



ICIRA 2023 Special Session Proposal

Title of the Proposal: Perception and Manipulation of Dexterous Hand for Humanoid Robot

Technical Outline of the Session and Topics:

Outline of the Session: At present, the design, development and research on humanoid robot are one of the up-to-date hot topics in both science community and engineering field, in which dexterous hand is the primary while essential tool to perform human-like tasks in daily life. Despite of the efforts more than half century, the development of humanoid hand remains a great challenge, especially those issues of soft sensing, object physical property and motion perception, anthropomorphic manipulation planning and control. The discussion on these topics will surely strengthen the communication and arise possible collaboration in this filed, which will affirmatively accelerate the investigation and development of dexterous hand for humanoid robot.

Topics of the Session:

- *Mechanism and mechanical design of dexterous hand*
- *Tactile and perception for robotic hand*
- *Soft sensor for robotic hand*
- *Perception of object: physical property and motion*
- *Manipulation modelling of human hand*
- *AI-based Learning for human hand manipulation*
- *Anthropomorphic manipulation planning*
- *In-hand manipulation and control*

Contact details of the Session Organizers

- *Organizer 1: Guanjun Bao, Zhejiang University of Technology, gjbao@zjut.edu.cn*
- *Organizer 2: Haoyong Yu, National University of Singapore, bieyhy@nus.edu.sg*
- *Organizer 3: Tao Wang, Dorabot Inc., wangtao_free@163.com*