2022第五届IEEE国际无人系统大会

特邀专题简介表（示例）

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| **特邀专题名称**  智能仿生机器人与系统 |
| **召集人的姓名、职称、单位和邮箱**  1.石青，教授，北京理工大学，shiqing@bit.edu.cn  2.汤奇荣，教授，同济大学，qirong.tang@outlook.com  3.余张国，教授，北京理工大学，yuzg@bit.edu.cn |
| **特邀专题简介（背景、目的、意义和内容）**  随着机器人技术的快速发展，当今的机器人可实现在各种非结构化和动态自然环境中运行。机器人也逐渐成为我们日常生活中的重要组成部分。研究智能自主机器人的一个关键方法，是从大自然的生物中汲取灵感。生物结构、机制和基本原理将为我们提供新的研究思路，革新传统机器人的设计与控制方法。相关仿生原理通常源自动物或植物，可以实现仿生感知、思考、行走、游泳、爬行或飞行等。面对复杂的应用场景，源自生物启发的仿生方法变得越来越重要。现阶段智能仿生机器人与系统通过运动协调和感知学习来引领机构和控制方面的创新，以实现机器人的智能性、灵活性、稳定性和适应性，从而推动机器人的新兴应用，如仿生操作、学习与控制。  本特邀专题邀请以下与“智能仿生机器人与系统”主题相关的包含创新思想、概念、新发现、改进以及新应用的原创论文。   * 仿生机器人 * 仿生操作 * 仿人机器人 * 仿生学习与控制 * 仿生机器人设计与应用 * 仿生机器人运动 * 集群智能和集群机器人 |

**IEEE ICUS 2022**

**Invited Session Summary（example）**

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| **Title of Session**  Biologically Inspired Intelligent Robots and Systems |
| **Name, Salutation, Affiliation and Email of Organizers**  **1. Prof. Qing Shi**  Beijing Institute of Technology, China  shiqing@bit.edu.cn  **2. Prof. Qirong Tang**  Tongji University, China  qirong.tang@outlook.com  **3. Prof. Zhangguo Yu**  Beijing Institute of Technology, China  yuzg@bit.edu.cn |
| **Details of Session (background, purpose, significance and scope)**  The evolution of robotics has enabled today’s robots to operate in a variety of unstructured and dynamically changing environments in addition to traditional structured environments. Robots have thus become an important element in our everyday life. One key approach to develop such intelligent and autonomous robots is to draw inspiration from biological systems. Biological structure, mechanisms and underlying principles have the potential to feed new ideas to support the improvement of conventional robotic design and control. Such biological principles usually originate from animal or even plant models for robots that can sense, think, walk, swim, crawl, or fly. Thus it is believed that these bio-inspired methods are becoming increasingly important in the face of the complex applications. Biologically inspired intelligent robots and systems are leading to the study of innovative structures and computing with sensory-motor coordination and learning to achieve intelligence, flexibility, stability and adaptation for the emergent robotic application, such as manipulation, learning, and control.  The invited session invites original papers of innovative ideas and concepts, new discoveries and improvements, and novel applications relevant to the following selected topics of “Biologically Inspired Intelligent Robots and Systems”.   * Biomimetic robots * Bio-inspired manipulation * Humanoid robots * Bio-inspired learning and control * Bio-inspired robot design and application * Bio-inspired robotic locomotion * Swarm intelligence and swarm robots |