ICSR Workshop Proposal

Special Session Proposal
15th International Conference on Social Robotics

1. Title: Co-Researching with the Humans-In-The-Loop: Using Participatory Methods, Research and Co-Design in HRI

2. Organizers:
Session Chair: Imran Khan, Imran.khan@ait.gu.se, University of Gothenburg

Session Co-chairs:
Robert Lowe, robert.lowe@ait.gu.se, Research Institutes of Sweden (RISE), University of Gothenburg
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3. Session Description and Objectives: Please write a detailed description of the content and objectives of your session.

Participatory research (PR) approaches describe a variety of methods and frameworks where *expert* researchers and developers (of technologies, such as social robots) directly engage and collaborate with key stakeholders, end-users and domain experts through various stages in research - from identifying and understanding stakeholder issues, to the co-development of (robotic) solutions - and where end-user knowledge, perspective, and experiences form the foundations of research. Such approaches benefit researchers by integrating these lived experiences into the research and development of their (robotic) solutions. More importantly, they promote the democratisation of control in decision-making, empowerment of the humans-in-the-loop (stakeholders/end-users of technologies) as research partners and co-designers of solutions, while also leading to increased levels of trust in the developed (technological) tools and autonomy of their use in the long-term. This becomes more relevant when working with vulnerable, underrepresented, or marginalised populations: where local, experiential knowledge and expertise that lies beyond the limits of empirical research is critical information that must be accounted for in the research or development of robots that are intended to interact with these demographics.

Recent years have seen a promising trend towards using participatory methods in the human-robot interaction (HRI) field and particularly for socially assistive robots (SAR), with a diverse range of methods having been explored and applied in the existing literature. Nevertheless, the use of participatory methods in these fields is still in its infancy when compared to other disciplines (e.g. in social sciences). For robotics researchers interested in leveraging such approaches in their research, this may result in initial uncertainty over which participatory methods, tools, or techniques to use (including when and how to use them effectively), potential deviations from best practices (set out from other, more established disciplines), and even the misapplication of participatory methods as part of their research.

Rather than shy away from using these methods, however, robotics researchers can instead begin to address some of these early issues together, by sharing and synthesising their knowledge and practice of participatory methods with the rest of the community. **Thus**, **the objective of this workshop is to harmonise discussions and practices in participatory methods in HRI/social robotics research, to share and showcase common practices, tools, and methods with the rest of the community, and to provide an interactive forum for robotics researchers to discuss the use of participatory methods for solving complex (societal) problems through collaboration with end-users.**

We plan on hosting a full-day, hybrid workshop consisting of three smaller sessions: first, a series of short (10+5 minute) talks based on extended abstracts, short papers, or posters: second, an interactive session of live

demonstrations/tutorials of participatory methods, and third, an open, roundtable discussion on the current and future applications of participatory methods in HRI.

In the first part of the workshop, we will open up with a keynote speaker and dedicate 15 minute time slots for short talks based on accepted extended abstracts, short papers, poster presentations or video demonstrations, discussing the use of participatory approaches as part of research, design, application, or (non-)deployment of social robots or in other HRI scenarios. For a list of relevant topics of interest, please see below.

The second part of our workshop will be interactive in nature. We invite researchers who have used (or plan to use) participatory approaches in their research to showcase their tools, techniques or methods that they have designed or employed as part of their research, and to provide short, interactive demonstrations or tutorials of their application. Researchers are invited to propose a short (theoretical or actual) research question or scenario, and then provide a live demonstration of how participatory methods or tools would be employed in these contexts. Attendees will also be encouraged to take part in these interactive demonstrations.

The workshop will then conclude with an open, semi-structured roundtable discussion where attendees will be invited to take part in group discourse on questions related to the current and future application of participatory methods in HRI, as well as further questions that arise throughout the workshop. e.g.: What is the utility or value of participatory research in HRI/social robotics research and development? What can we learn from other disciplines who have employed these methods? What are the current limitations or barriers for participatory methods in our field? How can these approaches be shaped and be better leveraged in the future? Following from this discussion, we seek to invite selected researchers to collaborate on a forthcoming article in 2024, and also intend on inviting interested attendees to a follow-up symposium related to these workshop themes in mid-late 2024.

4. Intended Audience and Plans to Solicit Participation: Please explain who your intended audience is, plans to solicit participation, and how you plan to encourage discussions and exchanges between the participants of your session.

The intended audience are researchers or developers in the HRI and social robotics domains who have (or are interested) in employing participatory methods as part of their research or robot development or application. We also welcome attendees who are not presently involved in using participatory methods in their work, as well as anyone else interested in developing an awareness and understanding of participatory research in HRI.

We aim to solicit participation through mailing lists (SoRoS, HRI-Worldwide, AAAC, robotics-worldwide, EU-robotics), professional networks and institution mailing lists, as well as through social media platforms (X/Twitter, Mastodon, LinkedIn, Facebook). We have also extended invitations for short submissions to potentially-interested researchers in our professional networks. We will further advertise and provide additional workshop details on a dedicated website.

The workshop will be hybrid in nature with two interactive components. We will encourage live tutorials and demonstrations of participatory methods with attendees being invited to play an active part in these demos. The final part of our session will be a semi-structured discussion open for all attendees to take part in. With their experience in hybrid formats, the co-chairs of the session will be well positioned to facilitate exchange and discussion between both online and in-person attendees.

5. List of Topics: Please provide a bulleted list of the topics of interest that will be covered by the session.

Topics of interest include (but are not limited to):

- The use of participatory research methods at any stage in research or development (e.g. problem scoping, co-design or development) in HRI or social (assistive) robot scenarios.

- Novel, or applications of existing, participatory research frameworks for engaging with end-users in HRI.
- Best practice tools, techniques, and/or methods used as part of PR in HRI contexts (e.g. best practices for workshops or focus groups, narrative inquiry, observational work).
- Creative/unconventional approaches to participatory research.
- Unsuccessful applications of participatory methods in HRI contexts (e.g. examples of methods or contexts where participatory methods were not suitable or did not work).
- Long-term human-in-the-loop approaches (e.g. participatory action research with iterative research and design components)
- Ethical considerations and barriers in collaborative design, such as the transparency of design processes, physical and emotional safety considerations, diversity, equality, and inclusivity factors.
- Human-related outcomes associated with participatory methods (e.g. metrics related to attitudes of co-developed robots, perceived levels of empowerment or autonomy in decision-making process).
- The future scope of participatory research in HRI

6. List of Invited Speakers: If applicable, please list the speakers you plan to invite to your session.

1. Dr. Alexandra Penn, Professor of Complex Systems, CECAN, University of Surrey, UK.
2. Dr. Peter Lewis, Canada Research Chair in Trustworthy Artificial Intelligence, Ontario Tech University, Canada.
3. Dr. Giulia Perugia, Assistant Professor, Eindhoven University of Technology, Netherlands.

7. Additional Information regarding previous session organization and requests: Please add any relevant information that could not be captured by the previous sections.

N/A