

CALL FOR PAPERS

Advances in the healthcare technology have positioned biomedical technology as a major driver in the global knowledge-based economies. A successful healthcare intervention depends not only on the capability or experience of clinicians, but also on the adequacy of medical instruments and assistive devices. In addition, the technical aids and assistive devices for elderly or people with severe motor disability are getting more attention for aging society all over the world, and they are widely used in daily life. As a result, medical mechatronics becomes an important emerging technology to improve healthcare. Medical mechatronics is the integration of technologies and knowledge from various domains, including biosignal sensing fusion, real-time clinical data analysis, electric and mechanical system design, assistive/rehabilitation robot development, and machine/deep learning algorithms. Although medical mechatronics has proven to be successful in healthcare applications, there still remain difficulties and challenges to overcome. For example, most previous assistive devices/robots were developed to provide patients with rehabilitation training in hospital. With the rapid growth of aging population, these assistive devices are required to have smaller size, cheaper production cost, and more safety in order to meet the requirement of in-house rehabilitation. As a result, the medical mechatronic components in these assistive devices/robots need to be redesigned.

The aim of the present special issue is to publish high-quality research articles as well as reviews that seek to address recent development on the medical mechatronics, and novel applications of medical mechatronics in healthcare, as well as the relevant prospect on opportunities and challenges.

Potential topics include but are not limited to the following:

- ▶ Novel body sensor networks for physical assessment (e.g., tactile sensing, heart rate, and blood pressure)
- ▶ Assistive medical mechatronics-based systems/robots for in-house rehabilitation
- ▶ High-precision vision-guidance surgery robots and flexible manipulator design
- ▶ Advanced computer-integrated interventional systems (CIIS)
- ▶ Translational algorithms for biosignal analysis and fusion (EEG, ECG, EMG, EOG, etc.)
- ▶ Next-generation human-computer interface design for medical mechatronics systems (e.g., brain-computer interface for prosthesis/wheelchair control)
- ▶ Promising applications of medical mechatronics-based systems/robots in healthcare

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Manuscript Due

Friday, 2 June 2017

First Round of Reviews

Friday, 25 August 2017

Publication Date

Friday, 20 October 2017