What can we do as designers

Lupetti, M.L.

Publication date
2022

Document Version
Final published version

Published in
Diversity Equity and Inclusion in Embodied AI

Citation (APA)
Lupetti, M. L. (2022). What can we do as designers. In M. L. Lupetti, C. Zaga, & G. Huisman (Eds.), *Diversity Equity and Inclusion in Embodied AI: Reflecting on and Re-imagining our Future with Embodied A* (pp. 29-37)

WHAT CAN WE DO AS DESIGNERS

The design field is increasingly engaging with the challenge of better using and revising its methods and tools to address diversity, equity, and inclusion issues (Erete et al., 2018). Mainstream approaches to design technologies tend to marginalize populations characterized by diversity (Erete et al., 2018), whether they are women, an ethnic minority, or persons with disabilities. Furthermore, marginalization takes different forms: we both lack *diversity in who makes* the AI systems and in *who benefits or carries their costs.* In this regard, a recent report by AI Now Institute (West et al., 2019) revealed how women represent only 15% of AI research staff at Facebook and just 10% at Google. In academia, the situation is not much better: only 18% of authors at leading AI conferences are women, and more than 80% of AI professors are male, which is reflected in journal editorial boards. For instance, the editorial board of Artificial Intelligence only counts 13% of women (Forsch-Villaronga et al., 2022). Even worse is the situation regarding race: only 2.5% of Google's workforce is black, while Facebook and Microsoft are each at about 4%.

To tackle the lack of diversity in the making of AI systems, the industry, as well as public institutions, are engaged in inclusivity initiatives aimed at achieving gender equality, as well as ethnic diversity in the workforce. Discriminations based on disabilities, sexual orientation, and other forms of diversity are also discouraged through the explicit commitment of companies to their visions as well as hiring policies:

"We are actively working to build a culture that values diversity, equity, and inclusivity. We are intentionally building a workplace where people

feel respected and supported—regardless of who you are or where you come from. We believe this is foundational to building a great company and community. Hugging Face is an equal opportunity employer and we do not discriminate on the basis of race, religion, color, national origin, gender, sexual orientation, age, marital status, veteran status, or disability status." Hugging Face

See Hugging Face job descriptions: https://startup.jobs/head-of-people-hugging-face-3062008

While one can assume that more diversity and inclusivity in the workforce developing AI would lead to 'better' AI systems, i.e., systems that are more 'sensitive' towards diverse human conditions and identities, a problem remains. The uneven distribution of benefits and costs of AI systems is also bound to the different socio-economic and power conditions that people experience, designers and engineers included. A common answer to this issue is to practice participatory design (Aizenberg and Van Den Hoven, 2020; Wolf, 2020; Rocasolano, 2022).

Because of their scope to open the design process and make it more inclusive, participatory activities are increasingly acknowledged as a necessary practice. Quoting Charlton (1998), we should not design any AI system that could impact minorities without actively involving them in the process. The inclusion of people with diverse abilities, socio-cultural backgrounds, and diverse ethnicity (to name a few aspects) allows designers to become conscious and considerate of people's heterogeneity, as well as to abandon the counterproductive idea of 'normalness' (Patston, 2007). However, to create inclusive moments of participation, we, as designers and researchers, need to reflect on our role deeply: do we have the capacity and tools for delivering a participatory design process that is mindful of diversity, equity, and inclusion?

Examples of these practices are variegated and can enter the design process of AI systems at different levels, from conceptualization to dataset curatorship. At the conceptualization level, opening the process to non-experts might help envision possible consequences of a specific AI application, as well as to define the moral boundaries of where and when a certain technology should be used or not (considerations that are lately more and more asked for in the AI ethics discourse (Cavalcante Siebert, 2022). Often,

society is confronted with the unintended and undesirable consequences of AI used for controversial applications. Whether it is predicting the possibility for a person to commit a crime in the future or assessing the quality of a teacher's performance, AI is gradually more involved in services that promise to optimize aspects of life that are hardly quantifiable. The participation of diverse people in the process could help anticipate some of these possible drawbacks and question the underlying assumptions.

Even more practically, non-experts can be involved in collaboratively creating better datasets representative of real-world diversity. In this line of thought, Google now involves users in various ways to improve its datasets. *Crowdsource*, for instance, is an app designed to involve users in improving Google services' accuracy by performing quick tasks, like checking the accuracy of image recognition and translation algorithms. Volunteers test the crowdsourced datasets worldwide through initiatives like the *Inclusive Design Competition*. People are invited to use Open Images, a publicly available image classification dataset that is majority-sampled from North America and Europe, to train a model that will be evaluated on images collected from different geographic regions across the globe (Doshi, 2018). This way, diverse people can actively contribute to enriching AI's understanding of the world, so the thinking goes.

Participation, however, is not a fix (Sloane et al., 2020; Ayling and Chapman, 2021). Participatory design practices themselves have inclusivity issues. First participatory design work is not free, whether we acknowledge it or not, it is a form of labor, and we should explicitly account for this when involving people in the design process, especially if they are marginalized groups. Even initiatives that are in principle designed for a good cause that is improving inclusivity, may result to be exploitative, as, in the case of the app Crowdsource mentioned above, that is also criticized by its users because of its exploitative nature:

"They should pay us, we basically work for free for Google, I would accept also to be paid in Google Rewards. But working for free NO" (Crowdsource app reviewer)

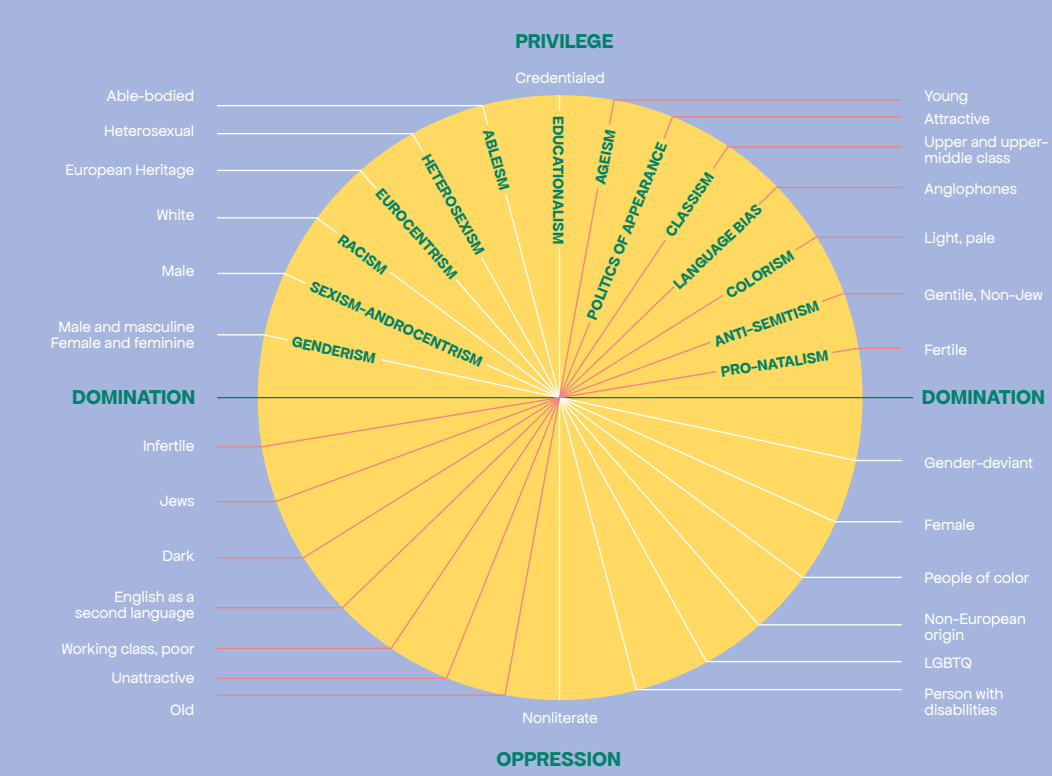
Crowdsource app review: https://play.google.com/store/apps/details?id=com.google.android.apps.village.boond

Second, participatory design is a lengthy process that, if practiced properly, hardly fits with the speed of dominant digital product development processes, guided by the 'move fast and break things' mantra. Third, conducting participatory design activities is a skillful job, and AI designers and developers usually lack necessary expertise. Last but not least, participatory design is–in most of the cases–exclusionary. This last point might sound counterintuitive as the very value of these practices is to open the design process to participants other than the designers and developers. Yet, the ones who get to be involved, and are envisioned as potential users, usually are people belonging to a similar socio-economic status as the designers. This leaves out of sight a variety of groups that might be affected by a designed system in unpredictable ways. For instance, when developing a recommender system, a designer would hardly think of the people eventually involved in the invisible sphere of human labor employed to label datasets.

Participatory practices, then, are necessary for inclusivity but also not sufficient. Even when in place, traditional participatory methods might fail to achieve the aspired inclusiveness because they fail to address the complexity and radical challenges that certain marginalized groups may face, which hinder their ability to participate as equal partners in decision-making and design processes (Ayling and Chapman, 2021).

Inclusivity is a complex issue that asks us to challenge power structures at the institutional level where inequalities consolidate, perpetuate and accentuate (Amis et al., 2018). To give a concrete example of how these issues are radicalized at the institutional level, we may look at the case of the SIGCHI R.A.C.E. initiative (Grady et al., 2020). In 2019, a group of volunteer researchers all identifying as racial minorities started an official SIGCHI Diversity and Inclusion team committed to making the community more inclusive of diverse perspectives. Only one year later the whole group resigned, declaring that they were the object of public defamation from members (especially Caucasian) of the community (Siobahn et al., 2020).

This anecdote surfaces the need for radical



Intersecting axes of privilege, domination, and oppression. By Erete et al. 2018, adapted from (Patston, 2007).

change that can only happen by admitting the existence of discriminatory practices within our institutions and design processes. There is a fundamental need for learning about and promoting the work of marginalized people, and 'making them leaders' (Siobahn et al., 2020). Achieving inclusivity, then, asks foremost for acknowledging positions of power, especially to the ones who have it. As a matter of fact, power structures are 'invisible' to most people, especially to the ones who benefit from privileged positions in society (Sanders and Mahalingam, 2012; Atewologun and Sealy, 2014). In this regard, several frameworks and tools have been developed for allowing people to become more aware of their (lack of) privileges. Erete and colleagues (2018), for instance, provide a framework (figure 1) that allows one to examine individuals' experiences and identities in relation to power and privilege.

Together with acknowledging the fact that factors like gender, race, abilities, and other socio-demographic

factors determine a different access to opportunities in life, we also need to create venues for understanding how these inequalities unfold and are exacerbated by AI systems. As designers, we need to listen to the voice of the marginalized. To get a better idea of why, as designers, we should step back and listen, we can look at the striking example of AI applications for disabilities. The lived experience of Laura Forlano, Associate Professor of Design at the Illinois Institute of Technology, as Type 1 diabetic, for instance, confronts us with the consequences of neglecting the knowledge and felt experience of the people for which an AI system is designed for. In her words:

"The AI system is keeping me alive, but it is also ruining my life"

With this phrase, she summarizes the struggle of living with an AI-based insulin dose adjustment system. The automated pump, in fact, represents for her a significant step forward compared to her previous situation in which she was regularly going to sleep hoping that she would wake up in the morning and not fall into a diabetic coma, because of a severe glucose low during the night. Yet, the frequent occurrence of malfunctioning and alert signals from the pump makes her now live in a continuous state of alert and anxiety. Listening to her story, then, one could argue that the design of the AI system was left halfway: a basic life-saving function was provided and considered sufficient. The neglected user experience, however, results in tremendous consequences on the user's wellbeing.

Another interesting example is the case of cochlear implants for deaf people, especially children. Most, including doctors, see cochlear implants as unique opportunities for giving children more options to participate in social life by normalizing their communication (Shew, 2020). Yet, the Deaf community often express a different perspective on the topic:

"What is there to fix? We're happy with the way we are. We don't view it as problem."

For the ones who belong to the Deaf community and take pride in such identity, the cochlear implant is even

Caroline Praderio interview with Brandon Edquist, 2017. https://www.insider.com/why-deaf-people-turn-down-cochlear-implants-2016-12#:~:text=Deaf%20people%20assert%20that%20deaf,and%20actively%20protest%20the%20technology.

seen as an obstacle to their culture, as children may feel discouraged to learn sign language and develop themselves as part of the Deaf community (Shew, 2020).

Finally, a related–yet different–example is the one of autonomous wheelchairs. These are being developed as potential solutions to the dangers associated with the use of power wheelchairs, especially in care facilities. Often, in fact, power wheelchairs are being banned from care facilities because of the difficulty of controlling them appropriately which often causes accidents (Braze Mobility, 2018). Autonomous wheelchairs could potentially prevent the occurrence of such accidents. Yet, listening to the voices of everyday wheelchair users surfaces a different perspective that might be easily neglected:

"The power wheelchair is one of the few things that he has total physical control over, and giving up control is almost unthinkable"

Interview to a person on a wheelchair. Braze mobility. 2018. The Ethical Implications of Autonomous Wheelchairs. https://brazemobility.com/the-ethical-implications-of-autonomous-wheelchairs/

These examples clearly surface the complexity of designing inclusive AI systems, especially when it comes to optimizing the life of marginalized people that is hardly understood by the mainstream culture and related design practices. As a response to such complexity, academia is increasingly opening towards 'alternative' research practices revolving around the felt experience of the researcher, usually addressed as first-person methodologies (Varela and Shear, 1999). These methods are characterized by authors writing or performing in the first person, becoming themselves one of the objects of research. The results of these methods are usually narrative texts where generalization of insights is built from single cases extended over time (Bochner, 2012). The scope of these methods is usually to subvert deep-rooted assumptions through personal stories (Ogbonnaya-Ogburu et al., 2020). As such, they are particularly suited to address diversity issues. These, as most social science inquiry, aspire to surface truth, not literal, rather emotional truths that are not intended to be received, but encountered and collaboratively constructed (Bochner, 2012). First-person methodologies, then, allow us to build a collective understanding about the plurality of truths we can encounter in life.

First-person methods invite us to self-reflection and, as such, become central to the scope of understanding positions of power and listening to the voices of the marginalized. Participatory practices, then, should emphasize even more their interest into personal stories of both designers and the public.

It must be noted, however, that even when these desirable methods are practiced, due to the complexity of diversity issues, designers can still encounter resistance and adverse reactions. On the one hand, activities aimed at raising awareness about power and privileges (related to socio-demographic factors) can be very confronting and generate resistance (Atewologun and Sealy, 2014). In fact, even if motivated by genuine intention to be inclusive and sensitive towards diversity, a white, highly educated, fit and straight man might feel offended, or poorly represented if named 'privileged'. Such terms, in fact, may clash with the image of the self that a person has, that hardly can be captured through simple socio-demographic data. Thereafter, together with finding new ways of including the marginalized in the process, designers should also consider building a more inclusive language that would allow both the ones that experience privileges as well as the ones who don't, to have constructive conversations. On the other hand, even when appropriately working on one diversity issue, i.e., gender equality, we might end up further marginalizing other communities, such as ethnic minorities. As a matter of fact, factors like race, class and gender are interrelated and most of the time experienced together (Costanza-Chock, 2018). Yet the tendency for designers and developers is to consider inequality on a single-axis, focusing on one issue at the time, which leaves unattended the problems of certain groups of people who are intersectionally disadvantaged under white supremacist heteropatriarchy, capitalism, and settler colonialism (Costanza-Chock, 2018). This, again, is due to the interdependent nature of diversity issues. As designers, we should acknowledge such complexity and strive for interventions that address inequality as a network of contributing factors, along with being ready for criticism.

To conclude, designing for diversity, equity and inclusion is a complex challenge that requires existing approaches and methods to be revised. Yet, a lot can and should be done. We, as designers, must respond to this challenge, being humble; being ready to provide others with platforms to tell their story, and collectively challenge the idea that there is one normal way of being.