

HRI Reading Group

@ Instituto Superior Técnico

Meeting #13 (15 Jun 2018)

Welcome!

Fraune, Marlena R., Satoru Kawakami, Selma Sabanovic, P. Ravindra S. De Silva, and Michio Okada. ***"Three's company, or a crowd?: The effects of robot number and behavior on HRI in Japan and the USA."*** In *Robotics: Science and Systems*. 2015.

Study design

- Use of minimally social robot
- Manipulated robot number, robot behavior and country (+participant number)

Hypotheses:

H1. When the robots are in groups (rather than single), participant reactions will become more extreme (e.g., if they interact with one type of robot, they will interact even more with a group of that type of robot).

H2. Participants will prefer social robots to functional robots: People will interact for longer, throw more trash in robots, and rate robots more positively.

H3. Participants in Japan will interact more with robots and show more liking for robots than participants in the US.

H4. Participants in Japan will prefer social robots, and participants in the USA will prefer functional robots.

Summary of results

- Across cultures, we found that people interact more with robots in groups than single robots, yet report similar levels of liking for both;
- Participants also rated social robots as more friendly and helpful than functional robots in general.
- They rated single social robots more positively than a group of social robots, but a group of functional robots more positively than single functional robots.
- Japanese participants looked at and interacted more with robots they did not like than with robots they did like, but USA participants did the opposite.
- Japanese participants reported liking the robots more than USA participants.

Examples of multi-agent HAI

Interacting with people in public spaces

Amazon mobile robots

Collaborative scenarios (e.g., manufacturing, training)

Drone swarms

Multi-player games

Group therapy

Autonomous cars

Challenges of designing multi-robot HRI

Mobility

Group-based social norms
(cultural-dependent)

Threatening aspect:
Robot2robot social comm. should
be carefully considered and
justified

Adaptation to group-based social
preferences

Transparency / Explainability

Ability to model social identity and
its perception by people

Team modeling and individuality
of agents forming a group

*Who is bringing the
refreshment next week?*

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Meeting #14 (22 June 2018)