New Standards Working Group on Semantic Maps—and More to Come!

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The IEEE Robotics and Automation Society's standards working groups continue to grow. Our current working groups are pursuing standards and guidelines in the following areas:

- autonomous robots
- ethically driven nudging for robotic, intelligent, and autonomous systems
- an ontological standard for ethically driven robotics and automation systems

Autonomous intelligent robots use high-level descriptions of space and context to interact with human beings.

- recommended practice for the human–robot interaction design of human subject studies
- robot agility
- robot task representation
- standard terminology for human–robot interactions
- 3D map data representation
- the verification of autonomous systems.

Our newest standards working group, "Standard for Semantic Maps for Autonomous Robots," is developing a standard that defines a reference model; fundamental data models; and an application framework of semantic maps for autonomous robots, which is described in more detail here.

Autonomous intelligent robots use high-level descriptions of space and context to interact with human beings. Semantic maps enable effective human–robot interaction by providing an abstraction of space and association of contextual knowledge. The ongoing rapid development of intelligent technology with robotic technology demands both sophisticated and standardized semantic maps to provide interoperability between the diverse conjunctive technologies that are required for intelligent robots.

The purpose of this standard is to establish a common ground for the application of semantic maps for autonomous robots to provide intelligent services to human users. The development of this standard is initiated from a reference model that is based on the requirements identified from use cases. Fundamental data models for the representation and exchange of semantic map information are developed in turn. Finally, the specification of an application framework to support the development of applications utilizing the semantic maps for autonomous robots follows.

There are additional working groups in the pipeline focusing on modularity for robotically assisted surgical systems and on extending the current autonomous robot standard (P1872.2). Stay tuned for more information on these upcoming working groups.

If you would like to get involved in this working group, please contact Jaeho Lee at jaeho@uos@ac.uk. If you would like to learn about or get involved in the other working groups, please visit https://www.ieee-ras.org/industry-government/standards.

There is also an active effort to include undergraduate college students in these groups to pique their interest in robot standards. More information about this effort can be found at https://www.ieee-ras.org/students/student-news-and-announcements/1572-call-students-participating-in-ieee-robotic-standardization-efforts-spirse.