Taking Care of Each Other:
Synchronisaton and Reciprocity for Social Companion Robots

ICSR 2013 Workshop

http://workshops.acin.tuwien.ac.at/ISCR2013

Organizers: Astrid Weiss, Tamara Lorenz, Ben Robins,Vanessa Evers, and Markus Vincze

Social Companion Robots

- "a **robot companion** is a robot that (i) makes itself 'useful', i.e. is able to carry out a variety of tasks in order to assist humans, e.g. in a domestic home environment, and (ii) behaves socially, i.e. possesses social skills in order to be able to interact with people in a socially acceptable manner" (Dautenhahn)

- The challenge for the development of a user-companion relationship with a robot is the **integration of convincing social interaction** skills.

- In how far can we integrate **synchronisation and reciprocity** in our systems in order to achieve a **perceived compassionateness?**

Organizers and Participants

Workshop Goals

- As our main goal for the workshop is to
  - initiate a discussion about how **mutual care interaction** with companion robots can be enabled by means of **synchronicity and reciprocity**
  - we want to foster vivid **networking and discussion** among the participants
- Topics of interest
  - What are the **building blocks for social interaction** with companion robots ?
  - What are **influencing factors and success measures**?
  - **Potential future interaction use cases** for compassionate companion robots

Agenda

Introduction to the general topic of the workshop and the participants	09:00-09:30
Grounding in HRI: Can it be achieved with the help of the user? - Astrid Weiss Synchrony and reciprocity for social companion robots: benefits and challenges - Tamara Lorenz	
Position statements and discussion towards common grounding	09:30-11:00
1. Do We Need Compassion in Robots? - Frank Broz and Hagen Lehmann 2. Dominance, Compassion, and Evolved Social: Behaviour: Advisable Roles and Limits for Companion Robots - Joanna J. Bryson 3. A Joint Action Approach to Use of Synchrony and Imitation in Robot Interactions - Tehran J. Davis, Kerry L. Marsh, Timothy D. Gifford, Anjana N. Bhat 4. Using a gaze-cueing paradigm to examine human readiness to engage in interactions with robots - Agnieszka Wykowska, Eva Wiese, Hermann J. Müller 5. Robots as companions and therapists in elderly care - Jorge Gallego-Perez, Manja Lohse, and Vanessa Evers 6. Social companion robots in eldercare – who gains and who loses? - Susanne Frennert	
Coffee Break and Posters	11:00-11:30

Agenda

Break-Out Groups I: What are the **building blocks** for social interaction with companion robots? Discussion on the characterization of "social interaction" and influencing factors	11:30-12:30
Lunch	12:30-13:30
Bringing the discussions together (all participants)	13:30-14:30
Break-Out Groups II: From **influencing factors to success measures** (break out groups)	14:30-15:30
Coffee Break	15:30-16:00
Bringing the discussions together and reflect on **potential future interaction use cases** for compassionate companion robots (all participants)	16:00-16:30
Wrap-up, summary of the topics and definition of follow-up	16:30-17:00

Grounding in Human-Robot Interaction

- Can it be achieved with the help of the user?

- What does it need for a robot to be perceived by its user as a companion?

    - **Intuitive/ natural** interaction is considered a relevant prerequisite for robots, which are supposed to **not only share physical space** with humans, but also to **closely and personally interact** with them.

- But what makes the interaction with robots **more intuitive**?

    - Is it really about offering as many different input and feedback modalities as possible?

    - Is it really "just" about speech-based interaction?

    - Or is it about robots following social norms of human-human behavior to be considered as companions?

Vision4Human-Robot Collaboration

- 3-years project funded by the Austrian Science Foundation (FWF)

- Overall aim: Overcoming the limitations in vision-based human-robot cooperation by **combining the strengths of both humans and robots**

- Investigates how humans can be supported to **"see through the robot's eyes"** in order to collaboratively solve a vision-based task in an acceptable and successful manner

  - Transfer of knowledge from HHI studies to HRI

- Phrased in a metaphorical manner: We try to synchronize the robotic view with the human view in order to make the human a helper for the robot to ease the cooperation

Hobbit- The Mutual Care Robot

- EU-FP7 funded 3-years project

- Overall goal: Develop a usable, affordable, and acceptable service robot for older adults, which should support aging in place by the means of fall prevention and detection

- Core element of the project: **Mutual Care paradigm**, an interdisciplinary user-driven design approach based on the sociological helper theory

  - reciprocity fostering dialogues as key element to create mutual-aid dynamics between humans and robots

  - the robot politely asks the user for help, if it cannot accomplish a task, and offers the user to return the favor to maintain their "helper-help receiver" balance

Discussion

- Both projects have one critical aspect in common: **the robot pretends sociality to receive user support** in order to ease the interaction

- Raises one main ethical question: **Does this type of interaction with robots increase the potential of deceiving humans?**

- We have to consider **how to make these social mechanisms transparent to the users to reduce deception** and make the interaction more "honest".