



## IEEE SA - 1872.2 Standard for Autonomous Robotics (AuR) Ontology Working Group

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### Call and Agenda

Meeting Agenda for November 7, 2019, 1PM-2:30PM UTC

You have been invited to the IEEE SA WG P1872.2 meeting. Join the meeting:

<https://join.skype.com/Buruz9jby49e>

1. Call to order (Howard)
2. Introduction and rosters (Alberto)
3. Approve today's agenda (Howard)
4. Approve prior meeting's minutes (Alberto; October 4)
5. Essential Patent Claims (Alberto)
6. Status updates/previous action items (Howard)
7. IEEE Copyright Policy (Howard)
8. Technical discussion (OWL implementation of current vocabulary)
9. Next meeting's topic: nomination of presentation
10. New business/announcements/events/last thoughts
11. Close meeting (Howard)

## Minutes for the Official Meeting on November 7, 2019

Alberto Olivares-Alarcos transcribing



### Rosters

- Y and N state for Yes and No
- ^ means the attendee is a *Voting Member*
- Members highlighted in **green** are eligible to become a *Voting Member*
- Members highlighted in **red** are eligible to lose *Voting Membership*
- Last column contains today's meeting attendees

Attendee Name	Role	Affiliation	Current Voting	Meetings Attended / last two	7-Nov
<b>OBSERVATIONS</b>					
Howard Li	Chair	University of New Brunswick, Canada	Y	1	Y^
Paulo Gonçalves	Co-Chair	IDMEC, Portugal	Y	1	Y^
Veera Ragavan	Co-Chair	Monash University, Australia	Y	1	N^
Alberto Olivares Alarcos	Secretary	IRI-CSIC, Spain	Y	2	Y^
Alaa Khamis	Member	General Motors, Canada	Y	0	N^
Chris Nowak	Member	DST Group, Australia	Y	2	Y^
João M.L. Quintas	Member	Pedro Nunes Institute, Portugal	Y	2	Y^
Julia Bermejo	Member	UPM, Spain	Y	2	Y^
Ricardo Sanz	Member	UPM, Spain	Y	0	N^
Stefano Borgo	Member	ISTC/ CNR, Italy	Y	0	N^
Edison Pignaton	Member	UFRGS, Brazil	N	0	N
Elisa Tosello	Member	UNIPD, Italy	N	0	N
Daniel Beßler	Member	University of Bremen, Germany	Y	1	N^
Mohammed Diab	Member	UPC, Spain	Y	2	Y^
Marcos E. Bareto	Member	UFBA, Brazil	N	0	N
Bao U. Nguyen	Member	University of Ottawa, Canada	N	0	N
Joanna I. Olszewska	Member	University of West Scotland, UK	Y	2	Y^
Amelie Gyrard	Member	Knoesis, Wright State University	N	2	Y
Edson Prestes	Member	UFRGS, Brazil	N	0	N
Sandro R. Fiorini	Co-Chair	IBM, Brazil	N	0	N

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Joel L. Carbonera	Co-Chair	UFRGS, Brazil	N	0	N
Hiren Nakawala	Member	University of Verona, Italy	Y	2	Y^
Carlos Hernández	Member	TU Delft, Netherlands	N	0	N
Abdelghani Cibani	Member	UPEC, France	Y	1	N^
Eren Erdal Aksoy	Member	Halmstad University / Volvo	N	0	N
<b>Dormant/Inactive</b>					
Kathryn Bennett	Guest	IEEE-SA	N		
Craig Schlenoff	Member	NIST	N		
Jaeho Lee	Member	University of Seoul	N		
JiSang Hoon	Member	KITECH, Republic of Korea	N		
Ki-Yeop Sung	Member	KAR, Republic of Korea	N		
Taeyoung Uhm	Member	KIRO, Republic of Korea	N		
Sebastian	Guest	IEEE-RAS	N		
Christy Bahn	Program Manager	IEEE-SA	N		
Signe Redfield	Guest	United States Naval Research Laboratory	N		
Ali Akbari	Guest	UPC, Spain	N		
<b>Total Attendees</b>					10
<b>Voting Members</b>			15		15
<b>Voting Members Present</b>					9
<b>Quorum</b>					Y

Alaa, Ricardo and Stefano lost their voting membership. Amelie became a voting member.

### Approval today's meeting agenda

Motion Proposal : Howard

Seconded by: Alberto

Accepted Agenda: Yes

### Approval prior minutes

Minutes were distributed and also made available on our google drive. Thus, members could have read them, but Alberto summarized the minutes to ensure that everyone knew about them.

Motion Proposal: Alberto

Seconded by: Chris

Accepted Minutes: Yes



## Call for Essential Patent Claims (Alberto)

Done

## Status updates/previous action items (Howard)

- Papers accepted at KER (Survey and Industry 4.0)
  - Survey on Ontologies for Robotics Automation.
    - Webpage to summarise the content of the paper so that the paper gets better
    - Minor content modifications
    - Projects we reviewed and are from other members of the group, please, if you want us to modify anything regarding to your section, let us know
    - Proofreading
    - During September, Daniel and Alberto will work on it. Probably, they will get the camera ready, since there are not too many things to change suggested by the reviewers. Of course, if anyone has any suggestion or comment regarding the paper, they can send us an email. **UPDATE: Article will be submitted during the second week of November.**
  - Industry 4.0
    - Paper already submitted, probably as an open access article
- Vocabulary discussion leaded by Stefano Borgo
- Focus on case studies to validate the vocabulary
  - **Mohammed's (we are working on it now)**
  - Amelie
  - Chris
  - FAiNDER (a company) which will use our standard in a Humanitarian Robotics scenario (landmine detection)
- Chris concerns about the “compositionality of capability”. We will continue discussing in the future.
- In person meeting at ICRA 2020
- Attracting industrial partners
  - FAinDer (already contacted and accepted, the CEO will join to our group)
  - KUKA (potential)
  - General Motors (they are already happy using SAE standard)
  - Veera got in touch with people from both OPCA and VDMA interested in collaborating with us. He will keep us updated about it



- How our work relates to task representation group's: initial idea, they will define task while we will work on behaviours, capabilities seem to be related to both so that would be the common ground for both groups
- Cloud Robotics' paper re-submission to the first journal which rejected due to the lack of good case study
  - To be submitted to [Journal of Ambient Intelligence and Humanized Computing](#), Special Issue on "Internet of Things for Everyday Living: Ubiquitous Intelligence at Scale"

## Copyright Policy (Howard)

Howard went through some slides about the copyright policy of IEEE. This policy is relatively large so we are not going to include all the material here, but two key points must be kept in mind:

- Anything (verbal or written) we discuss we need to make sure it has not copyright, if it has, we cannot discuss it during the meeting without official permission from the copyright holder.
- Whenever you bring some material to the group and it is discussed along with our meetings, you are granting the copyright of it to the IEEE. Either if you are the holder or your affiliation center is the holder. In the later case, you would need permission from your company or university. Note that when something which has copyright it is discussed during our meetings (sometimes permission would be needed), automatically, the copyright license will be granted to the IEEE. Note that anything developed during our group work, will have a copyright license owned by IEEE once the standard gets published.

## Technical discussion

**Topic:** Case Study to validate the Standard's Vocabulary

Extension of his previous work where two robotic arms perform a collaborative pick-and-place task. In the new proposed scenario, another robot, with both manipulation and navigation capabilities (Tiago - PAL Robotics) enters in the loop, extending the capabilities of the other two static arms. We had no comments on it so he will start working on the technical details of his proposal throughout September. **Mohammed** in charge. **LAST UPDATE [SEP-26]:** **Waiting for the rest of actions listed below, then, Mohammed will include the vocabulary in his framework. It is fundamental to keep in mind we cannot publish any content of the future standard before it is published.**



The current draft of the Standard already contains some definitions of Classes, however, the current version of the file contains a lot of details (from the discussion along the past months). We plan to reduce the document to have a single definition and example per term. **Stefano** will do this. **LAST UPDATE [SEP-12]:** Stefano already cleaned it, the previous work was put at the end of the document (just in case someone wants to see the discussions) and the section now only contains one single definition per term and examples. Stefano defined a new term which was not before 'action' so we discussed it. Specifically, the notion of 'intentionality' which is part of the definition of action was controversial, Stefano will continue thinking of it. The conclusion was: action will be defined from a neutral perspective and then have a specialisation of it which captures intentional actions.

We have only defined Classes in our first draft of the Standard, but not Relationships (in OWL, properties). The idea is to identify which ones are already defined in the IEEE 1872:2015 and come up with those which are not there and are necessary for us. During August and September, **Alberto**, **Paulo** and **Veera** will work on it offline (help is always welcome). **LAST UPDATE [SEP-12]:** Done and presented on September 6

Once we have done all the previous work, we can start writing the OWL file (we will need someone to do so, volunteers are welcome). **LAST UPDATE [SEP-26]:** Mohammed showed us his work in progress. We discussed the terms of: Time, TimePoint, TimeInterval, Environment, Event and Region.

**PREVIOUS INTERESTING INFORMATION** - Mohammed pointed out a recurrent issue we have discussed before, some of the terms within the proposed vocabulary were taken from SUMO in the previous standard (e.g. artefact, etc.). Our conclusion is that those inconsistencies will be fixed afterwards. We want to make SUMO optional.

**LAST UPDATE during today's meeting:** Mohammed is working on the implementation offline together with Stefano. They will work on having ready the OWL file for the current vocabulary and present it to us when the work is more advanced. Specifically, Mohammed is working on the terms needed for the case study (subclasses of our proposed standard). He has some work on subclasses of Action and Capability but more work is needed to polish it. We discussed the current status and he will consider our comments. Mohammed will ask Stefano to check his work once he has a stable version of it. Regarding Task, Hiren will ask the other group if we could use their implementation once it is done (but they are not working on it yet).

## Minutes for the Official Meeting on November 7, 2019

Alberto Olivares-Alarcos transcribing



### Next meeting's topic: nomination of presentation

- Andrea (Edison's contact) about her work, she is a potential new group member

### New business/announcements/events/last thoughts

- Found Patent from Magazino (see [here](#)) - Howard working on it
- ROBOT-2019 Iberian Robotics Conference - November 20-22, Porto (Portugal). Some members are organising a special session on 'Core concepts for an Ontology for Autonomous Robotics. Genealogy and Engineering Practice'. You are welcome to come and there could be a group in person meeting if many of us are attending (tentative date for the meeting, November 20)
- Next official meeting for December 5

### Close meeting (Howard)

Adjourned 2:30 PM UTC