



ICIRA 2024 Special Session Proposal

Title of the Proposal: Planning, control and application of bionic novel concept robots

Technical Outline of the Session and Topics:

Outline of the Session:

In the realm of robotics, the emergence of bionic novel concept robots marks a significant leap towards the future, where the boundary between biological organisms and machines becomes increasingly blurred. These robots, inspired by the structures and functions of living systems, are not just a testament to human ingenuity but also a key to solving complex problems in fields as diverse as medicine, environmental monitoring, and disaster response. This session delves into the intricacies of planning, controlling, and applying these marvels of technology. From the foundational design principles that draw inspiration from nature to the advanced control systems that enable adaptability and efficiency, we explore the full spectrum of challenges and innovations in bionic robotics. Further, by examining real-world applications and potential future scenarios, the session sheds light on the transformative impact of these robots across various sectors. Thus, this session focuses on the Planning, Control, and Application of Bionic Novel Concept Robots, driving their application and development forward.

Topics of the Session:

- *Innovative Structural Design of Bionic Robots*
- *Task and Path Planning Methods for Bionic Robots*
- *Intelligent Control Methods for Bionic Robots*
- *Development and Application of Bionic Robots*
- *Application of Bionic Robots in Specific Scenarios*
- *Vision and Perception for Bionic Robots*
- *Future Trends and Development Direction of Bionic Robot Technology*

Contact details of the Session Organizers

- *Organizer 1: Hang Zhong, Hunan University, zhonghang@hnu.edu.cn*
- *Organizer 2: Zhijie Liu, University of Science and Technology Beijing, liuzhijie@ustb.edu.cn*
- *Organizer 3: Hui Zhang, Hunan University, zhanghui1983@hnu.edu.cn*