ICIRA 2024 Special Session Proposal

Title of the Proposal: Human-Robot Dynamic System: Learning, Modelling and Control

Technical Outline of the Session and Topics:

Outline of the Session: Research on human-robot dynamic systems is significant in the applications of intelligent robotics, representing a focal point in current research within the fields of system control and robotics technology. It refers to the systems involved when robots achieve collaboration and interaction with human by executing dynamic tasks such as robot perception, human-behaviour understanding, and human-robot interaction. By studying human-robot dynamic systems, the robots can effectively adjust associated parameters and customize action execution based on the human's immediate responses and operation needs, thereby optimizing the task performance and user satisfaction. Research on human-robot dynamic systems offers a new perspective and tools for designing more efficient and intelligent robots. Despite progress in human-robot dynamic systems, challenges remain in highly uncertain system modelling, nonlinear dynamics learning and intelligent control, especially when robots operate in nonstationary environments and human exhibit uncertain behaviour statuses and needs. This necessitates further in-depth research.

Topics of the Session:

- *Application of Human-Robot Dynamic System for Rehabilitation Robotics*
- *AI Learning for Human-Robot Interaction in Intelligent Robotics*
- *Dynamics Learning and Control of Intelligent Robotics*
- *Modelling of Human-Robot Coupled Dynamic System*
- *Pattern Recognition for Intelligent Control of Robotics*
- *Multi-Modal Perception and Information Fusion for Human-Robot Interaction*
- *Advanced Control Theory of Human-Robot Dynamic Systems*
- *Other related topics.*

Contact details of the Session Organizers

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