

CALL FOR PAPERS

Brain-computing-based and Bio-mechatronics Systems, Control, and Applications

Theme: Studies on brain-computing-based and bio-mechatronics systems have been carried out for more than three decades and cover both theoretical and experimental challenges posed by the application of robotics and mechatronics in medicine and biology. The research covers a diverse spectrum of fast emerging interdisciplinary areas including brain or biologically inspired robots for clinical, surgery, and rehabilitation applications. This special issue will bring together papers which analyze biological systems from a “brain-computing-based” or “bio-mechatronic” point of view, trying to understand the scientific and engineering principles underlying their extraordinary performance. This special issue also aims to bring together a broad spectrum of topics covering state-of-art development of brain-computing-based and bio-mechatronics artificial systems, especially of robot systems such as social robots, wearable exoskeleton robots, rehabilitation robots, and tele-robots. The recently most exciting advances in the application of robotics and mechatronics will be presented, in addition to the control technologies and system engineering designs behind these systems. High quality original papers of innovative ideas and concepts are sought for a special issue in the field of brain-controlling, biomedical robotics and bio-mechatronics systems and application. Special attention should be given to guide the design and fabrication of novel, high performance bio-inspired machines and systems for many different applications. The guest editors invite submission of previously unpublished, recent and exciting research on brain-controlling, biomedical robotics and bio-mechatronics systems and application. We invite investigators to contribute original research articles as well as review articles and especially multidisciplinary papers that will help in promoting the research on biomedical robotics and bio-mechatronics systems and application, with application to transportation, assistive technology, diagnosis, surgery, prosthetics, rehabilitation, personal assistance, and health care, in laboratory, hospital and real world.

Potential topics include but are not limited to:

- Rehabilitation robot system, medical healthcare robot, neuro-robotics, prosthetic devices, assistive robotics, etc.
- Wearable robots for personal assistance
- Locomotion and manipulation in robots and biological systems
- Biological systems modeling
- Multi-sensor multi-modal analysis, fusion and features extraction in bio-mechatronics/robot systems (e.g., invasive or noninvasive BCI interface design, smart sensor technologies, signal processing techniques, real-life brain function monitoring, neuro-feedback system, optimization, modeling and simulation)
- Various control schemes for bio-mechatronics/ robot systems

- Augmented robot cognition and adaptive aiding
- Collaborative multi-robots environments
- Computational intelligence methods and robotic applications.
- Brain-computing-based systems
- Bio-mechatronics systems engineering
- Biologically-inspired systems and applications
- Adaptable bio-robotics systems
- Technology Assessment, Ethical and Social Implications of Biorobotics and Biomechatronics
- Other closely related topics on biorobotics and bio-mechatronics

Manuscript Preparation and Submission

Follow the guidelines in “Information for Authors” on the IEEE Transaction on System, Man Cybernetics: System website: <http://www.ieeesmc.org/publications/transactions-on-smc-systems/information-for-authors/>. Please submit your manuscript in electronic form through Manuscript Central web site: <http://mc.manuscriptcentral.com/systems>. Authors should put the following text in the Cover Letter to Editor-in-Chief section: “This manuscript is submitted for the Special Issue on Biomedical Robotics and Bio-mechatronics Systems and Application (editors: Z. Li, C. Yang, and E. Burdet).” For detailed submission information, please refer to Information for Authors at the SMC website linked above. Questions about the special issue should be directed to Prof. Zhijun Li (zjli@ieee.org).

Timetable

Deadline for manuscript submissions	May 15, 2015
Information about manuscript acceptance	November 15, 2015
Estimated publication date	May 1, 2016

Guest Editors

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