

From Corrective to Empowering Technologies: Integrating Critical Perspectives in Social Robotics for Autism

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ABSTRACT

Autism is often defined in the scientific literature as a problem to be fixed, and social robots have been leveraged to enable corrective actions with the aim to improve autistic individuals' quality of life and care. However, the definition of "autism-as-problem" is criticized by the autistic community and disability scholars. Nevertheless, human-AI Interaction researchers rarely engage with these criticism nor with the methodological approaches usually highlighted in Critical Disability Studies and Critical Autism Studies. This result in the development of Social Robots that focus on corrective actions for autism instead of empowering actions. In this extended abstract, we highlight two approaches, namely Critical Discourse Analysis and Inclusive Collaborative Design, that are highly relevant to the study of social robotics for autism. We exemplify these approaches and highlight research questions that are seldom asked in the study of social robotics for autism.

CCS CONCEPTS

• **Computing methodologies** → **Philosophical/theoretical foundations of artificial intelligence**; • **Human-centered computing** → *Participatory design*; Interaction design theory, concepts and paradigms; **Accessibility theory, concepts and paradigms**.

KEYWORDS

Autism, Critical Studies, Social Robotics, Collaborative Design

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1 INTRODUCTION

As general awareness of autism has improved, autism has become a more societally accepted diagnosis, at least in the Western world. Nevertheless, autistic people are still too often represented as social and economic burdens that drain both individual and government resources.

Autism is defined as a problem that needs to be fixed for the public and individual good [3]. Parties which have taken on the challenge of 'problem-solving' autism is found in several scientific disciplines, particularly medicine and neurobiology, psychology and, lately, artificial intelligence (AI) and social robotics. A popular solution proposed for autistic children is early and intensive behavioural interventions (see [11] or [12] for examples). These

interventions aim to correct the so-called problematic autistic behaviours that define the children as problems on a societal level due to impaired social interaction, communication problems, and restricted or repetitive behaviours [1]. In this context, it is argued that behavioural social interventions could be aided by socially assistive robots as a strategy to reduce the so-called severity of autism's symptoms, thus improving the individuals' quality of life and care [5].

However, the deficiency medical model of autism favored by academics for decades has been studied and criticized by autistic communities and researchers in social sciences, particularly in the field of Critical Disability Studies [10, 7]. Researchers argue for a more social model of autism [7] and the development of technologies centered on the self-determination of autistic children instead of corrective measures [14]. These arguments are based on a set of methodologies common in Critical Disability Studies, Critical Autism Studies and Psychology but that are too often ignored in Artificial Intelligence, Computer Science, and Human-AI Interaction research.

In this extended abstract, we highlight two approaches, namely Critical Discourse Analysis and Inclusive Collaborative Design, that are highly relevant to the study of social robotics for autism. We also call for more mixed methods and the inclusion of not only Social Robotics and Social Sciences researchers, but also directly concerned individuals (the autistic community for instance) in the study of Human-AI Interaction for neurodiversity and disability, exemplified through social robotics for autism.

2 CRITICAL DISCOURSE ANALYSIS

How we talk about things matters, and discourse involves constituting the object of which we speak[6]. In our case, scientific discourses on autism are seen as ways of talking about and understanding autism as a condition. These discourses then form and inform the body of scientific knowledge about autism itself. The idea of Critical Discourse Analysis (CDA) [17] is to analyse the communicative choices and strategies made by individuals and institutions alike, in our cases social robotic scholars, and what impact these choices may have. Critical Discourse Analysis draws from multiple fields, such as social psychology, cognitive anthropology, and linguistics, to study the way knowledge is managed in discourse [18] and anchor this approach in issues of power and social inequalities.

In the case of social robotics for autism, this approach would focus on how social robotics scholars are seen as in positions of power to justify, legitimise, support and advocate for behavioural autism interventions aided by social robots. This can be done by analysing various types of procuded outputs, such as scientific

articles as well as popularizing articles in the media. This asks us to investigate discourse structures and strategies social robotics scholars use to express new scientific knowledge in relation to the formulation “autism-as-problem” and “technology-as-solution”. “How is autism constructed and represented in scientific knowledge that promote the use of socially assistive robots for autistic children?” and consequently “How are autistic people constructed and represented in such scientific knowledge” are examples of research questions that such an approach could shed some light on and are critical for the future for Social Robotics research on autism. One should also note that projects and research are carried on within a social, political, cultural, and economic context and power structures. Technologies and societies are in relation and shape each-other. The work carried out through a CDA approach would related the discourse structures to these context and power structures in order to reveal hidden and naturalised assumptions and ideologies.

3 COLLABORATIVE APPROACHES

Collaborative approaches, also called participatory design approaches, are becoming more and more common in Social Robotics, specifically when considering human-AI interaction. The necessity to include all stakeholders (including users) in the design of the system is becoming obvious for many scholars and research suggests that more innovative concepts are created using participatory design [16]. Paradoxically though and as noted in section 1, many of the works targeting Autism (and more generally disabilities) take a medicalized and interventional approaches and fail to include autistic stakeholders [15]. As a result and even though autistic children are usually presented as the beneficiaries of the developed technologies, these technologies often embody normative neurotypical expectations and fail to consider the intrinsic desire of the autistic children [14], or in general what the autistic community considers as important.

The inclusion in the research work of the community one means to serve is therefore of paramount importance. To do so is however not without challenges. First of all, studies and research protocols need to be designed in relation to the specificities of autistic people, including but not limited to implementing appropriate data-collection principles. As an example, one should consider using online, open-ended questionnaires over face-to-face interviews due to autistic people’s preference of online and written communication instead of spoken and face-to-face interactions [8, 9]. Other approaches, non-language-based, can also be considered in complement of traditional language-based approaches, as explored in [13]. By considering the point of view of autistic people as part of the research through the inclusion of both autistic researchers and autistic users in the problem definition and research design, collaborative approaches can tackle issues that are truly deemed important by the autistic community. In addition, it can help answer questions such as “What are autistic people’s perceptions and opinions on how autism and autistic people are represented in said body of scientific knowledge?” or “What are autistic people’s recommendations for funders, policy makers and scholars regarding socially assistive robots for children with autism?”.

4 CONCLUSION

“Nothing about us without us”. Such is the mantra of many disabled scholars and activists, initially used in relation to policy-making [4]. It since became prevalent in multiple research fields, not only in relation to autism [15], but also to deafness [2], and in disability research in general [4]. Even though various approaches exist to study how autism and disabilities in general are studied within Social Robotics, Social Robotics scholars themselves rarely engage with them and even less rarely integrate them in their projects. This extended abstract presented two approaches, Critical Discourse Analysis and Collaborative Approaches, that the authors considered as crucial for better understanding of our work in relation to the autistic community and community at large, and better inclusion of autistic people.

To this extent, we urge Social Robotics researchers (authors of the current paper included) to expand their range of research methods to include critical studies and inclusive data-collection and to truly engage with the community they mean to help.

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