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2nd Edition of Solutions for Socially Intelligent HRI in Real-World Scenarios (SSIR-HRI)

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ABSTRACT

Today it seems even more evident that social robots will have a more integral role to play in the real-world scenarios and need to participate in the full richness of human society. Central to the success of robots being socially intelligent agents is insuring effective interactions between humans and robots. In order to achieve that goal, researchers and engineers from both industry and academia need to come together to share ideas, trials, failures, and successes. This workshop aims at creating the bridge between industry and academia and as such creating a community to tackle the current and future challenges of socially intelligent human-robot interaction in real-world scenarios by finding solutions for them.

CCS CONCEPTS

• **Computer systems organization** → **Embedded systems**; Robotics; • **Human-centered computing** → Human computer interaction (HCI); Interaction design; • **Artificial intelligence** → Planning and scheduling, Natural language processing.

KEYWORDS

Human-Robot Interaction, Real-World Scenarios, Human-Robot Collaboration, Affective Computing, Social Intelligence

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1 INTRODUCTION

The workshop proposed aims at providing a forum to bring together a large community of researchers working on autonomous and

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innovative challenges inherent to Human-Robot Interaction (HRI) in order to improve and increase the presence of robots in real-world scenarios, including public places such as hospitals, schools, retail stores to even work places and homes [2].

As the state of the art in HRI seems to be expanding and growing, one would expect that the presence of robots in everyday encounters would spread at a similar rate. However that does not seem to be the case [1]. There is a considerable need for a central venue within which researchers can get together and engage as a sustained community at this important intersection of HRI in academia and HRI in industry. This would allow further discussions on autonomous solutions that could be implemented on robots placed outside of labs and into the wild and thus helping bring the world of robotics and specifically human-robot interaction forward.

We would like to explore and enrich the bridging of the world of robotics in academia and industry together. In addition, we hope to create a space and place where researchers can also talk and present work that maybe have not led to significant results. This is important for other researchers to learn from the community. Moreover, in his/her turn the fellow researcher would have a place where he/she can receive feedback on his/her attempt.

Furthermore, after the success of the 1st edition of our workshop at the IEEE Ro-MAN 2020 conference, we believe that the International Conference on Human-Robot Interaction (HRI 2021) is the right venue to launch the 2nd edition of the series of workshops! This second edition of the workshop would serve as the foundation for the core ideals and outlook for HRI in real-world scenarios. In addition, it would be a continuation of the previous edition and of relevance to researchers, who typically publish on such work and topics in HRI'21.

2 FORMAT

We aim at having an interactive workshop to encourage the flow of discussion and exchange of ideas. The workshop would be divided into two parts. The morning session would be dedicated to the keynote speakers and the presentations of the papers submitted (which can be either technical papers, position papers, or short papers). The afternoon session's focus is on panel discussions, team work, and feedback.

First, for the morning sessions, the submitted papers will be placed among the three different themes which will take place one after the other. Each theme will start with a presentation from

a keynote speaker followed by the presentations of the papers. The four themes for this workshop are: social intelligence for social robots, affective computing and emotional expression, human-robot collaboration and planning, and natural language processing and dialogue in robotics. The presentations of the submitted papers are as such: first, technical papers (up to 8 pages) will get 15 minutes to present followed by 5 minutes of discussion and second, short papers and extended abstracts (up to 2 pages) will get 5 minutes to present along with a poster followed by 5 minutes of discussion and questions.

Second, the afternoon session is divided into three parts. First, to open the floor to discussion and interactive constructive feedback among researchers and invited speakers. This is done through a panel of discussion for the keynote speakers. There will be a set of prepared questions before the floor is open to the attendees through a platform on which they can vote for questions. This will allow the researchers to familiarize themselves even more with the keynoters and their work. Second, following the panel discussion, there will be an interactive session. The attendees would be divided and placed in smaller groups where they can discuss the works presented and their general feedback on the main topic of the workshop. They will be asked to come up with feedback, solutions, and constructive suggestions. Furthermore, in the third part, there will be a post-it session on a white board. The attendees will be asked to write down their feedback and thoughts, either anonymously or not, on colored posted notes and place them on a white board. This will allow everyone to move around and read others thoughts and suggestions. In addition, it is a simple way to be able to collect all ideas shared throughout the day.

2.1 Adaptation to Virtual Conference

When the 1st edition of the workshop was suddenly shifted to virtual via zoom, we adapted to the change. Panel discussion with keynote speakers and organizers turned virtual and lasted more than an hour due to the extreme engagement from attendees and rendered a huge success ! Instead of the post-it session, there was a virtual breakout room session where participants had the chance to interact with each other and speakers and ask questions. It was highly interactive! We hope to adapt the same way in case the HRI '2021 is held virtually.

Previous edition of the workshop can be found on the following [link](#)¹. The workshop was hosted on Zoom and broadcasted live on the workshop's YouTube channel.

2.2 Intended Audience

As previously mentioned, the aim of this workshop to unite a large community of researchers working on autonomous and innovative challenges inherent to Human-Robot Interaction (HRI) in order to improve and increase the presence of robots in real-world scenarios, including public places such as hospitals, schools, retail stores to even work places and homes.

The intended audience is made of researchers who work on developing autonomous and algorithmic solutions for HRI and robotics and solving innovative challenges related to that. We also aim at

attracting researchers who are interested in connecting with researchers and engineers from the industry and who work on the deployed solutions found in most robotics platforms. In addition, we would like to encourage researchers to submit work they have done but perhaps did not lead to significant results and would like to have some feedback and review and share it with the community. Topics include but are not limited to:

- Social Intelligence
- Human-Robot Interaction
- Group Interaction
- Affective Computing
- Emotional Expressions
- Social Navigation
- Explainable AI
- Human-Robot Collaboration
- Robot-Robot Collaboration
- Into the Wild Studies

2.3 Submission

The types of submissions the workshop admits are:

- **Technical Papers** (up to 6 pages maximum) which describe and introduce an innovative technical contribution and/or study.
- **Short Papers and Extended Abstracts** (up to 2 pages) which present a short study and/or concept idea

We would like to encourage participants to submit as well studies that did not necessarily lead to significant results because we believe it is worth sharing with the community. This will launch discussions and valuable feedback. We also highly encourage presenting ideas from research that may benefit the industry and as such prompt dialogue between both sides.

2.4 Organizing Committee

Our organizing committee is composed of researchers and engineers in both industry and academia and whose work is representative of the HRI research community that we aim at fostering. Our team includes senior and mid-career faculty and early stage researchers and PhD students as well as c-level managers and engineering team managers. The organizing committee is spread across three different continents: America, Europe, and Asia to encourage and promote the diversity we would like to see in the workshop.

2.5 Invited Keynote Speakers

2.5.1 Keynote Speaker 1: Social Intelligence in Multi-Modal HRI. Sean Andrist, PhD from Microsoft Research AI – *confirmed*
Sean is a senior researcher at Microsoft Research AI in the Perception and Interaction Group². His research interests involve designing, building, and evaluating socially interactive technologies that are physically situated in the open world, particularly embodied virtual agents and robots. He draws inspiration from sociolinguistics, microsociology, conversation analysis, and social psychology to design fine-grained coordinated behaviors that enable embodied agents to engage in more fluid interactions and

¹SSIR-HRI Workshop website: <https://sites.google.com/view/realworldhri-workshop>

²Website link: <https://www.microsoft.com/en-us/research/group/perception-and-interaction/>

collaborations with people. He received my PhD from the University of Wisconsin-Madison where his dissertation work centered on researching effective social gaze behaviors for human-robot and human-agent interaction.

2.5.2 Keynote Speaker 2: Human-Robot Collaboration and Planning.
Tathagata Chakraborti, PhD from IBM Research AI – *confirmed*
Tathagata is a researcher at IBM Research AI in the AI Composition Lab. His research interests include human-AI interaction, especially planning and collaborative decision-making with humans in the loop, with applications in human-agent teaming and decision support. He received my PhD from Arizona State University where his dissertation work centered on foundations of human-aware planning.

3 CONCLUSION

After the first edition of the workshop, the community being built is growing and includes engineers and researchers from industry and

academia coming together to share work and ideas. All publications accepted to the workshop will be posted on the workshop's website and made available online. Talks on the possibility of publishing all accepted submissions in a journal are on going.

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