

2019 ICRA Montreal Standards Meeting Report



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Front row, from left to right: Carole Franklin, Laurence Devillers, Chris Debrunner, Abdelghani Chibani, Craig Schlenoff, Edson Prestes, Dominik Boesl

On May 19, 2019, the Industrial Activities Board (IAB) of the IEEE Robotics and Automation Society (RAS) organized the second in a series of Standards Strategy Meeting at the International Conference on Robotics and Automation (ICRA) Conference in Montreal, Canada. This was a follow-on meeting to one that was held the previous year in Madrid, in conjunction with International Conference on Intelligent Robots (IROS) 2018. More information about this previous meeting can be found at <https://www.ieee-ras.org/industry-government/standards/standards-strategy-meeting>.

The focus of the Montreal meeting was on robot terminology harmonization among various standard organizations, which was one of the key strategic areas previously identified. Specific goals included:

- Determining the best mechanism(s) for the various standards organization to work together to address this issue.
- Determining the best approach to address the harmonization issue, whether it be a mapping between terms, a common ontology, or something else.
- Working through a small set of terms/concepts that are common among the various standards, to try to scope the problem.

Twenty-seven people in total (only partially included in the picture) attended the meeting, including many of the IEEE RAS Working Group Chairs, representatives from the International Organization for Standardization (ISO), Robotics Industries Association (RIA), American Society of Mechanical Engineers (ASME), American Society for Testing and Materials (ASTM), and the Object Management Group (OMG), as well as experts in various robotics fields including autonomous vehicles and industrial robotics. Detailed information about the agenda and the presentations can be found at ???.

Short presentations were given by almost all the attendees in the morning, focusing on the following three questions:

- How does your group define terminology (e.g., ontologies, glossaries, something else)?
- How do you define the following terms (as appropriate): robot, automated robot, teleoperated robot, environment, pose?
- How did you determine these definitions (e.g., adopted from other standards, consensus among group members, something else)?

In the afternoon, the IEEE Standard Association described various mechanisms in which standards groups could work together, and then a discussion ensued to determine the best way forward.

During the discussion, there was general consensus among all participants that there is value in pursuing terminology harmonization. Specific recommendations/comments included:

- There was agreement that the terms that are used and their respective definitions are very specific and important to the various robotics fields. As such, and especially for well-established standardization efforts, it would be difficult, and likely counterproductive, to change existing definition and enforce their use. As such, it was suggested that we allow groups to maintain their current terms and definitions but provide a mechanism to map their terms to similar terms in other standards groups. The mechanism to do this should be the focus of this group's efforts.
- ISO TC299 Working Group 1 (Vocabulary and Characteristics) started a similar effort focusing on harmonizing terminology in the ISO TC299 working groups. It was suggested that we start with this effort and expand it to address terms in other standardization groups.

- It was suggested that we start with a single term, namely ‘robot’, try to determine a core definition for it, and then perform the mapping to similar terms in existing standardization efforts. The feeling was that even determining a consensus definition of robot would be a significant and valuable feat.
- In a different point of view, a participant suggested that instead of providing definitions for terms, we should provide a template with relevant attributes for each term that an individual standards group can populate. For example, if we were doing this for the term ‘robot’, we may define attributes such as degrees of freedom, components it is made of, load capacity, etc.

There will be follow-on meetings at future IROS and ICRA meetings to continue this conversation. In the meantime, IEEE RAS will set up a mailing list to allow the discussion to continue between meetings.