BPM-HRI: Best Practices and Methods in HRI Research

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Abstract

The quality and impact of human-robot interaction (HRI) research rely on scientific rigour and reproducibility as well as the ethical soundness of experiments involving human participants. However, the HRI community currently lacks easy access to resources and common knowledge on experimental design practices and standardised reporting guidelines. The *BPM-HRI: Best practices and methods in HRI research* workshop at HRI 2026 aims to address this gap by fostering a community-wide effort to discuss, disseminate, and develop more robust methodologies. Targeting to empower especially early-career researchers, this half-day workshop will consolidate efforts from international initiatives, including the IEEE Standards Group P3108 *Recommended Practice for Design of Human Subjects Studies in Human-Robot Interaction* and the UK-HRI topic group *Human-Robot Interaction: Best Practices and Methods*. Our program includes a presentation and discussion on these initiatives, a keynote address focusing on rigorous study reporting, providing an intercontinental perspective, and dedicated mentoring and ideas exchange sessions. A collaborative working session will document the workshop's efforts with attendees starting to draft a community-driven white paper, surveying the current landscape and outlining next steps for experimental design and reporting recommendations in the field of HRI.

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1 Motivation

Current challenges in sectors involving human-robot interactions (e.g. health care & assistive technologies, sustainability & transport, retail & service) require technology co-development and end-user involvement, which are currently underutilised in robotics research. Standardised methodologies for co-creating and evaluating interactive robotic systems can close this gap and provide more impactful and reproducible insights [7] beyond those based solely on experimental psychology [5]. Such methods have also been identified as being particularly beneficial for researchers relatively new to conducting rigorous and replicable studies, leading to findings that benefit early adopters and empower society as a whole.

Practices would include recommendations on study suitability and design, metrics for evaluation and their impacts, statistical tools for understanding and reporting the significance of trial results, and guidelines for designing the structure of the tests to optimise the quantity and quality of the test results for broad applicability.

In comparison to some other scientific disciplines, HRI research still lacks commonly available resources to support researchers in designing statistically sound, rigorous and repeatable experiments with human subjects. While there are ongoing discussions [3, 4, 6, 8, 13] and recent attempts at standardising interactive experiments [1, 9, 10], members of the HRI community are not commonly aware of such efforts and would greatly benefit from a consolidated community effort to discuss and disseminate best practices in our field, complementing literature and text books [2, 14].

2 Organisers

The organising committee consists of a diverse team at different seniority levels, providing ample experience in event organisation and hosting workshops at HRI and related conferences, best practice development, as well as supporting the development of early-career researchers.

Patrick Holthaus is a Reader in Interactive Assistive Technology at the University of Hertfordshire. His research revolves around social robotics, focusing on nonverbal communicative signals, social credibility, and trust in assistive technology and companion robots. He leads the UK-RAS topic group on *Human-Robot Interaction: Best practices and methods* and is Co-Investigator of the Horizon Europe project *SWAG* and *Hospital@home* funded by the Dinwoodie Charitable Company. Patrick was a co-organiser of nine international conferences in the area of HRI, co-organised 16 international workshops and eight special sessions. He co-chairs an IEEE P3108 subgroup on the design of HRI studies.

Daniel Hernández García is a Research Fellow in Human-Robot Interaction at the National Robotarium. His research lies at the intersection of HRI and AI, with a focus on developing socially aware robots with the capacity for cognitive interactions. He is Co-Investigator in the UK-RAS topic group on *Human-Robot Interaction: Best practices and methods*. Daniel has been a co-organiser of 3 international conferences in the areas of HRI and conversational agents, co-organised 8 international workshops and 2 special sessions. He is secretary of the IEEE P3108 standards group, *Recommended Practice for Design of Human Subjects Studies in Human-Robot Interaction*.

Patricia Shaw is a Senior Lecturer in Computer Science and Robotics and a Co-Investigator in the UK-RAS topic group. Her research focuses on the development of assistive living technology for the ageing population. In particular, recent work has focused on stakeholder development of an ambient sensor based system for monitoring activities of daily living around the home with easily accessible systems for different stakeholders. She has previously coordinated the UK-RAS PGR conference and assisted with the organisation of various international conferences and workshops.

Francesco Del Duchetto is a Lecturer in Robotics and Autonomous Systems. His work focuses on creating trustworthy autonomous robots that can learn from unstructured human feedback and behave ethically, enabling their use in public spaces like museums or agricultural farms. He supports the efforts to increase reproducibility and benchmarking of robotics research via competitions, such as involvement in the RoboCup@HOME league and co-organisation of the PUB.R challenge at ICRA 2023.

Marta Romeo is an Assistant Professor in Computer Science. Her current research focuses on investigating how trust between humans and robots can be built, maintained, and recovered. She is interested in safety, transparency and communicating robots' intentions in a multimodal way. She has organised many workshops on these topics at HRI and ROMAN conferences, and she has been involved in editorial roles for HRI and HCI conferences and for IEEE Transactions on Cognitive and Developmental Systems.

Muneeb Imtiaz Ahmad is an Associate Professor in Computer Science. His current research focuses on adaptive HRI, exploring how robots can recognise and respond to human perceptions of trust and fairness during collaborative tasks, advancing real-time computational metrics that interpret humans' trust and fairness expectations and enable adaptive, context-sensitive behaviour. He has organised several workshops on the topics in HRI at ROMAN and CUI conferences and has been involved in editorial roles for HRI and HCI conferences.

Daniel Tozadore is a Lecturer (Teaching) in Robotics and AI at University College London. His current research focuses on deep learning techniques for user modelling, decision-making, and dialogue in HRI. The applications of these methods are most prominent in education, particularly for explainable AI for teachers and large language model (LLM) approaches to multicultural integration. He has experience running workshops at the HRI and RO-MAN conferences and has also contributed to editorial work for Frontiers in Robotics and AI in the HRI section.

Shelly Bagchi has been a robotics researcher at the US National Institute of Standards and Technology (NIST) since 2016. Shelly is the lead on the Performance of Emerging Technology for Robotics Project (PETR) at NIST. Her research interests are in HRI, replicability & reproducibility, and augmented reality. Her focus is on evaluating new interface technologies for HRI in manufacturing. She chairs the IEEE Standards Group P3108, *Recommended Practice for Design of Human Subjects Studies in Human-Robot Interaction*.

3 Overview of the workshop

BPM-HRI aims to consolidate efforts in disseminating and further developing recommended practices and methods in the field of HRI, with a focus on supporting early-career researchers to adopt such practices and develop their professional network in the community. The workshop is in full alignment with the conference theme *empowering society* by giving early career researchers the necessary knowledge and network to thrive in the field. Through this, we hope to strengthen the field of HRI, leading to more robust and reliable systems in the future.

Our half-day workshop will consist of two parts. At first, we present the efforts of IEEE P3108 and UK-HRI, two international initiatives facilitating recommended practices in the HRI community, disseminating them, and enabling early career researchers to get access to supporting resources and guidance. The workshop will further feature a keynote by Katie Seaborn (Institute of Science Tokyo), whose research drives forward standardising efforts around study reporting in HCI and HRI [11, 12], providing insights on rigorous methods with a focus on the Japanese research culture.

The first part will be followed by a series of interactive sessions. We will hold a mentoring and ideas exchange fed by questions sent by participants via an expression of interest form on our website before the workshop, complemented by a working session to identify potential mentoring arrangements, expanding on the remits of the topic group activities, to translate the discussions during the workshop into workable mentoring relationships. Moreover, we invite interested participants to start drafting and contributing to a white paper that strategically addresses individual aspects of human-subject studies and informs the research community about these recommendations.

The efforts of this HRI 2026 workshop will continue, with in-person meetings already planned and infrastructure for networking in place. Deriving a clear structure and plans for contributions during the workshop, the white paper will continue to be developed afterwards, asynchronously and in follow-up meetings, further drawing on expertise from around the world to support the development of best practices in the future.

Assuming a time allocation between 9:00 am and 1:00 pm, including a coffee break, our schedule is as follows:

Time	Topic	Speaker(s)
9:00	Welcome & introduction	Organisers
9:15	P3108 and UK-HRI activities	Organisers
10:15	Keynote speaker presentation	*Katie Seaborn*
10:45	Coffee break	
11:00	Mentoring and ideas exchange	Working session
11:30	Best practices and methods	Panel session
12:15	White paper development	Working session
13:00	Wrapping up	Organisers

4 Target audience or prerequisites

This workshop aims to foster strong and lasting relationships in the HRI research community for the support and benefit of early-career researchers. We hope to bring together veterans, novices, as well as external stakeholders in the field to share their experiences and the practices they follow.

5 Room equipment needed

This workshop requires a standard seminar room, ideally with reconfigurable tables, to facilitate frontal talks, panel discussions, and interactive working sessions. No special equipment is needed.

6 Number of expected participants

While this workshop is not organised as part of a series, it is part of a larger effort by the HRI community to enhance the reproducibility, replicability, and stability of HRI research. We build upon previous experience gained in related workshops at the 2025 HRI [16] and RO-MAN [15] conferences, attracting around 30 participants each.

We expect to host similar numbers of participants (25+) from targeted interest groups in all sub-categories of HRI research, including early-career researchers, experienced members of our community and veterans in the field. However, the workshop is not restricted in participant numbers since working sessions can be held as group activities with members of the organising team acting as facilitators.

7 Approach for recruiting participants

Various routes will be used to promote the workshop and recruit participants. We will use existing mailing lists reaching an international audience (e.g. HRI-announce, EU-robotics, robotics-worldwide), workshop proposers' LinkedIn posts, provide an expression of interest form on our webpage[1], and advertise through the international network of 150+ researchers engaged in IEEE P3108 and UK-HRI, asking them to reach out to their colleagues and local peers.

8 Plan for documenting the workshop

The workshop aims to develop, support and promote best practices with the HRI community. This will be documented through the production of a white paper supported by the UK-RAS topic group on *Human-Robot Interaction: Best practices and methods*, involving contributions from workshop attendees and internationally recognised experts in the field. The white paper will specifically draw on the discussions and conclusions reached throughout the workshop.

Key outcomes of the workshop will be made publicly available on the workshop website[1], and we will continue engagement with the community via follow-up events and create an openly accessible discussion forum (Discord or Slack).

[1] https://www.uk-hri.org/events/bpm-hri-2026

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