A Workshop proposal for the

IEEE International Symposium on Robot and Human Interactive Communication (IEEE RO-MAN 2016)

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Title

EMSHRI 2016: Evaluation Methods Standardization for Human-Robot Interaction

Format

Workshop, full day

Main organiser

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Statement of objectives – intended audience

The use of robots is becoming increasingly prevalent in our society, especially by assisting people in their daily tasks. Robots can have several roles such as home care robots (e.g. for seniors), mediators (e.g. for person with autism), and companions (e.g. for children alone at home). When a new application/behavior is created on a robot, researchers need to validate it. Obviously, they need to validate technical aspects: has the robot correctly executed its tasks, has it correctly moved its actuators… But, they also need to validate psychological aspects, because humans have a tendency to anthropomorphize robots, and can reject a robot which does not respect particular social norms, for example. Evaluating an application on a robot is becoming complex,

because the need to understand how humans experience the interaction is not easily met with our current methodologies. One common objective in HRI is to "maximize" well-being, thus we need to understand which social skills are important, what the impact is of HRI, which roles the robot can and cannot fulfil and so on. Our interest is about the psychological part.
People who create robot applications are computer scientists or roboticists. They often are not experts in evaluating human-robot interactions and their effects. As such input from psychologists, ethologists, sociologists, philosophers, anthropologists, who are specialists in analyzing human behaviors and attitudes, is invaluable. These disciplines use different techniques, but all are to a large extent readily available to Human-Robot Interaction studies. For example, psychologists evaluate in controlled environments, which requires the study of Human-Robot Interaction in a laboratory setting. Even if these kinds of evaluation bring knowledge, they do not help evaluating Human-Robot Interaction in the wild. Worse than that, the existing literature is full of articles presenting studies performed without specialists, which not seldomly contain some methodological errors or biases. Therefore, we believe it becomes necessary to standardize Human-Robot Interaction evaluation methods.
This workshop is a follow-up of the first workshop which was held at the Interaction Conference on Social Robotics in 2015. During this first event, several evaluation methods were theoretically presented, as well as good and bad practices when designing an evaluation. In this second workshop, we would like to further this knowledge, and we invite people from different research fields to share their experiences about evaluating the relation between humans and robots. This workshop aims at exploring methods which were used in existing studies in order to know which methods fit to which scientific questions. It also aims at completing knowledge about good and bad practices, and at elaborating recommendations and guidelines in collaboration with participants of the first workshop, through the publication of an international book.

List of speakers and organization

This workshop will be divided into four stages.
The first one will be dedicated to a feedback about previous workshops and working sessions. Céline Jost will provide a feedback about the previous EMSHRI workshop. Nicole Mirnig (to be confirmed) will provide a feedback about a related workshop held at IROS 2015 (Towards Standardized Experiments in Human Robot Interactions). A feedback about good/bad practices and common mistakes/biases will conclude this stage (by Tony Belpaeme – to be confirmed).
The second stage will be dedicated to papers session with oral presentations. We invite all experts in evaluation to submit a paper about a specific study. The objective is to understand which methodologies from Human-Human Interaction and Human-Animal Interaction can be applicable to Human-Robot Interaction.
The third stage will contain some hands-on and discussion sessions. All participants will be divided into smaller groups in order to work on a specific subject, for example "common errors in HRI studies", "recommendations for studies" and so on.

Finally, the last stage will gather all participants in order to sum up and discuss each hands-on session. The final objective is to provide a list of existing methodologies associated to related scientific questions types, in order to deduce which are the most relevant methodologies to use to evaluate the interaction/relation between a human and a robot.

Morning	B R E A K	Morning	L U N C H	Afternoon	B R E A K	Afternoon
Introduction Organizers sessions		Papers session		Hands-on session (smaller groups)		Hands-on session summary Discussion Conclusion

List of topics

Ethology for Human-Robot Interaction evaluation
Ergonomics for Human-Robot Interaction evaluation
New approaches to evaluate Human-Robot Interaction
Human-Human Interaction studies
Human-Animal Interaction studies
Human-Robot Interaction studies
Good practices in the evaluation of Human-Robot Interaction
Human Factors
User-experience
Evaluation methods
Evaluations metrics