

Launching Queer in Robotics

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Queer individuals face significant obstacles in the fields of science, technology, engineering, mathematics (STEM), and computing, including high levels of harassment and professional limitations [1], but only some of these STEM fields have been recently promoting the integration and welcoming of people with queer identities to increase representation and inclusion.

(*Queer* is used here as an umbrella term for those who do not identify as heterosexual or cisgender, often labeled the LGBTQIA+ community.) This situation drove the creation of organizations like Queer in Artificial Intelligence (AI) and Queer in Human-Computer Interaction (HCI) that study and monitor the inclusion of queer people and provide safe and welcoming spaces within their respective scientific communities.

Initial studies performed by these organizations found areas for their fields to improve. Queer in HCI studies indicated that queer people face significant pressures and barriers not experienced by all HCI researchers [2]. Queer in AI demographic surveys showed that 67% of the group's members faced at least one safety incident in

2021, 79.9% of its members reported mental health issues that impaired their ability to conduct research, and 77.4% of its members struggled with a lack of community that they could rely on [3]. Other challenges include inaccessibility to conferences, due to local discrimination toward queer people; lack of tailored academic support; inflexible name change policies; and lack of representation [4].

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Both Queer in AI and Queer in HCI have shed light on these issues while increasing the level of involvement and feeling of belonging of the queer communities in their respective research fields, benefits that we would like to see extended to the robotics community.

In addition to the identified challenges faced by queer members of these scientific communities, there is also a lack of a queer perspective in the scientific products and studies delivered by these scientific fields. For example, Queer in HCI found that there is a lack of HCI research focused on queer populations in general [2]. Studies in AI and computer vision (CV) also found a lack of queer representation in these fields that led to biases in their datasets and studies [16], [18]. A similar situation can be observed in robotics, with a lack of research and systems made for queer people and studies on the impact of

robotics on queer individuals [5]. However, robots that interact with people directly or indirectly will be required to interact with queer people as well, and these interactions may need to be tailored to them. Moreover, given the tight integration among fields, robotics can easily inherit and exacerbate the different forms of discrimination and oppression present in AI and HCI. For example, robots could physically manipulate the world in biased ways by inheriting these biases from a CV or large language algorithm [13]. Queer people, in particular, are concerned with how AI-based systems may be used to facilitate the oppression, censorship, and stigmatization of their community [3], [17], and robots only aggravate the potential of such oppressive forces by allowing biased systems to interact physically in the world. For example, robots deployed in care settings could make harmful assumptions about (stereotypical) family structures that do not apply to queer families, which could lead to distrust and the rejection of these systems. In general, designing without considering marginalized populations reflects and amplifies societal biases [3], [12].

Beyond physical interaction, robots have a greater social presence and identity compared to regular computers, thanks to robots' physical embodiment [14]. This physical presence and identity can be another source of biases and discrimination toward the queer community. Despite prominent research on the gender perception of robots and how gender roles affect human-robot interaction (HRI), most systems reinforce gender

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stereotypes and a gender binary in robot design [6], body shape [7], and voice [8]. These stereotypes can exacerbate feelings of gender dysphoria in transgender individuals, ignore the experiences of nonbinary and androgynous people, and exclude the diversity of queer bodies and voices. Furthermore, several meta-analyses found that HRI studies rarely include queer people explicitly as human subjects [9] or address sex and gender issues except in the context of how sexuality relates to sex robots [10]. This association may stigmatize and misrepresent the nuanced lived experiences of queer people. Even when studies include nonbinary participants, they are often excluded from analysis due to a lack of statistical significance. The robotics scientific community should make an effort to include the perspectives of queer people in the evaluation of research and algorithms, encouraged, supported, and facilitated by an advocacy group similar to Queer in AI and Queer in HCI. While traditionally, robotics and HRI research have focused on a narrow set of communities (e.g., the elderly, people with physical disabilities, children, and so on), recent calls for social justice in robotics [15] demand that we broaden who robots are built for so that we support historically marginalized communities.

It would be easy to address in robotics many of the issues relevant to the queer community. For example, wearable robotics can be used to augment a queer person's physical appearance to affirm their gender identity, the robot's physical design and actuators can be modeled from queer body types and gender identities, surgical robots can consider queer people's outward physical presentation and unique medical needs, socially assistive robots can use appropriate pronouns and respective individual identities, or an assistance robot can consider the dynamics of relationships among individuals who live in a polyamorous home. These and other simple system modifications would be possible if the design of future robotic systems were designed with queer people in mind. This could be obtained by involving queer people in the research

and development of these systems [11], but a major barrier to such queer involvement in robotics is the lack of representation, advocacy, and visibility in the research community. An initial analysis of the subset of individuals working in robotics ($n = 30$) in the 2021 Queer in AI survey from [3] indicated that 80% experienced a lack of role models, 77% a lack of community, and 60% a lack of inclusiveness (and at least a third experienced harassment, discrimination, or economic hardship). Providing a "queer voice" in robotics could change this dynamic.

Inspired by the above, we launch Queer in Robotics (QIR) (<https://sites.google.com/view/queerinrobotics/>) as a new affinity group dedicated to 1) creating a welcoming and safe space for queer roboticists, 2) increasing inclusion for queer people at conferences (<https://www.queerina.com/how-to-make-virtual-conferences-queer-friendly>), and 3) highlighting broader and non-sexualized queer issues in the field of robotics. QIR's mission is to foster awareness of queer topics in robotics, cultivate a dynamic community of queer researchers, and highlight the contributions of queer roboticists. QIR's logo (Figure 1) depicts these ideas: a mobile robot whose wheels are the colors of the Intersex-Inclusive Progress Pride Flag.

QIR was founded in 2023 by a group of roboticists within Queer in AI. While some areas of robotics are closely related to AI, robotics is broader, as it encompasses multiple fields beyond AI, including mechanical, biomedical, and electrical engineering; interactive design; psychology; and even sociology. Thus, there was a pressing need to create a dedicated queer-robotics organization. The founders wanted to build an environment where they could explore the intersection of their queer identities and their robotics professions

and invite all other queer roboticists to embrace and reconcile both. We assume (and will deeply investigate) that queer people in the robotics field face many of the same issues identified in the HCI and AI communities. Just like Queer in AI and Queer in HCI do for their scientific communities, QIR seeks

to be a community resource and advocate for queer people in the robotics community.

In its inaugural year, QIR has focused on organizing events at major robotics conferences for queer individuals to socialize, network, and feel part of the robotics community. Its first major event was a welcome social at the 2023 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), in Detroit, MI, USA. Roughly 40 attendees participated in

the event at Public House in the "gayborhood" of Ferndale, MI, where they shared experiences, got to know one another, and decorated their conference badges and many other objects with colorful QIR stickers (Figure 2). A few lucky participants also won QIR mugs from a raffle, where their entry ticket was earned by completing a collaborative social activity. QIR organizers collected anonymous feedback after the event to assess whether the event achieved its goals of promoting socializing, networking, and belonging of queer roboticists. The responses emphasized that attendees enjoyed the event because they could meet people

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RECENT CALLS FOR SOCIAL JUSTICE IN ROBOTICS DEMAND THAT WE BROADEN WHO ROBOTS ARE BUILT FOR SO THAT WE SUPPORT HISTORICALLY MARGINALIZED COMMUNITIES.

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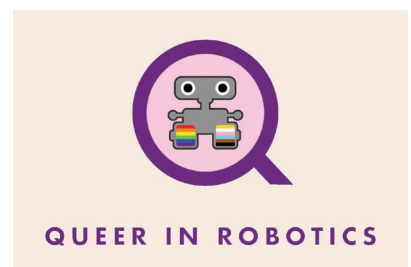


FIGURE 1. The QIR logo.

at all levels of seniority, make valuable and meaningful networking connections, and feel safe knowing that the other attendees likely had similar life experiences. Respondents also indicated that the event made them feel a strong sense of belonging in the robotics community (an average score of 9.1 out of 10; $n = 9$). This feedback suggests that events like the welcome social at IROS 2023 align with achieving QiR's organizational goals. In addition to the welcome social, QiR also hosted socials during the 2023 Robotics: Science and Systems Conference, in Daegu, South Korea; the 2023 Conference on Robot Learning, in Atlanta, GA, USA; and the 2024 Human-Robot Interaction Conference, in Boulder, CO, USA. This is only the beginning: QiR hopes to create many joyful queer spaces in the robotics community in the years to come.

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The three governing principles of Queer in AI are “decentralized organizing, intersectionality, and community-led initiatives” [3]. QiR's governance structure is similarly decentralized and participatory, enabling any interested community member to take part in the group. Please visit the QiR website for more information on our socials and events, how to get involved as an organizer or volunteer, stay in touch through our e-mail list and Slack workspace, and support our mission as a sponsor or with a donation. This is your community! QiR looks forward to seeing you at one of its events!

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FIGURE 2. QiR mugs and stickers displayed by attendees of QiR socials at IROS 2023 and the 2023 Conference on Robot Learning.