Experimenting in HRI for priming real world set-ups, innovations and products

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ABSTRACT

Robotics is moving towards real world applications, beyond the well structured environment of industrial robotic s. In the world of assistant robots and medical robots, Human-Robot Interactions are essential. Also in emerging industrial scenarios there is need of the human in the loop. The companies are confronted with the lack of guidelines and of standards on how the higher features of HRI may be safely incorporated. Although the scientific research is burgeoning and worthy of praise, it is clear from the produced evidence that the results are scattered and not capable of giving a clear cut input to be easily taken up by companies and standardization organizations like ISO and IEC. The workshop is in line with the conference themes especially in the areas of HRI for the integration of empirical findings into complex real-world robot systems by focusing on three typical scenarios (industrial, service and medical) to develop systematic approaches to benchmark and evaluate experimental systems so that normative results can be realized rapidly. The present workshop has the aim of bringing together scientists, representative of robotics companies and of standardization working groups to foster discussion in the definition of experimental scenarios and protocols in HRI, so to be able to prime real world set-ups and be targeted to help realize the future needed robotic products.

Keywords
Human-robot interaction, HRI safety, robot application domains, robot scenario specification, benchmarking, normative results.

1. MOTIVATIONS AND OBJECTIVES
The main motivation is to bring together an interdisciplinary team of scientists (both engineering and social psychology), representatives of robotics companies, of competitions, of working groups and bodies in standardization and benchmarking, and to foster discussion in the definition of experimental scenarios and protocols in HRI, so to be able to prime real world set-ups and products:

- How to design evidence-based Human Robot Interactions for real-world products?

- How can we make a trade-off between the laboratory-based scenarios that lack of realism and the real-world scenarios that most of the time lack of repeatability?

- What scientific results are available to give normative rules or recommendations?

- Shall the scientific community influence or contribute to the international Standardization efforts? How?

- What are areas lacking the needed evidence?

- Do we need HRI design and testing normative Guidelines based on Research?

- How will ISO adopt testing procedure for higher level safety features of social and assistive robots (communication, feedback, vocal and gestures, customization etc.)?

- How big is the gap between the vision of omniscient robots that adapt to any language or user and the contextual/technical constraints, or market vision, or technical standards and regulatory framework?

2. ORGANISERS

G. S. Virk
http://www.hig.se/Ext/Sv/Organisation/Akademier/Akademin-for-teknik-och-miljo/Personalsidor/Gurvinder-Virk/Gurvinder-S.-Virk.html
He is Chairman of: ISO TC 184/SC2/WG7-Personal care robot safety and IEC SC62A & ISO TC184/SC2 JWG9-Medical robots) and Professor of Robotics and the Built Environment Univ. of Gävle, Sweden. He is also Chairman, Board of Trustees of the UK charity CLAWAR Association Limited (www.clawar.org).
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C. Woegerer & A. Pichler
C. Wögerer is at PROFACTOR GmbH Andreas Pichler is the Technical Director and responsible for HRI Topics. http://www.profactor.at/.

3. LIST OF TOPICS

- Current status of ISO/IEC robot standardization activities development and future directions in HRI

- Safety, physical contacts, technical aspects and limitations, regulations influencing HRI design

- Testing scenarios and protocols for HRI to produce normative definitions and data to prime real world products

- Role of Benchmarking and Robotics competition in advancing standardised testing procedures

- Robotics scientific community's input to standardization bodies

- Benchmarking: objectively and quantitatively evaluating performance of robots. Measuring autonomy or information metrics of intelligent systems; replicability/benchmarking of research results in robotics needs global agreements.

- Scientific methods to study and quantitatively evaluate the performance in affective and social robotics

- Design guidelines and testing procedures for evidence-based HRI: toward a consensus position paper.

4. SCHEDULE

08:30 – 10:00   Invited speakers
10:00 – 10:30   Coffee Break
10:30 – 11:30   Poster session
11:30 - 13:00   Topic Split Sessions

Topic 1 – Service Robotics scenario HRI requirements
Topic 2 – Industrial Robotics scenario HRI requirements
Topic 3 – Medical Robotics scenario HRI requirements

13:00 – 14:00   Lunch Break
14:00 - 15:30   Topic Split Sessions
15:30 - 16:00   Coffee break
16:00 - 18:00   Plenary Session & Minutes
18:15   End of workshop

5. ORAL PRESENTATIONS

G. S. Virk (confirmed)
Presentation: ISO/IEC safety standardization in close HRI in medical and non-medical applications
V. Evers (confirmed)
Presentation: Human Robot Evaluation, cultural aspects and context vs standardisation
Professor of Human Media Interaction at the University of Twente. She is a leading scientist in HRI evaluation
F. Ferro – PAL robotics (confirmed)
Presentation: path to robot certification
Representative from Aldebaran (confirmed)
http://www.aldebaran-robotics.com/en/
B. Matthias - ABB (confirmed)
Active in Industrial Robot safety standardization

6. TARGET AUDIENCE

Primary Audience: scientists, and young researchers involved in HRI with possible real-world application.

Secondary Audience: experts and organizations/institutes supporting research and technology transfer to industry and those with relations to Standardization and Regulatory Institutions.

7. SUBMISSIONS

The workshop is intended for lively discussion therefore only posters can be submitted within 15.02.2014 to hri2014wks@kontor46.eu, in PDF format and conform to the conference proceedings specifications. Notice of acceptance will be given within one week.

A proposal for a special issue on the topic will be submitted in the Journal of Social Robotics to document the workshop discussions.

8. DOCUMENTATION

During the workshop, minutes will be written by two of the organizers and finalized by the participants. They will be published on the CLAWAR web site http://www.clawar.org (coming soon) that hosts the working group activities. All the presentations and posters will be made available in electronic format to the participants on the day and through the website.

9. NOVELTY WITH RESPECT TO PREVIOUS WORKSHOPS

It is rare for workshops to be organized bringing together key communities in robotics, comprising the research, industrial and standardization sectors in the frame of formalizing the need of establishing normative results for HRI to allow robots to enter the global   market   place**.**