
ADVANCED ROBOTICS Call for Papers

Special Issue on "Superhuman Technology"

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Recent developments in virtual reality technology and wearable robots have led to a number of exciting ideas and innovations toward improvements in quality of life and rehabilitation services for humans. For example, virtual reality technologies including head-mounted visual display and haptic/tactile display devices provide virtual presence of users with the concept that tele-presence and telexistence enhance our daily experiences. Wearable robots including powered lifting devices and rehabilitation exoskeletons aid human operators in manipulating heavy loads.

These technologies can improve our basic sensory/motor functions and have the potential to increase daily activity level of not only people with disabilities but also others such as young or elderly people. As such, these are fundamental technologies to enhance human abilities acutely or chronically and create 'superhumans'.

For example, superhuman sports are a new challenge to reinvent sports that anyone can enjoy, anywhere and anytime. With the development of technologies that augments, stabilizes, reinforces and expands human abilities acutely or chronically, everyone could potentially get a superhuman power of different variants compete in the same field. The successful integration of human augmenting devices requires sound understanding of the coupled dynamics, estimation of human intention, and control of the coupled system. Challenges also span areas such as biomechanics, physiology, psychology, neuroscience, and medicine.

This special issue will present recent advancements in research and development on superhuman and its related technologies:

- Augmented and Super-Human Sports
- Exoskeleton robots and power-assisting devices
- Haptic device design, control, and stability analysis
- Virtual reality and augmented reality
- Physiological and psychological analysis of human-robot interaction
- Sensors and actuators for wearable devices
- Human safety
- Augmentation of human's motor and sensory functions
- Rehabilitation and athletic training
- Prosthesis and orthosis
- Human adaptation to technologies
- Inclusive design

Submission: The full-length manuscript (either PDF file or MS word file) should be sent by **February 28, 2017** to the office of Advanced Robotics, the Robotics Society of Japan through the homepage of Advanced Robotics (<http://www.rsj.or.jp/AR/submission>). Sample form of the manuscript as well as the Instruction for Authors is available at the homepage.