

Call for Papers

SCIENCE CHINA Information Sciences Special Focus on Bio-Robotic Systems: Modeling, Design, Control, and Perception

The advanced technology of bio-robotic systems is concentrated in bio-inspired modelling, expectation and intention understanding, system design, information interaction, intelligent control and learning. As a result of the development of these AI technologies, bio-robotic systems are developing towards the direction of autonomy and intelligence. In some respects, it is close to the human level. Due to advanced models and improved hardware computing capabilities, many bio-robotic systems applications have emerged, such as aerial robotic system, rehabilitation robotic system, medical healthcare robotic system, prosthetic device system, assistive robotic system, wearable robotic system. The research of "bio-robotic systems with intelligent perception and learning ability" is a development direction of robotic systems technology. The special issue addresses a broad spectrum of topics ranging from information perception and interaction for various bio-robotic systems such as aerial robotic system, medical healthcare robotic system, prosthetic device system, assistive robotic system, wearable robotic system to the optimization of the learning algorithm. Special attention should be paid to how to deal with the huge amount of information perception, optimize the learning ability, and achieve the high accurate control performance. This includes sensing, information interaction, learning control, iterative learning, deep learning and reinforcement learning. The special issue publishes original papers of innovative ideas and concepts, new discoveries and improvements, and novel applications to the field of bio-robotic systems. Topics explored in this special issue include, but are not limited to:

- Design and development of various bio-inspired robots
- Expectation and intention understanding
- Intelligent decision making
- Brain-inspired modelling and control of robotic systems
- Deep learning approach and data-driven approach to bio-robotic systems
- Force sensing system of rehabilitation robots
- Environmental perception and decision making of medical healthcare robots
- Optimization of learning algorithm
- Reasoning and learning of assistive robotic systems
- Brain science and cognitive science
- Neural network control and its applications in bio-robotic systems
- Intelligent control of bio-robotic systems
- Computational intelligence and networking for multiple bio-robotic systems
- System design and learning control for bio-robotic systems
- Computer vision and pattern recognition for bio-robotic systems
- Brain-inspired control of neuro-robotic systems

Important Dates:

Manuscript submission deadline: August 31, 2019

Acceptance notification: November 30, 2019

Final manuscripts due: December 31, 2019

Publication: May 1, 2020

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