

Current IEEE Standardization Efforts and Standards

- Standards
 - Core Ontologies for Robotics and Automation (published 2015) (needs to be refreshed)
 - Robot Map Data Representation for Navigation (published 2015) (needs to be refreshed)
- Active Working Groups
 - Ethically-Driven Robotics (currently being balloted)
 - Robot Task Representation (standard expected 2022)
 - Autonomous Robotics (currently being balloted)
 - 3D Map Representation (standard expected 2022)
 - Ethically-Driven Nudging
 - Guidelines for Verification of Autonomous Systems
 - Robot Agility
- Active Study Groups
 - Metrology for Human-Robot Interaction
 - Robotic Hand Grasping and Manipulation
 - Semantics Maps (NEW this year)
- Possible Future Study Group
 - Robotics in Forestry Environments

* All active groups have telecons every two weeks and physically meet at IROS and ICRA (when the conferences are physical)

IEEE RAS Working Group Updates

- Verification of Autonomous Systems
 - Goal - Enables the user to define a customized process for verification of their autonomous system based on their available resources.
 - Status - Finished the first run through generating content for the standard and we now have a solid table of contents and draft content for each section.
- Robot Task Representation
 - Goal - Define an ontology that allows for the representation of, reasoning about, and communication of task knowledge in the robotics and automation domain.
 - Status:
 - Defined the frames that will constitute our tasking standard
 - Subgroups have been formed for each frame
 - Natural language definitions of terms related to the frames have been created

IEEE RAS Working Group Updates (cont.)

- Metrology for Human Robot Interaction
 - Goal: Identify candidate key performance indicators of human-robot interaction (HRI) effectiveness, and to focus on developing the metrics and test methods by which HRI performance may be assessed.
 - Status:
 - Conducted SG-internal survey for topics of possible first-round standardization based on SG meeting discussions and presentations.
 - Results of the survey were discussed, and proposed topics were balloted for rank-ordering in terms of timing criticality.
 - Two topics for first-pass standardization were identified: HRI terminology, and design of experiments for HRI human subject studies.
- 3D Map Data Representation for Robotics and Automation
 - Goal - The standard develops a common representation and encoding for 3D map data, to be used in applications requiring robot operation, like navigation and manipulation, in all domains (space, air, ground/surface, underwater, and underground).
 - Status:
 - Definition of data formats (in JSON) for representing three-dimensional maps, including point clouds, grids, polygonal meshes.
 - The standard is intended for data exchange, not for substituting (efficient) internal representations.
 - Currently writing a draft of the standard document, which is expected to be ready for ballot at the end of 2021.

Scheduled Meetings at IROS 2020

Date	Time	Group
6/2/2021	10am-3pm	Semantic Maps
6/2/2021	10am-1pm	Robot Agility
6/3/2021	10am-12pm	Terminology Harmonization
6/4/2021	9am-11am	Autonomous Robotics