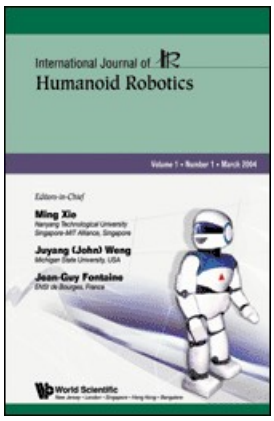

International Journal of Humanoid Robotics

--Special Issue Call for Papers--

Tactile perception for manipulation: new progress and challenges

Guest Editors

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Motivation and Objectives

Tactile sensing technology has achieved tremendous progress in recent decades. Nowadays, advanced tactile sensors are available

- for covering large regions of the robot body (e.g. torso, arms, leg etc) and enabling manipulation with the whole-body
- for robot hands, to enhance dexterous manipulation capabilities
- in wearable devices, to facilitate neuro-scientific and physiological studies to deepen our understanding of sensori-motor control processes

However, the dexterous manipulation skills of robots are still lacking as compared to those of humans. Possible reasons are:

- Available sensors are limited with low temporal and spatial resolution compared to human's mechanoreceptors
- Tactile data processing algorithms need to be improved, via machine learning, to automatically extract significant features
- A generic and robust manipulation control framework incorporating strong sensori-motor feedback loops is still missing

Within this special issue, we will bring together experts from the different domains, including tactile hardware development, robot manipulation and machine learning, to discuss recent progress and remaining challenges in tactile-based robotic manipulation, and to draw a whole-scene picture of tactile perception in manipulation with harmonic mixture of multidisciplinary research. All the submissions for this Special Issue will undergo the regular IJHR review process. Please mention: **"This paper is submitted to the special issue on Tactile perception for manipulation"**

List of Topics

- Advanced anthropomorphic tactile sensor development and calibration
- Tactile display devices in teleoperation such as surgical robots
- Whole-body tactile-based manipulation and safety
- Deep learning and its applications to tactile sensing and control
- Tactile-driven exploration strategies
- Tactile-driven robot body / tool self-calibration(robot body schema)
- Tactile servoing and manipulation
- Tactile image and tactile object perception
- Tactile-based unknown object grasp and in-hand manipulations
- Using tactile for unknown object reconstruction, classification and slip detection

Important Dates

Submission deadline: 1st, March, 2017
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Final version due: 1st, June, 2017
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