Special Issue on
Spatial Reasoning and Interaction for Real-World Robotics

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Truly universal helper robots able to cope with unknown, unstructured environments must be capable of spatial reasoning, i.e., establishing geometric relations between objects and locations, and expressing those in terms understandable by humans. It is therefore desirable that spatial and semantic environment representations be tightly interlinked. 3D robotic mapping and the generation of consistent metric representations of space are highly useful for navigation and exploration, but they do not capture symbol-level information about the environment. This is, however, essential for reasoning, and enables interaction via natural language, which is arguably the most common communication channel used and understood by humans.

This special edition collects contributions from experts in autonomous mobile robotics (Navigation in dynamically changing environments, moving obstacle recognition, motion estimation and path planning, multi-robot systems) and experts in situated Human-Robot Interaction (HRI) and Natural Language Processing (NLP) (including semantic grounding, dialogue, multi-party interaction, etc.). The work presented at this special edition will show recent developments in the area of symbolic environment modeling and spatial reasoning, as well as applications of interactive cognitive systems situated in spatially challenging environments. Papers on all aspects of HRI and spatial reasoning are welcome, including, but not limited to the following topics:

Spatial reasoning	Cognitive human-robot interaction	Situated human-robot interaction
Environment modelling	Semantic Perception	Semantic mapping
Place categorization	Scene understanding	Semantic grounding
Spatial cognition	Comput. models of spatial semantics	Situated language understanding and generation

Submission: The full-length manuscript (either PDF file or MS word file) should be sent by **April 30, 2016** to the office of Advanced Robotics, the Robotics Society of Japan through the website of Advanced Robotics (http://www.rsj.or.jp/ar_e/submission). Sample forms of the manuscript as well as the Instructions for Authors are available on the homepage. Also, send another copy to **Prof. Dirk Wollherr (dw@tum.de)** for submission confirmation.