



Call for Papers

IEEE

IEEE TRANSACTIONS ON ROBOTICS

Special Issue on Rehabilitation Robotics

Rehabilitation Robotics aims at the development of novel medical solutions for assisted motor therapy and functional assessment of patients with reduced motor and/or cognitive abilities in order to ultimately favor the best achievable functional recovery. Robot-assisted therapy emphasizes the central role of the patient during the motor exercise. This poses major technical challenges for the design of safe and effective robotic platforms. Typical requirements include high backdriveability, easy adaptation to different anthropometric parameters, adaptive control schemes for interaction control, friendly human-machine interfaces for motivating the patient and for allowing customization of robot performance by the doctor or therapist. A new generation of rehabilitation robots, to be conceived and developed in tight cooperation with medical experts and end users, is expected to come in the near future. Researchers working in the academy or industry are invited to submit papers to this Special Issue of the *IEEE Transactions on Robotics* (T-RO) on the theoretical, technological and experimental aspects of design, development, and validation of novel rehabilitation robotic systems.

Topics

- Novel robotic systems for application to rehabilitation
- Human-centred design methods and case studies of rehabilitation robots
- Robotic platforms for functional assessment and human behavioral analysis
- Exoskeletons and operational machines for lower and/or upper limb rehabilitation
- Robotic systems for telerehabilitation and homecare
- Portable robotics systems for ubiquitous rehabilitation
- Backdriveable mechanisms, compliant actuators and other innovative components for rehabilitation robots
- Physical human-robot interaction control in rehabilitation applications
- Impedance control, adaptive motor control and learning in rehabilitation robotics
- Multimodal and natural human-robot interfaces for rehabilitation
- Robotic systems for cognitive rehabilitation and for diagnosis and treatment of neurodevelopmental disorders
- Magnetic-imaging (MI) compatible robotic systems
- Application of robotic systems for biomechanical modeling of the human body
- Robotic systems for prevention of age-related motor disabilities

Important dates

May 15, 2008:	Call for Papers
September 15, 2008:	Deadline for Paper Submission
December 31, 2008:	Completion of First Review
March 15, 2009:	Completion of Final Review
June 2009 (tentative):	Publication

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Submission and Review of Papers

Author information is available at the T-RO web site <http://www.ieee-ras.org/tro>. Submissions should go to T-RO PaperCept at <http://ras.papercept.net/journals/tro>. T-RO considers also accompanying multimedia material. Papers submitted to the Special Issue undergo the usual T-RO review process. For further information on the Special Issue, please check the IEEE RAS TC on Rehabilitation & Assistive Robotics web site at <http://tab.ieee-ras.org/>.