that learns and evolves through continuous interaction with the environment, deeply integrating advances in navigation technology, cognitive science, artificial intelligence, and real-world applications. This presentation explores how robots can perceive and understand space using multimodal information in a human-like manner and, on this basis, continuously learn behavioral strategies through environmental interaction to achieve higher-level cognitive navigation. It will introduce the concept and scope of cognitive navigation, analyze the significance of spatial perception and behavior learning for its realization, review recent research progress in these areas, and discuss future trends in addressing the new challenges posed by open environments.

9:00 – 9:30, Wednesday, Aug. 19, 2026

Keynote Talk III

Research on Minimally Invasive Surgical Robots for natural orifices

Le Xie

Professor, Shanghai Jiao Tong University &
Vice Dean, Medical Robotics Research Institute



Biography: Professor Le Xie is Vice Dean of the Medical Robotics Research Institute at Shanghai Jiao Tong University, and Deputy Director of the Rehabilitation Engineering Research Institute at Shanghai Jiao Tong University. Vice Chairman of the Digital Medicine Branch of the Chinese Medical Association.

Abstract: Surgical robots have broken through the limitations of human eyes and arms, and robotic surgery has gradually become the development direction of minimally invasive surgery. Describe the key technologies of the mechanism design, force sensing and feedback, and intelligent control of the minimally invasive natural orifices surgery system.