
ADVANCED ROBOTICS Call for Papers

Special Issue on "Morphological Computation in Soft Robotics"

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Soft robotics has become a new frontier in robotic research, where multi-disciplinary study on advanced sensing and actuation benefits new capabilities that cannot be found in conventional rigid robots. Recent new research trends in soft robotics are originated from development of novel materials. These advances in materials engineering, thus, are promising for development of soft novel functions in robots. There is also a large body of studies on design, fabrication, kinematic modelling, and low-level control.

Inspired by embodied intelligence, morphological computation has become an emerging tool for bringing new functionalities in soft robots, since the advances in materials are not always available. Morphological computation can be characterized by studies on geometry, mechanics, and dynamics of soft objects or a series of soft objects (with different softness) in accomplishment of specific tasks in locomotion, manipulation, and sensing. The characteristics of soft objects are different from those of rigid bodies, where soft robots have inherently infinite-dof (degrees of freedom) in their mechanical system but only a limited number of actuation can be introduced to the system. Thus, morphological studies would help reveal efficient mechanisms for facilitating the desired interaction between soft-bodied robots and environment, as well as perceptions such as tactile sensation.

Keeping above key attributes in mind, we would like to solicit original papers, survey papers on novel mechanisms in sensing and actuation, which are benefited from morphological computation in control and perception. Topics of interest include, but are not limited to:

- Evolving soft-bodied robots
- Dynamic modeling of soft-bodied robots
- Bio-inspired soft mechanisms
- Flexible and soft sensors
- Active tactile sensing systems
- Control of elastic soft mechanisms
- Autonomous soft robots
- Soft human-machine and haptic interface
- Design and fabrication of soft-bodied robots
- Soft prosthesis and orthosis
- System integration in soft robotics

Submission: The full-length manuscript (either PDF file or MS word file) should be sent by **April 30, 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.