

Title: Human-inspired Robotic Systems and Humanoid Robots

Abstract: Realizing high performance of ordinary robots is one of the core problems in robotic research, which is also the main bottleneck of their wide application in advanced manufacturing. Based on the mechanism that humans can realize extraordinary overall performance that is better than the independent performance of each body unit, by mimicking neural mechanism and motion structure of human, human-inspired robots are expected to be a promising avenue to improve the performance of robotic systems with limited sensor precision and repeatable precision. This report will briefly introduce the preliminary research progress of human-inspired robots conducted by our research team, hoping to bring inspiration to the future research of humanoid robots.



Biography: Hong Qiao is academician of Chinese Academy of Sciences, the director of the State Key Laboratory of Multimodal Artificial Intelligence Systems, the group leader of Robotic Theory and Application (with more than 50 researchers) in the Institute of Automation, Chinese Academy of Sciences. She is also the party member of Jiusan Society, member of the national committee of the 14th Chinese People's Political Consultative Conference (CPPCC). Now she serves as the chairman of World Robot Cooperation Organization (WRCO), member of IEEE Fellow committee and director of the Technical Committee on Robotic Intelligence of

Chinese Association of Automation.

She is Winner of National Natural Science Funds for Distinguished Young Scholar, IEEE Fellow, IEEE Award Board Member (2020-2021), IEEE RAS Fellow Nomination Committee Member (2022) and IEEE RAS AdCom Member (2014-2019). Prof. Qiao has made excellent contributions to interdisciplinary research between robotics and multiple disciplines and also among different directions in robotic area. She is an internationally-recognized and highly-cited pioneer researcher in high-precision robotic manipulation and biologically-inspired robotic cognition and manipulation.

Her contributions are evidenced by more than 320 international journal and conference papers (179 SCI Indexed), and 50 patents. Her theory of “Attractive Region in Environment (ARIE)” —reported as “Qiao’s Concept” —has been widely applied in industrial robots in China. She was awarded Second Prize of the National Natural Science Award (the highest fundamental research award in China) in 2014. She also serves as AEs of 6 IEEE Transactions and Editor-in-chief of Robotic Intelligence and Automation.