Putting the Disability in DEI Through Inclusive Imagery

Disability representation—both the presence of people with disabilities and images depicting disability—is increasingly integrated into computing. But how do we make sure the processes we have for developing inclusive imagery are themselves inclusive?

By Emory James Edwards

Though people with disabilities comprise the largest minority population in the United States, this group has largely been left behind in conversations about diversity, equity, and inclusion (DEI) in computing. People with disabilities have historically been denied equal employment opportunities, necessary healthcare services, civil liberties, and personal autonomy (see suggested readings). And the DEI revolution, which seeks to level the playing field for groups who are systematically disadvantaged, has largely left out ableism [1] (discrimination against people with disabilities) in its efforts. As a result, people with disabilities are still underrepresented in computing careers, computing products, and even product design processes [2, 3]. My research [4, 5] focuses on the latter—understanding how to create inclusive imagery for technology design processes—with hopes that the impacts will "trickle up." That is, through more inclusive imagery, we might begin to see more accessible products and more disability representation in technical fields.

What's an inclusive image and why does it matter? Consider this fictional scenario based on my observations of real conditions in computing industries today:

Sasha is a user experience (UX) designer. She also has ADHD, an invisible disability. When Sasha is designing a mockup for a new app her team is building, she notices the asset library has a set of user profile renderings with textual descriptions. Surprisingly, some of the images depict visible disabilities, including a white cane user and a person who is deaf. Some of the image descriptions even mention invisible disabilities, like ADHD and dyslexia. She shares the images with Jun-hee, one of her previous colleagues who's a blind software developer, and he's pleasantly surprised that the images include descriptions. It means he can easily use his screen reader to find out what the images visually depict. Sasha is excited to incorporate these assets into her mockups, and they encourage her and Jun-hee to investigate how to make their teams' products accessible to a wider range of potential users.

As suggested by the scenario, inclusive images (see Figure 1) sensitively depict disability and other marginalized identities through normalizing visual representations, while also being perceptible and legible to people with disabilities through textual descriptions. In this article, I'll make the case that (1) while depictions of disability are increasingly used in the computing industry, there are many pitfalls to be aware of when developing inclusive images, (2) based on my research, there are some simple tips we can follow to generate more inclusive imagery, and (3) there is still more work needed for computing research-

ers and professionals to make disability representation pervasive and raise the bar for inclusion.

PITFALLS TO BE AWARE OF WHEN REPRESENTING DISABILITY IN DESIGN

People are predisposed to think that everyone is more or less like them [6]. For designers, this means unless they guard against this predisposition, they'll default to making technology with users like themselves in mind. Thus, inclusive user research is important because it grounds technology creation in the actual desires, thoughts, and needs of potential users. It is also one of the reasons why it is important to have a range of racial, ethnic, gender, and disability identities represented in technology design. However, even when we embrace an inclusive design approach, there are many pitfalls to be aware of when representing disability and intersecting marginalized identities in design.

One challenge is design assets, including those leveraged in user personas, often exclude depictions of minoritized identities [5]. Rooted in user research data, personas are design tools that usually consist of an image, name, key demographic and personality details, and important technology use considerations for a specific type of user. Designers and developers can communicate with each other about specific design or technical requirements that are needed in the technology, based on what makes sense for different user personas. Yet, design assets, and consequently user personas, historically have not included images or profiles of people with disabilities, non-western users, or older adults, to name a few.

Even as design assets that depict disability are becoming more common, these representations are prone to stereotypes [4, 5]. One way in which stereotypes are manifested is having only a few options of the types of disabilities that can be featured in personas and other design assets. In other words, there is little breadth among the image sets. If the only images available to illustrate accessibility are pictures of wheelchair users, then it becomes difficult to get people to understand and acknowledge the huge range of unique user needs among people with disabilities. The hope is that having more images of people with disabilities comes alongside an increased understanding of and consideration for accessibility in technology.

Another way that stereotypes can manifest is in having one dominant representation for each disability identity. In other words, there is little depth among the image sets. If people who are blind are only ever depicted as wearing sunglasses, then it can lead to further othering of people who choose to wear scleral shells or let their natural eyes show. Similarly, if people who are blind are always depicted as using a guide dog for assistance but never depicted as using a white cane or walking with a sighted guide, then it makes invisible the variety of skills and preferences of people who are blind.

These examples show that having more images of disability available is not enough. A large number of stereotyped depictions are, in some ways, worse than no depictions. It gives people the illusory impression that they know what life with a disability is like,

without the nuance or complexities that real people and non-stereotyped images can bring. People with disabilities have historically been depicted in stereotyped and offensive ways—in news media, children's books, and advertisements. Depictions of disability are too often made without consulting people with disabilities, who are the ultimate experts on their own experiences. I have conducted focus groups and interviews with people with disabilities on how to make images more inclusive. My participants have shared thoughtful ideas on what types of representations they wanted and what principles should guide their creation [5].

Ultimately, the disability community is vast, and the complexities of disability representation have not been fully considered yet. No one person can speak for the entire disability community, so when only a few people are empowered to speak up about representation, it creates imbalances. How people want themselves and their disabilities to be depicted depends on things like the context in which the image is going to appear. For example, how someone presents themself on Instagram is different from how they present on LinkedIn. Nevertheless, agency is an important aspect in either case. People with disabilities should have the same degree of control, and breadth of options, of how they represent themselves as people without disabilities. Self-representation versus representation of disability abstractly is another level of complexity added to the question of inclusive images. Images people craft of themselves personally are not necessarily images that they want to represent an entire identity group and vice versa. The issues are not easily divided into neatly solvable problems; they are multiple and complex.

As images of disability are becoming more common in computing contexts—Microsoft 365, Adobe Stock, and Shutterstock are just three examples of sources where one can find stock images depicting people with physical, cognitive, or sensory disabilities—we must be vigilant, so the solution does not create more problems. Representations of disability in images have powerful implications for broader knowledge and understanding of people with disabilities as users of technology. More research is also needed to assess these images with a broad range of people. Otherwise, the new representations of disability may reproduce the same stereotypes that people with disabilities have struggled against for decades. Still, we have to start somewhere. So based on my research, I want to list some general things to try or to avoid doing when creating inclusive images.

TIPS FOR INCLUSIVE IMAGE GENERATION

Based on research, my own experience with disability, and critical reading of existing images and literature on disability representation, I present a few suggestions when creating images of disability.

First, make sure images **do not reinforce stereotypes** about people with disabilities as perpetually isolated, sad, or pitiable. Remember, disabilities are part of people's daily lives. They are not necessarily the only or even primary thing that occupies people's time or thoughts. Anyone with a marginalized identity knows you are not defined solely by that identity but by all kinds of other things about you. In a similar stereotype, people with disabilities should not be depicted as burdensome or constantly in need of care. While interacting with caretakers is a common part of many disabled people's lives, this is not a simple or unidirectional relationship [7]. People with disabilities are also parents, emotional partners, caretakers themselves, and vitally important, valued members of their communities.

However, in contrast, images of disability should **avoid being overly saccharine**. So-called "inspiration porn" [8] gives the impression that people with disabilities should be consumed with gratefulness and determination to "overcome" their disabilities. While some people may feel this way, other disabled people feel that their disability is an important part of their identity. They would not want to change even if they could. It may seem akin to wishing away your memories or personality—something that would fundamentally change who you are.

Another important consideration when creating inclusive images is to **show the diversity of the disability community**. Many people may have a mental image of what a "typical" disabled person looks like, but there are people with disabilities of every race and nationality, in every social class and community, and intersecting with every other social

Figure 1. Examples of inclusive images.

(a)   (b)   (c)

identity. It is not "unrealistic" to depict someone with multiple disabilities or a disability and multiple other marginalized identities; statistically working-class people and people of color are more likely to have one or more disabilities [9]. Additionally, when creating images, consider that disabilities are not necessarily visible, so images that do not initially seem to depict disability may actually reference people with invisible disabilities.

When creating inclusive images depicting a specific disability, **consult people with that particular identity**. People with disabilities can have very different experiences, both between and within a specific disability group. Some disabilities have specific stereotypes associated with them that you might not be aware of, even if you are well educated on other types of disabilities. Educating yourself and assessing images with people from a specific disability community is important to find what to look out for or avoid when creating inclusive images of disability. For example, if you do not know anyone with a service dog, you might not know that blind service dog owners face presumptive judgements about how harsh or strict they are toward their dogs. I certainly had not considered that stereotype until I spoke to an actual service dog owner during my research.

Most importantly, **make a commitment to long-term engagement with people**. Remember that even with these tips, there is no shortcut for actually talking to and getting to know people with disabilities on a personal level. Even if not every technologist can do it, having even one person on a team who cares about disability and educates themselves and others can make a huge difference to end products. User images and entire development processes should be based on real feedback from users with disabilities whenever possible. To do that, images and user research practices should be made accessible. For example, design mockups and other sorts of prototypes should be tested with blind users early, not only once the system is implemented. Image descriptions are as much a part of an inclusive image creation process as creating the images themselves.

I would like to end with a few recom-mendations and reminders that help motivate me to do this work.

BEYOND TOKENIZATION: MAKING INCLUSIVE THE DEFAULT

Technology is an essential part of modern life. From filing taxes online to calling family members who live far away, almost every social and civic interaction is mediated in some way or to some degree by technology. This means everyone involved in the tech industry has a shared responsibility to educate themselves on disability and accessibility. As current or future designers, developers, product managers, and more, we need to keep in mind that assuming users will be just like you could make your product worse and your user base smaller. Educating yourself about all types of user groups helps everyone. Even people with friends, family members, or personal experience with disability or another marginalized identity can still find out about experiences, disabilities, or identities that they do not share.

Literature shows that inclusive representations of marginalized identities in images is the first step, not the final one. Getting more people with disabilities involved directly in technology design—as participants, consultants, colleagues, and decision makers—is vital for making sure accessibility is not something done "for" people with disabilities but also by and with people with disabilities. Making accessible products is not easy and that should be acknowledged. However, supporting accessibility should not be considered charity. DEI work should not be rare and remarked upon as a special kindness for which people should be praised. Instead, it should be standard. Accessibility is about the basic inclusion of and respect for the full diversity of human experience.

DEI is about changing a paradigm. It is about challenging computing and other fields that have historically been built on exclusion, discrimination, and exploitation, and changing the very foundations of how we do our work. By including disability in the larger DEI revolution, we work to give everyone a seat at the table and can feel comfortable being themselves. The effort will pay off because inclusive and accessible technology brings more diverse mar-kets and users into conversation with each other. With our help, DEI marches onward and evolves just as the technology itself advances and innovates.

Suggested Readings

A summary of articles produced by the National Parks Service on Disability History: https://www.nps.gov/articles/disability-history-series-introduction.htm.

Public research on the global market represented by people with disabilities from the Return on Disability Group; https://www.rod-group.com.

Some example disability stock images as available on Shutterstock; https://www.shutterstock.com/search/disability.

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Biography

Emory James Edwards is an informatics Ph.D. candidate at University of California, Irvine studying HCI and accessible computing. Their work focuses on inclusive and accessible representations of users and how accessible imagery is made in different organizational and community settings. Their projects have involved collaborations with Google, Intel, and Microsoft Research. In their spare time, they scroll a supposedly deceased platform, Tumblr, and take care of their two cats and one dog.