New RAS Standards Working Groups Soliciting Broader Participation

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The IEEE Robotics and Automation Society's (RAS) standards working groups continue to grow. Three new efforts are looking for broader participation by the community. These groups are described below, along with information on how to get involved.

P1872.1.1 A GUIDE FOR THE PRACTICAL IMPLEMENTATION OF THE IEEE 1872.1 ROBOT TASK REPRESENTATION STANDARD

The IEEE 1872.1 Robot Task Representation Standard has been officially approved and is in final publication editing. This standard is designed to provide a well-defined task representation to address the growing complexity of behaviors that robots are expected to perform and the need for multirobot and human–robot collaboration. While the details of tasks vary from application to application, the core structure for such knowledge can remain constant. This standard focuses on this structure and the semantics behind the terms used in the structure's design. This will provide more precise definitions of the concepts in the robot's knowledge representation to ensure a common understanding among community members, and facilitate more efficient data integration and transfer of task knowledge among robotic systems.

The 1872.1.1 Working Group was formed to provide a guide for the practical implementation of the IEEE RAS

Robot Task Representation Standard. This group will develop several tasking examples that follow the 1872.1 standard and help to improve the ease of implementation through tutorials and examples. The first working group meeting was held on 10 January 2024, with biweekly meetings following the kickoff. For more information, or to join our mailing list and working group, please contact Dr. Stephen Balakirsky at Stephen. Balakirsky@gtri.gatech.edu.

P1872.3 STANDARD FOR ONTOLOGY REASONING ON MULTIPLE ROBOTS

The purpose of the Standard for Ontology Reasoning on Multiple Robots is to define requirements for the construction and development of reasoning frameworks for multiple autonomous robots. Specifically, ontological concepts and domain-specific axioms will be defined for: 1) representation, reasoning, and behaviors for autonomy; 2) cloud robotics; 3) artificial intelligence and machine learning for autonomous robots; 4) robot affordances; and 5) trustworthy autonomous robots. The working group has already hosted talks by experts on each of those topics, and there are plans to create dedicated groups for each of them to develop subdomain ontologies. The standard expected date of completion is June 2026, and will be built upon the baseline ontology defined in the IEEE 1872.2^{TM}–2021: Standard for Autonomous Robotics Ontology [1] and the first ever RAS Standard [2], 1872–2015: Core Ontologies for Robotics and Auto-

mation. Following the autonomous robotics ontology, it is also envisioned that this standard can interoperate with the top-level ontologies: descriptive ontology for linguistic and cognitive engineering [3] and suggested upper merged ontology [4].

The working group is formed by roboticists and ontologists, and its members are from a cross-section of industry, academia, and government that represents 11 countries and four continents, where 71% of the members are from academia. The group has organized monthly teleconference meetings since early 2023, and the first in-person meeting of the working group took place at IEEE International Conference on Robotics and Automation (ICRA), in London, United Kingdom, in June 2023. At the same conference, members of the working group organized the second edition of the Workshop on Ontologies and Standards for Robotics and Automation (WOSRA) (https://wosra.github.io/wosra2023/). A third edition of the workshop has been accepted to be organized during the next ICRA, in Yokohama, Japan, in May 2024. For more details about WOSRA, visit the webpage (https:// wosra.github.io/wosra/). If you would like to join this standardization effort, please send an e-mail to Paulo Gonçalves, chair (paulo.goncalves@ipcb.pt), or Daniel Beßler, secretary (danielb@ uni-bremen.de) to request to be added to the list of participants.

> **PHILIPPE DEVELOPED THE FIRST FORCE FEEDBACK DATA GLOVE IN FRANCE, AND HE WORKED ON ENHANCING COMPUTER-ASSISTED TELEROBOTICS WITH VIRTUAL AND AUGMENTED REALITIES.**

RAS mourns the passing of Prof. Philippe Coiffet.

glove in France, and he worked on enhancing computer-assisted telerobotics with virtual and augmented realities. He published more than 20 scientific books on robotics and virtual reality (most of them were translated into English and some into other languages) as well as more than 300 articles on these subjects. A full "In Memoriam" article is available at https://www.ieee-ras.org/about-ras/latest-news/in-memoriam-philippe-coiffet-1940-2023; you can leave a personal message to remember and honor Philippe at http://www.lirmm.fr/philippe-coiffet/.

STANDARDS

P3345, P3346 ELECTRIC VEHICLE CHANGING STANDARDS

In the upcoming years, a sustained increase in the global number of electric vehicles (EVs) is anticipated [5]. As an automated charging apparatus, the technology of EV charging robots is expected to evolve in tandem with this growth. Currently, EV charging robots are being developed and utilized in several countries, including China, the United States, South Korea, and various European nations. Stakeholders involved in this domain encompass automobile manufacturers, charging service providers, power companies, and robot manufacturers. The research focus of the two working groups, IEEE P3345 and P3346, revolves around EV charging terminology and classification, as well as general requirements, respectively.

The objective of the working groups is to facilitate the widespread adoption and application of EV charging robot technology. The developing standards will serve as a crucial reference for the research, design, production, utilization, and management of EV charging robots.

Currently, the two working groups are comprised of more than 20 experts from three different countries. The P3345 working group is scheduled to convene its final meeting in March 2024 and plans to release the standard in the fourth quarter of 2024. Meanwhile, the P3346 working group is planning to hold meetings in June and December 2024, with a standard release planned for 2025. The two working groups welcome the participation of all experts interested in contributing to the development of the two standards. Membership in the two working groups is available for anyone who is interested in EV charging robots. If the reader would like to join, please send an e-mail to Lei Yang (hhhheee1@163.com).

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