ADVANCED ROBOTICS Call for Papers

Special Issue on "Morphological Design for Haptic Interaction and Perception"

Guest Co-Editors: **Dr. Van Anh Ho** (Japan Advanced Institute of Science and Technology - JAIST)
Dr. Hongbin Liu (King's College London, United Kingdom)

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Haptics, or the sense of touch, helps humans intuitively assess characteristics of their immediate environment, enhancing the stability and dexterity of object/tool manipulation, which is considered crucial in human evolution. Since haptics originates from interactions with the environment, the morphology of the robot and the environment affect the sense of touch and effectiveness of the interaction. Morphological computation can be characterized by studies on geometry, mechanics, and dynamics of objects in accomplishment of specific tasks. The unique advantage of soft robots is that they are inherently safe and adaptive for haptic interaction. Together with the emergence of soft robotics, morphological computation has increasingly become a necessary tool for creation of new capabilities in haptic sensing, interaction and display; bringing the benefits of simple yet effective system design compared to conventional approaches.

Keeping the above key attributes in mind, this special issue (SI) is devoted to recent trends in haptic sensing, interaction control and haptic display that utilize morphological computation of soft materials. This SI aims to explore synergies between researchers working at the frontiers in soft robotics and haptics, in order to gain better insights of the underlying principles of soft morphological computation for better haptics interaction. This SI is corporate with the IROS 2017 workshop on Soft Morphological Design for Haptic Sensation, Interaction and Display endorsed by RAS TC on Soft Robotics and TC on Haptics

We would like to solicit original papers, survey papers on novel mechanisms in sensing, haptic interaction, and perception which are benefited from morphological design. Topics of interest include, but are not limited to:

- Morphological computation for object interaction and environment exploration
- Soft robot design for haptic interaction (body stiffening, grasping, locomotion, palpation)
- Flexible and soft sensors
- Haptic displays with use of soft materials
- Active tactile sensing systems
- Tactile perception in soft haptic devices
- Deep learning in haptic interaction
- Soft human-machine and haptic interface
- Variable afferent network morphology

Submission: The full-length manuscript (either PDF file or MS word file) should be sent by **February 28, 2018** 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.