

## *Special Issue on Robot Olfaction*

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Although the olfaction is considered a primitive sense, it plays many important roles. We can detect the smell of burning stuff, which is a precursor to fire, and the smell of rotting food, which can be used to detect danger in advance. In the medical field, halitosis and body odor can be used to diagnose diseases. Although smells are utilized in various situations, even in this age of artificial intelligence, we still rely on organisms' olfaction. In addition to the fact that some odors are harmful to living organisms, problems of habituation and saturation exist in the organisms' olfaction. To achieve odor-based estimation or spatial cognition and so on, there is an urgent need to artificialize olfaction and implement it in robots.

Therefore, this special issue focuses on "Robot Olfaction," which aims to implement olfaction in robots. A wide range of fields are involved in the establishment of robot olfaction, including chemical detection, artificial nasal cavity design, and odor learning and recognition. For that reason, we invite contributions that go beyond the scope of a traditional single-discipline journal as well as elemental technologies, such as methodologies for chemical detection that support robotic olfaction, insights into biological olfactory behavior, and the implementation of olfaction in robots. We also welcome survey papers that identify current essential topics in robotic olfaction. Prospective contributed papers are invited to cover, but are not limited to, the following topics:

- Bio-inspired Robotics
- Computational neuroscience
- Chemical detection
- Body morphology for mechanical design
- Bio-hybrid system (Cyborg)
- Ethology
- Electrophysiology
- Neuroethology
- Simulation and robot implementation
- Neuro-robotics
- Soft robotics
- Particle image velocimetry
- Sensory-motor integration
- Learning and plasticity

**Submission:** The full-length manuscript (either PDF file or MS word file) should be sent by **July 31, 2024** to the office of Advanced Robotics, the Robotics Society of Japan through the homepage of Advanced Robotics (<https://www.rsj.or.jp/pub/ar/submission.html>). Instructions for authors and manuscript template are available at the homepage.