

The Use of Ethnography to Identify and Address Ethical, Legal, and Societal (ELS) Issues

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ABSTRACT

As robotic technologies rapidly enter our everyday lives, we are compelled to consider the ethical, legal, and societal (ELS) challenges that arise in connection to these changes. In this workshop, we will present a novel methodological approach to HRI that will: help to identify ELS issues through ethnographic research methods, encourage interdisciplinary collaboration, and broaden the scope of existing HRI research while providing concrete tools for addressing these ELS challenges. We aim to introduce ethnographic methods and unfold the benefits and challenges of conducting ethnographic research. We will engage participants through speaker presentations, lightning talks, moderated group discussions, and a group-work session focused on integrating new methods into attendees' own research practices. Workshop topics will draw on the content of selected position papers, centered around how we can use ethnographic methods in HRI research so that we can: better understand users, workplaces, and robots; identify and address ELS issues; and ultimately ensure the design of more ethical, sustainable, and responsible robotics.

CCS CONCEPTS

• **Human-centered computing** → **User studies; Field studies; Empirical studies in HCI; Social content sharing; Collaborative content creation; Ethnographic studies; Empirical studies in collaborative and social computing; HCI theory, concepts and models**; • **Applied computing** → **Ethnography; Collaborative learning**;

KEYWORDS

Ethnography, methodology, qualitative, ethics, STS, social sciences, empirical, fieldwork, human-centered, robot, design, ethical, legal, societal, ELS, collaborative learning, alHRI, user, sustainability

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1 INTRODUCTION

Consistent with the theme *Robots for Social Good*, our aim in this workshop is to present a novel methodological approach to HRI research that can lead to more ethical, sustainable, and responsible robotics. While robotic systems have long been part of industrial automation, over the last decade robots have begun to come out of their cages and into our everyday lives - on our production lines, in our hospitals, in our schools, in our fields, on our roads, in our homes, and in our workplaces.¹

Ethnographic research provides a close look at real-life experiences of human engagement with robotic technologies, in use and in design processes; and opens up how we may study the human needs and societal concerns that are emerging in response to these technologies. Ethnographic methods provide data that, through interdisciplinary collaboration, can help identify and address *new* ethical, legal, and societal (ELS) issues in robot design and implementation.

This workshop departs from prior ELS workshops at HRI by providing concrete methods for addressing ethical issues in actual human practices. Furthermore, despite increasing interest in ethnographic methods², ethnographic methodology has not yet been the topic of an HRI workshop.³ Therefore, we present a workshop that contributes new uses of ethnography and qualitative methods as tools for research and collaboration in HRI, in order to create responsible ethical robotics for the social good.

From a comprehensive review of HRI literature, we have found that the bulk of the literature addresses the efficacy and acceptability of human-robot interactions, with significantly less focus on human and societal concerns in everyday life, such as:

- the discrepancy between how robot designers think about users and how humans actually experience robots in their everyday lives;
- changes to environments that occur when robots are introduced (e.g. at construction sites and in agriculture);
- how workplace robots impact pride and workmanship (e.g. masons and physical therapists);
- how new robotic technologies can affect existing human-human interactions (e.g. workplace relations & collegiality); and

¹https://ifr.org/downloads/press/Presentation_PC_27_Sept_2017.pdf

²Search in SCOPUS database for TITLE-ABS-KEY (ethnograph*) AND SUBJAREA ("COMP" OR "ENGI"); <https://www.scopus.com>

³Ethnography has been mentioned in just nine publications (of more than 1,600) within HRI proceedings since 2006. Search in ACM Digital Library for ("ethnograph") AND conferenceID=HRI; <https://dl.acm.org/>

- new demands on education and new forms of learning (e.g. the need for 'humanist' education in robotics, or reskilling the workforce).

These particular ELS issues have begun to emerge through ethnographic studies in the ongoing EU H2020 project, Responsible Ethical Learning with Robotics (REELER).

REELER uses ethnographic methods to study how robots are developed and implemented in everyday life. The researchers select robot cases with variations in sector, organization type, country, and human-proximity. Each robot-in-development is explored through ethnographic methods, including participant observation and qualitative interviews with roboticists, users, operators, and other affected stakeholders. Through cross-case analysis, REELER researchers identify ELS issues in the design, development, and implementation of robotics. REELER's aim is to provoke robot developers to consider human and societal needs in their design processes, which may lead to more ethical and responsible robotics.

We would like to bring ethnographers' expertise into the multi-disciplinary field of HRI, by sharing how REELER has benefited from an ethnographic methodological approach and an ELS-oriented project design. We invite other researchers to present their own empirical research and experiences using qualitative methods, and challenge attendees to consider how their research might benefit from such use.

2 ORGANIZING COMMITTEE

The organizing committee is composed of members of the REELER project. This committee includes ethnographers, but also includes those from robotics, economics, and other disciplinary backgrounds who acknowledge the value of the ethnographic methodology and are collaborating with ethnographers to ensure a future of more responsible and ethical robotics.

Cathrine Hasse, anthropologist (Aarhus University)
 Maria Bulgheroni, roboticist (Ab.Acus)
 Kathleen Richardson, anthropologist (De Montfort University)
 Andreas Pyka, economist (University of Hohenheim)
 Ben Vermeulen, research fellow (University of Hohenheim)
 Karolina Zawieska, research fellow (De Montfort University)
 Stine Trentemøller, research coordinator (Aarhus University)
 Jessica Sorenson, research assistant (Aarhus University)

3 WORKSHOP AIM

The aim of this workshop is to engage participants in a discussion of ethnography as an alternative research methodology in HRI research. We will explore how the field of HRI may benefit from an expanded use of ethnography, which goes beyond user testing and user experience research to consider the full effects of robotic technologies on humans - both for the sake of developing more effective HRI and for safeguarding human and societal wellbeing.

We aim to unfold the benefits and challenges of conducting ethnographic research, drawing on our experiences in REELER and on participants' experiences in their own research.

We aim to introduce the novel use of ethnographic research methodologies to: 1) understand and conceptualize users, work, robots, and design practices in new ways; 2) identify and address

ELS issues, to ensure that future robot design processes take into account these new understandings.

Our overall aim is to contribute a methodological approach to HRI that helps to identify ELS issues through ethnographic research methods, that encourages interdisciplinary collaboration, and that broadens the scope of existing HRI research and development while providing concrete tools for addressing these ELS challenges.

4 WORKSHOP TOPICS

We will call for position papers related to these two main topics: **Understanding users, work, robots, and design practices** (e.g., ethnographic studies of users or robot design, workplace studies of robots) and **Identifying and exploring ELS issues for sustainable and responsible robot development** (e.g. impact of robots on social/work settings; inclusion/exclusion of users, policy and legal issues in robotics research; collaboration in design processes; bridging the gap between robot design and users/society).

5 WORKSHOP FORMAT

5.1 Types of activities

The workshop will open with a presentation of ethnography as an alternative methodological approach in robotics research and development. Presenting REELER as an example, we will describe how ethnography and interdisciplinary collaboration have been integral to our ELS-oriented research; and how this approach might ensure design of robots for the social good.

The interactive portion of the workshop will be organized around the participants' position papers submitted in relation to the workshop topics. We will engage participants in two thematic sessions each consisting of lightning presentations of position papers, and a moderated group discussion.

We will wrap up the discussions with a group-work session on how ethnographic research can be used in attendees' own research, not only instrumentally as a tool in robot design and development processes, but also as a driver in ethical project designs.

6 CONCLUSION

We expect the joint efforts of this workshop to enrich both the REELER project and the HRI community. Our hope is that participants will benefit from this introduction to a novel methodological approach and orientation toward ELS issues, so that they may contribute to more ethical, sustainable, and responsible robotics in our everyday lives.

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Read more about REELER at www.reeler.eu, and about this workshop at <http://reeler.eu/activities/human-robot-interaction-2018-hri/>.