

# Continued Growth of IEEE RAS Standards Efforts

By Craig Schlenoff

This has been a very eventful quarter for standardization efforts within the IEEE Robotics and Automation Society (RAS). Even the virtual nature of the 2020 International Conference on Robotics and Automation could not slow down the momentum of the IEEE RAS-led Terminology Harmonization initiative, which is bringing together many of the main players in the robotics terminology standardization effort to reach consensus on the definition of a set of common terms. During our virtual meeting, the group made significant progress on a

**This has been a very eventful quarter for standardization efforts within the IEEE Robotics and Automation Society.**

road map for how to proceed and identified an initial set of terms—*task*, *action*, and *environment*—that will serve as the test case for future efforts.

In addition, two new study groups have been formed within the RAS Standards Group. The first, the Study Group on Metrology for Human–Robot Interaction (HRI), is being led by Jeremy Marvel and will identify

candidate key performance indicators of HRI effectiveness and focus on developing the metrics and test methods by which HRI performance may be assessed. The second, the Study Group on Standard Metrics and Test Methods for Assessing the Performance of Grasping-Type Robot End Effectors, is being led by Joe Falco and will explore a series of metrics and supporting test methods to perform a characterization of grasping-type robot end effectors. Developing these characterizations will guide the selection of appropriate designs to support applications and help direct research and development advancements. Each test method will describe the test setup, artifacts, and measurements and include guidance for analyzing the measurements. The metrics provide a common language for comparing different designs and will strengthen progress in the development and deployment of more capable grasping-type robot end effectors with the goal of increasing the flexibility and general-purpose applicability of robots.

This brings the number of RAS study and working groups to nine. The working groups are as follows:

- IEEE P1872.1 Robot Task Representation (contact: Stephen Balakirsky, Stephen.Balakirsky@gtri.gatech.edu)
- IEEE P1872.2 Standard for Autonomous Robotics Ontology (contact: Howard Li, howard.h.li@gmail.com)
- IEEE P2751 3D Map Data Representation for Robotics and Automation

(contact: Francesco Amigoni, francesco.amigoni@polimi.it)

- IEEE P2817 Guidelines for Verification of Autonomous Systems (contact: Signe Redfield, signedfield@gmail.com)
- IEEE P7007 Ontological Standard for Ethically Driven Robotic and Automation Systems (contact: Edson Prestes, prestes@inf.ufrgs.br)
- IEEE P7008 Standard for Ethically Driven Nudging for Robotic, Intelligent, and Autonomous Systems (contact: Sean Dougherty, seand@ieee.org).

The study groups are as follows:

- Robot Agility Study Group (contact: Tony Downs, anthony.downs@nist.gov)
- Metrology for Human–Robot Interaction (HRI) Study Group (contact: Jeremy Marvel, Jeremy.marvel@nist.gov)
- Standard Metrics and Test Methods for Assessing the Performance of Grasping-Type Robot End Effectors Study Group (contact: Joe Falco, joseph.falco@nist.gov)

To become involved in these standards efforts or for more information, please feel free to contact the appropriate point of contacts or Craig Schlenoff, RAS associate vice president for standardization, at [craig.schlenoff@nist.gov](mailto:craig.schlenoff@nist.gov).

The groups' next meetings are planned in conjunction with the upcoming IEEE/Robotics Society of Japan International Conference on Intelligent Robots and Systems.