

IEEE/ASME International Conference on Advanced Intelligent Mechatronics (AIM 2018)

Invited Session on

Emerging Technologies in Bio-Mechatronic Rehabilitation Robotics

Over the last two decades, there has been an increasing amount of research into the use of robots in physical therapy. The goal of rehabilitation is to recuperate a patient from impairment or disability and improve mobility, functional ability and quality of life. Bio-mechatronics is an applied interdisciplinary science that integrates mechanical elements, electronics, and parts of biological organisms and signals. By using bio-mechatronic robotic devices, diagnosis and prognosis can be made more objectively with the help of quantitative kinematic/kinetic and bio-mechanical data, and comparisons between different cases can also be made more easily. Several successful rehabilitation robots have undergone clinical trials and are currently being used in hospitals and clinics for neuromotor rehabilitation. The recent emerging technologies in advanced robotics for medical rehabilitation, such as the soft actuating, wearable sensing, advanced materials, and learning-based control, have become more and more prevalent in rehabilitation robotics area. This special session would like attract experts all around the world to overview the current research and development of the innovative technologies for advanced bio-mechatronic robotics in medical rehabilitation, which will mainly deals with the latest advances and outcomes in sensing, actuating, modeling, optimization and control of bio-mechatronic rehabilitation robotics.

Potential topics include but are not limited to the following:

- Advanced robotic technologies for medical rehabilitation
- Sensing, actuating, and other enabling technologies for rehabilitation
- Modelling human musculoskeletal or neural systems
- Compliant human robot interface and interaction control
- Clinical practice in robot-assisted rehabilitation

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