DISABILITY DESIGN:

SUMMARY REPORT FROM A FIELD SCAN

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CREDITS

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PREFACE

In 2019, the National Endowment for the Arts (NEA) began a journey to learn more about the intersection of disability and design. With NEA grants for innovative design projects focused explicitly on the intersection of disability and design, and a growing body of academic and popular writing on the subject, the moment felt ripe to commission a field scan to identify the thought leaders, emergent trends, and field needs to nourish this critical body of work. Design for people with disabilities has evolved over the years, responding to emergent leadership, advances in technology, changes in how disability is presented and understood, and the general advancement of disabled people in the workforce.

Since the founding of the NEA in 1965, the agency has supported the broader design field through grantmaking, federal partnerships, and leadership initiatives, while also investing in the field of universal design[1] and educating the arts and design communities about the accessibility requirements under the Americans with Disabilities Act of 1990 and the Rehabilitation Act of 1973. Beyond upholding these laws that specifically address accessibility, the NEA is mandated as a federal agency to uphold all civil rights laws, ensuring that every American has access to the arts regardless of their race, color, national origin, disability, age, or sex. In January 2021, President Biden issued an Executive Order[2] to advance equity and support for underserved communities through the federal government. While equity is a deeply embedded value held by the NEA for many years, the Executive Order brings this commitment to equity to the forefront: to support those whose opportunities to experience the arts are limited by geography, economics, race/ethnicity, and disability. This report is aligned with the NEA's commitment to going beyond the Executive Order and legal compliance, working toward full equity by highlighting the trends and design leaders that are shaping the field of disability design and by introducing these topics to new audiences, adding momentum to an already growing disability design movement.

We humbly acknowledge how much we have learned through this field scan from researcher Joshua Halstead, who was commissioned to lead our investigation, and, frankly, how much more we have to learn. This summary report is not meant to be a comprehensive presentation of all the cutting-edge work that is happening at the intersection of design and disability, but rather marks a moment in time, a quick study of the field. We hope that this summary report sparks further investigation and conversation across the broader design field and inspires designers everywhere to be more inclusive and equitable.

As the nation recovers from the COVID-19 pandemic and reckons with a history of racial injustice and marginalization of people with disabilities, this report feels timely, spotlighting

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[1] Universal design (UD) seeks to create products, spaces, and systems that meet the needs of the widest possible range of users, "regardless of their disability status" (Centre for Excellence in Universal Design, n.d.). See Appendix A for a more detailed definition and other definitions related to disability design.

[2] Executive Order 13985 (Advancing Racial Equity and Support for Underserved Communities Through the Federal Government), https://www.whitehouse.gov/briefing-room/presidential-actions/2021/06/25/executive-order-on-diversity-equity-inclusion-and-accessibility-in-the-federal-workforce/

how design can serve to address equity, both in representation within the field and reframing what our society considers normal. This effort is critical for the 26 percent of the U.S. population—61 million American adults—living with a disability[3] that's either visible or non-apparent. Whether you come from the disability or design fields, or the intersection of the two, we hope that this document lends inspiration and sets the stage for further inquiry, research, convening, and field-wide investment.

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[3] https://www.cdc.gov/ncbddd/disabilityandhealth/infographic-disability-impacts-all.html

BACKGROUND AND METHODOLOGY

Beginning in 2019, the National Endowment for the Arts' (NEA) Office of Accessibility, in collaboration with the NEA's Design program, set out to gain a better understanding of how designers in the U.S. are responding to the needs of people with disabilities and their inclusion in the design process as designers, leaders, and decision-makers. The NEA commissioned a field scan specifically looking at **disability as it relates to public space** (including architecture, landscape architecture, urban design, and other public space design) and **disability and the human body and mind, or bodymind**[4] (including fashion design, industrial design, and graphic design and computer science). Through the scan, we sought to assess the current trends and needs of the disability design field, to identify innovative programs and initiatives, and to engage scholars and designers who are advancing the work. The initial goal of the scan was to inform the NEA, but what we learned felt timely and important enough to share with the design field and diverse disability communities, with a renewed goal of engaging these groups to help identify next steps.

The NEA commissioned Joshua Halstead, design leader and disability advocate, to conduct the field scan, which included a literature review and interviews with field leaders. Halstead was uniquely qualified to conduct the field scan because of his experience as a design lecturer, researcher, and educator with a particular focus on design and disability (see Appendix B for Halstead's biography). Halstead's vision and perspective and detailed research offered invaluable insights for the larger field scan; this document is a summary of that longer report.

Halstead reviewed almost 100 mainstream news articles and academic texts (see Appendix C) published between 2015 and 2019 in urban design, architecture, landscape architecture, interior design, industrial design, fashion design, and graphic design to understand current trends in disability design and how people with disabilities are engaging with and working within these fields. Articles that focused on medical technology, prosthetic limbs, aging, universal design without mention of disability, and virtual/ augmented reality were omitted. He also conducted interviews with nine field leaders working at the intersection of disability and design (see Appendix B) in which they offered reflections, thoughts, and recommendations for support systems that need to be developed for the field. These interviewees were selected on the prior knowledge of Halstead and the NEA team and drawing from the literature review described above. From the literature review and interviews, Halstead identified common themes and emerging field needs, and offered definitions of key design terms, such as "universal," "adaptive," "inclusive," and "disability-led," in collaboration with other contributors (see Appendix A).

Halstead eloquently observes in the longer commissioned field scan (from which this summary report is derived),

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[4] Bodymind is a term often associated with and used in disability studies that refers to the inseparable nature of the body and the mind.

Disability design is a growing and shifting field. It is composed of experts and novices, disabled people themselves, and allies. The questions we ask at the beginning, middle, and end of design processes affect not only how useful said designs are for disability communities but how the disability phenomenon itself is shaped and mediated in culture. For the believers and optimists, design is a promise of hope. How can we support and encourage design that doesn't just focus on transforming lives but fundamentally enriches them? How can design expand its purview from providing answers to foregrounding questions? How can accounting for human variation from the onset shift how our very societies and cultures are assembled in the next decade?

SUMMARY OF KEY FINDINGS

Based on observations of university curriculum and reporting in design-oriented publications, design disciplines have steadily increased their focus on disability issues in recent years, but there has been little analysis or reporting on how this shift has impacted the lives and experiences of disabled people. The NEA's commissioned field scan, from which this summary report is derived, is a step forward, helping to identify trends and emerging needs in the different design disciplines and contributing to a field-wide understanding of disability design in this moment.

The field scan indicates that there is more work to be done, but also much to celebrate and accelerate. Interviews point toward a trend of gradual integration of the most underrepresented people into the field of design, including disabled people and subgroups within the disabled community, like those who are neurodiverse[5] or Black, Indigenous, people of color (BIPOC). Design schools are beginning to expand pedagogy to include disability studies and engage more diverse students in general. At the heart of most observations in this scan, there is a fundamental desire in the disability community to shift the narrative from "disability as a problem" toward a greater acceptance of disabilities as part of a broader spectrum of human differences, or what some non-disabled design stakeholders may characterize as "normal." Moving along this spectrum—from a traditional medical model that says disabled people must either be "fixed" or adapt, to a more inclusive social model that views society and inaccessible environments as the problem—is evident across the disability movement. In design disciplines this shift is necessary and growing but can be challenging—and sometimes in direct conflict—with design's often proud embrace of being a problem-solving art.

A few of the most prominent findings across all disciplines include:

- **Justice-centered frameworks:** Integrating disability as part of justice frameworks that address race, gender, class, and more has the potential to advance disability issues both broadly and specifically within design contexts.

- **Design for all:** Disability-led and accessible design is good for everyone.

- **Shifting landscape:** People with disabilities are expressing their experiences and are more open about their disabilities, which in turn transforms how designers are engaged and broadens the spectrum of understanding about disability.

- **Design thinking and disability as a design problem:** Disability is generally positioned as a "problem" to be solved by designers, which has roots in design thinking methodology and other answer-driven approaches that can erase or exclude disabled expertise and designers.

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[5] A term coined by sociologist Judy Singer in the 1990s, "neurodiverse" refers to a variation or difference in the human brain (e.g., autism spectrum disorder, dyslexia, attention-deficit/ hyperactivity disorder (ADHD), and Tourette syndrome).

- **Broadening the "business case":** Growing awareness of the economic potential for accessible design can expand inclusion and more deeply engage and benefit all disabled communities.

- **Corporate engagement**: Influential big technology companies' responses to disability inclusion make disability issues more legible to designers and the general public, but don't necessarily build on existing disability-driven design work.

- **Exclusions and Underrepresentation**: A number of disability communities are being left out of design discourse. Among them are disabled BIPOC and those who identify as neurodiverse, mad, and sick.

See Disability Design Field Trends section for more details and other trends that are field-specific.

Through films, articles, and more disabled people being visible and open in design roles, mainstream media and design culture are devoting more attention to disability issues. With heightened awareness, however, comes the tasks of education, shepherding, and forging new connections and networks. The field scan and interviews yielded four main field needs. The following recommendations address these needs, demonstrating that there are many opportunities for growth and progress in the field of disability design:

- **Embed disability rights and justice-centered frameworks into design education** to include the disability narrative and challenge traditional ableist[6] notions.

- **Establish fellowships and professional development for disabled designers**, with a focus on bridging the disparity between their non-disabled counterparts and developing programming for disabled aspiring designers who do not have access to design school.

- **Establish long-term funding for field infrastructure**, with an urgency on supporting projects that are interdisciplinary and integrate across disability groups, design fields, and related disciplines. Sustained support for disabled-led design programs and organizations ultimately can impact global policy and design practices.

- **Build interdisciplinary support networks and resource repositories** for designers and for people with disabilities who want to participate in the design process.

See Recommendations to Support the Disability Design Field section for more details.

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[6] Ableism and ableist refer to discrimination or prejudice against people with disabilities.

RECOMMENDATIONS TO SUPPORT THE DISABILITY DESIGN FIELD

Following the interviews with experts in design and disability studies, and supported by the literature review, four primary recommendations were identified to help expand and build the disability design field. As this summary report illuminates, the field is expansive and encompasses a wide range of design disciplines. It is apparent that there is a need for the field to cross-pollinate and collaborate to support future designers engaging in this work. The recommendations for the field that emerged from the full -length field scan are as follows:

Embed Disability Rights and Justice-centered Frameworks into Design Education

In order to effectively shift to a disability-inclusive narrative and challenge traditional ableist notions, the design disciplines must have a foundation in disability studies and include the lived experience and perspective of people with disabilities outside of the medical model of disability.

Disability studies itself is an interdisciplinary field that provides alternative ways of understanding the disability experience outside of medically dominated narratives. Where doctors may find biological deviation, disability studies finds systemic ableism; what society might deem tragic, disability studies deems cultural conditioning and social exclusion. This shift in framing disability signifies not only an outpouring of perspectives from disability communities, but also a philosophical underpinning that critiques the cultural, social, and political power that ultimately grants some people access over others.

Design students in higher education are rarely introduced to disability theory, though this is gradually changing. This is not only detrimental to their personal and academic development; it affects the general public when these same students design the systems, services, spaces, and tools that all people use to navigate their communities on a daily basis. Introducing students to the range of disability experiences equips them for designing a world where social consciousness is required.

Finally, the integration of critical frameworks in design education frees up designers to think outside of profit-driven systems which inhibit the design of custom (and therefore not scalable) design, which is often necessary for people whose disabilities either vary within category or change over time.

Establish Fellowships and Professional Development for Disabled Designers

Fellowships and professional development opportunities offer support for disabled designers to launch their careers and diversify the design field. The literature indicates that there remains a disparity of disabled designers in comparison with their non-disabled counterparts in design education systems and professional practice. Fellowship programs can help to address that disparity. For example, the Disabled List (DL) is a nonprofit organization that runs a three-month design fellowship program matching design firms with practicing and aspiring designers with disabilities. The project (called WITH Fellowship) was quite successful and provided mutual

and notable benefits for both disabled people and the design firms that hosted them. Furthermore, there are disabled people who simply do not have access to design school, so there is a need to develop programming that either teaches or funds more accessible opportunities for disabled people to gain design skills.

Parallel to these needs for disabled designers, there is often a need for small-scale grants or funding to support training in specific technology to support larger grant-based research. For example, projects may need someone who can develop Geographic Information Systems (GIS) maps or design a website, which might be outside the usual skills of a designer. Discrete funding for this kind of training can help keep the core grant funding focused on the research project.

Establish Long-term Funding for Field Infrastructure

Having long-term funding can make all the difference in the success of disability design start-up programs and organizations. Interviewee Victor Pineda, for example, received a five-year grant for $400,000 from the Ford Foundation in order to start his World Enabled and Cities4All projects[7]. Without this funding, he said, their outcomes would not be anywhere near where they are today.

Beyond providing funding for short-term learning opportunities and fellowships, there is value in investing time and financial resources toward multi-year and long-term innovation labs that are, as interviewee Sara Hendren noted, "humanities-informed and justice-informed" with regard to science and technology. What this means in the context of innovation is thinking expansively across sectors and disciplines while centering disability justice perspectives (for example see Disability Inclusion Fund[8]). Interviewees Hendren, Pullin, and Hamraie all noted frustrations about grants in disability spaces that are premised on transforming lives instead of being socially and culturally engaged or working to address systemic ableism; their projects are working to change that dynamic. Pullin's team project "Imagining Technologies for Disability Futures,"[9] funded by the Wellcome Trust, explores "what ideas of body and personhood are at stake" with the growing development and availability of assistive technology. Nonetheless, investment needs to be long-term. Evidenced by the success of Pineda's work, providing a cushion to sustain a project can impact global policy and design practices, and there is an urgency to support projects that are interdisciplinary and integrate across disability groups.

It is also important to note that attitudes about disability from non-disabled and disabled people alike have close ties to economic and political power. Funders should work to cultivate cross-disability participation and representation in their funding opportunities and organize efforts to prevent silos so that all disabled people benefit and to ensure that they have a seat at the funding table.

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[7] The Victor Pineda Foundation has information about both of these programs - https://victorpinedafoundation.org/en/
[8] Disability Inclusion Fund - https://disabilityphilanthropy.org/about/presidents-council-on-disability-inclusion-in-philanthropy/disability-inclusion-fund/
[9] Imagining Technologies for Disabilities Futures - https://itdfproject.org/

Build Interdisciplinary Support Networks and Resource Repositories

In order to build a lasting and impactful movement towards disability design finding its place in mainstream, networks among designers, disability leaders, and disabled-designers must be supported. Given the diversity and specializations in each of the design disciplines, there has been little cross-pollination to date. Interviewee Jos Boys expressed an adamant need for design resources and network-building support systems, noting, "It feels like just being able to have networks where you could do knowledge exchange would be [helpful]. I'm already focused on trying to shift the environment professions [architecture, landscape architecture, planning] and their clients and develop a movement across the whole sector; they're not going to read all of that [disability studies scholarship], or necessarily connect to anything that comes out of disability arts. They're not going to connect if they go to a performance that includes disabled people, for example. They're not going to connect that to what they do."

Boys' call for network building is consistent with most of the report's interviewees, including AJ Paron-Wildes, who notes that connecting interdisciplinary practitioners to disabled people and critical perspectives coming from disability studies would be generative for the field. Recognizing that disability design is always globally situated and interdisciplinary is critical for outside partners and organizations. It is worth noting that interviewee Christina Mallon provided a caveat to the network approach in fashion design. Because many adaptive fashion designers and manufacturers are competing for grants (and patents), she thought skills-sharing may not be as effective in the fashion space. In contrast, Sky Cubacub, creator of Rebirth Garments, openly discusses their design process on very public channels like Instagram, and there may be many positive outcomes to, and interest in, a public, community-led approach.

DISABILITY DESIGN FIELD TRENDS

This section traces emerging trends within **disability and public space design** (including the fields of architecture, landscape architecture, urban design, and other public space design) and **disability and design for the bodymind** (including graphic design and computer science, fashion design, and industrial design that enhances or supports how people with disabilities manage the functions of daily life). The trends are derived from Halstead's literature review of almost 100 articles written between 2015 and 2019, as well as from interviews he conducted with nine influencers in the disability design space: Jos Boys, Aimi Hamraie, Sara Hendren, Ellen Lupton, Christina Mallon, AJ Paron-Wildes, Victor Pineda, Graham Pullin, and Alexa Vaughn-Brainard (bios for interviewees are in Appendix B).

There are some overarching trends that apply to all or most of the disciplines as well as other trends that are discipline-specific.

OVERARCHING TRENDS

Justice-centered frameworks: *Integrating disability as part of justice frameworks that address race, gender, class, and more has the potential to advance disability issues both broadly and specifically within design contexts.*

Overall there is a move toward a justice-centered framework for disability design, closely related to activist movements such as disability rights and disability justice. Observed reasons come from disabled designers actively participating in disability advocacy/activism, a desire to bring disability perspectives into design projects and products, and a general interest in changing systems that shore up "normalcy," or what is understood to be a normal body or mind. Because several interviewees have disabilities themselves, advocacy/activism concerning disability rights is integral to their design practice. For example, Victor Pineda and Aimi Hamraie both identify as disabled and designed their professional and academic careers around promoting access and asking critical questions around how the making of spaces and things intersects with sometimes prejudicial, able-bodied perspectives. Though not disabled themselves, respondents such as Sara Hendren and Jos Boys center disability rights and justice frameworks by challenging the dominant idea that design is meant to neutralize the effects of having a disability. Collectively, respondents indicated a deep desire to not just integrate disability perspectives into their work but use their work as a platform to highlight the importance of disability rights and disability justice in the world.

Design for all: *Disability-led and accessible design is good for "everyone."*

Following the rhetoric of universal design, many projects in the literature review make note of the ambition to "design for all." Coined the "curb cut effect," designers have engaged with the argument that designing products inclusively for disabled people often has expansive merit. (The curb cut, primarily implemented for wheelchair users, is now available to anyone using a wheeled device—parents pushing strollers, bicyclists, etc). Designing for "all" people often

carries business significance; adopting a UD approach means an expanded market for many products. But while "design for all" may lead to better products for everyone, it simultaneously has the potential to make invisible the very communities that benefit most from the products and spaces being created. Physical disabilities have long been prioritized over cognitive disabilities, and acknowledging marginalized communities, rather than lumping them in with the rest, is pivotal for the future of inclusive design discourse.

Shifting landscape: *People with disabilities are expressing their experiences and are more open about their disabilities, which in turn transforms how designers are engaged and broadens the spectrum of understanding about disability.*

The past several years have set foundations for purposeful change for disability design in the years to come. Although disability culture and identity have been fundamental building blocks for disability rights movements since the late 1960s, many designers are becoming acquainted with political definitions of disability—such as the social model—for the first time. Disability has become a trending topic in design fields outside of rehabilitation engineering, with great potential for cross-disciplinary collaboration. More attention has been paid to physical senses and how different ways of feeling and knowing the world reconfigure the way knowledge is made and understood. Some people are claiming disability, proudly revealing bionic arms or legs, in contrast with those who prefer to "pass" as able-bodied, and sometimes leaving those in the middle with a false dichotomy and wishing for a more nuanced conversation about the elastic qualities of identity. Finding balance between claiming disability and passing as non-disabled is a reality of disability phenomena that designers should be aware of, as it will impact not only who uses their designs but how funds will be allocated for research. Extending the boundaries has brought new ways of thinking, collaborating, and expressing access and its cornerstone role in the future of design.

Design thinking and disability as a design problem: *Disability is generally positioned as a "problem" to be solved by designers, which has roots in design thinking methodology and other answer-driven approaches that can erase or exclude disabled expertise and designers.*

Design as a discipline has proudly differentiated itself from other art forms in its commission to solve problems. Designers start by identifying problems and then work deductively in order to remedy them through a refinement process known as iteration. Putting people at the center of design solutions has become imperative, and this is definitely the case with disability and fashion, product design, and the built environment. Too often, however, the disability "problem" is positioned as related to struggling or tragic disabled people, an example of ableistic prejudice that inadvertently further marginalizes disabled people.

There is an interesting contrast between seeing disability as a problem to solve versus an approach that questions the status quo when designing for disabled people. These different belief systems have been in play since the early 20th century, when Dada artists and designers began questioning the notion that art and design could bring any tangible, objective value to the world. Their ideas were soon dominated by Modernism and the Bauhaus utilitarian

movement, which declared that the design-human relationship was a means toward creating products and technologies that benefited the human experience. Modernists reigned in design academies until civil rights movements and the introduction of critical theory in the late 1960s. Today, design students are exposed to both modern and postmodern ideologies, and the debate persists between design's role as problem-solver or question-instigator.

This brief historical departure is relevant for understanding the current trends in disability design because of its relationship with a prolific ideology and methodology called design thinking. Popularized by the consulting firm IDEO and Stanford's d.school, design thinking at its core teaches people how to approach complex problems through empathy. Empathy, however, has been criticized for marginalizing disabled people in the design process; it potentially distances designers from genuinely engaging disabled people and their lived experience. Designers focused on empathy are more likely to default to an assumption about disabled bodies needing "fixing" rather than questioning the disability category itself. Design's relationship to disabled bodies through this fix-it paradigm focuses on the needs of an individual rather than the problems generated by an ableistic society and inaccessible built environment.

In fashion, this focus manifests as making clothing "easier" for disabled people, or using terminology such as "wheelchair-bound," which portrays the disabled person as needing care. While many of these garments have positive impacts for disability communities with respect to inclusion, they do little to critique ableistic supremacy in the fashion design industry.

In technology and product design, tools and devices are being developed which help minimize the impact of a disability but simultaneously suppress acceptance of that disability. For example, Ciara-Beth Ní Ghríofa, who was diagnosed with autism at age 14, has designed a game app that helps people with autism make eye contact more consistently. The app helps autistic people interact more "normally" with others, perhaps to the detriment of changing perceptions to include autism in the spectrum of "normal."

Broadening the "business case": *Growing awareness of the economic potential for accessible design can expand inclusion and more deeply engage and benefit all disabled communities.*

There are numerous ways to make the case for investing in disability design, a growing phenomenon in corporate boardrooms around the world. In her corporate pitches, interviewee and disability advocate Christina Mallon of marketing firm Wunderman Thompson emphasizes that "The community has $8 trillion worth of disposable income. That's bigger than China."[10] Mallon also talks about the fact that disability will be a facet of everyone's life, and that innovations for disabled people are often good for everyone.

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[10] This figure comes from the work of Rich Donovan's "2016 Annual Report - The Global Economics of Disability." Liz Jackson is among other advocates who use his work to substantiate the business case for disability inclusion.

The economic value of designing accessible products and spaces is not new—it was the foundation from which universal design emerged following World War II. But the work at that time was deeply exclusive, marginalizing women, black families, immigrants, and others. With a more justice-centered framework that consults with the disabled people who are most impacted by the products and services, there is potential for better products and more equitable access to those products. Going further, interviewees Pullin and Pineda noted that people with disabilities are often driving the innovation, whether as independent entrepreneurs or as workers within a larger corporate entity. The investment in disability design is not always motivated by profit, with many large companies taking up disability inclusion and accessible design in ways that seem genuine and are often not advertised or publicly visible.

Corporate engagement: *Influential big technology companies' responses to disability inclusion make disability issues more legible to designers and the general public, but don't necessarily build on existing disability-driven design work.*

Companies like Microsoft, Google, and Apple have all invested in projects at the intersection of graphic design, computer science, and disability inclusion, each with their own approach. Microsoft has steadily increased their focus on accessible technology since the launch of their Inclusive Design Toolkit in 2016, and is helping fund entrepreneurial projects as well as providing startups with technological resources and guidance. Similarly, Google is focused on inclusive technology, but with an aim to enable creators, marketers, and designers to build more inclusive products and designs through a resource center that offers access to step-by-step lessons that are easy to digest across platforms. Apple decided to broach disability representation itself through a gender-and-race inclusive emoji collection, featuring people using assistive technologies like wheelchairs, canes, and hearing aids as well as pictographs symbolizing invisible disabilities.

In general, integration of voice technology, controllers with large buttons that can be used with any appendage, eye-tracking remote controls, and numerous other adaptable assistive devices that work with standard products indicate that accessible technology is considered increasingly "innovative" by mainstream standards. However, very few organizations are attributing value to existing disability-driven design work or partnering with disability organizations and individuals, as seen from the example of LEGO's Braille Bricks, which presented an idea as new even though the concept had been developed many years before by the enterprising father of a child struggling to learn Braille.

Exclusions and Underrepresentation: *A number of disability communities are being left out of design discourse. Among them are disabled BIPOC and those who identify as neurodiverse, mad, and sick.*

A number of interviewees noted a so-called disability caste system that exists within institutions and even disability culture itself. M. Deal stated that "a hierarchy of impairment exists from the

perspectives of both disabled and non-disabled people." [11] Some reasons for this circumstance are related to funding allocation, ethnicity, and other stigma-led affects. Disability communities often mention the existence of "disability culture," and though such a culture certainly exists, it is immensely diverse, as noted by many scholars.[12] Further, Deaf culture(s) has historically distanced itself from identifying with disability cultures, and the umbrella "disability" political identification has recently broadened its landscape to include people who identify as mad, sick, and chronically ill. Lastly, the lack of BIPOC representation that plagues design disciplines as a whole is amplified in the disability community; the same structural inequities leading to BIPOC discrimination in the U.S. educational, healthcare, and criminal justice systems are also prevalent in design spaces. The trends surfaced by our interviewees and in the literature review, therefore, are part of this wide ranging and expansive discourse on exclusion.

FASHION DESIGN

One Size Fits One: *Design processes need to acknowledge that fashion is personal, disabled bodyminds have unique garment needs, and design should be influenced by and carried out by the diverse individuals who are most impacted by the design.*

In contrast to the universal design-based philosophy of one-size-fits-all, inclusive fashion design advocates for a one-size-fits-one approach. An inclusive approach is important in adaptive fashion specifically, because clothing needs to be tailored to how individual people move through myriad environments as well as responding to individual ideas about aesthetics and identity. For example, when Mindy Scheier designed her first fashion line for disabled people (thinking specifically of her son, who has muscular dystrophy), she posited, "No two disabilities are alike, and even people with similar disabilities might experience it in dramatically different ways—which is what makes adaptive fashion design such a challenge."[13] Disabled designers like Sky Cubacub are perhaps the leaders in this movement, contributing their perspective to continued movement-building and justice work as they design garments for themselves and others. Nonprofit organization Open Style Lab takes this idea further, directly engaging people with disabilities in the design and creation of unique garments, in partnership with designers, occupational therapists, and engineers. Their Hack•ability toolkit contains adaptive sewing tools that allow people of all abilities to "hack" or alter their clothing.

Corporate partnerships with disabled people: *Corporations and disabled entrepreneurs and advocates are pairing up on disability design products and marketing.*

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[11] Deal, M. (2003). Disabled people's attitudes toward other impairment groups: A hierarchy of impairments. *Disability & Society, 18*(7): 897–910.

[12] Peters, S. (2000). Is there a disability culture? A syncretisation of three possible worldviews. *Disability & Society, 15*(4): 583–601.
Devlieger, P. and G. Albrecht (2007). The production of disability culture among young African–American men. *Social Science & Medicine, 64*: 1948–1959.

[13] (23 February 2016). This Designer Is Making Brand-Name Fashion Friendlier To Kids With Disabilities. FastCompany [online]. Retrieved from https://www.fastcompany.com/3056989/meet-the-designer-making-brand-name- fashion-friendlier-to-kids-with-disabilities

In reviewing the data, a majority of disabled fashion projects are led by corporations, followed by parents, siblings, design students, and disabled people themselves. Whether the founders or collaborators of projects are disabled themselves, have disabled relatives, or see the market value in promoting an inclusive brand image, each project has a unique origin story. A common strategy is for name-brand corporations (and designers) to pair up with the disabled person or organization. Historically, parents and siblings were often the only "designers" for this sector, and as corporations enter this market, they need to be aware of the politics involved.

GRAPHIC DESIGN & COMPUTER SCIENCE

Representation: *Projects are increasingly positioned as combating disability stigma and exclusion.*

How disabled people are represented pictorially influences how they are perceived in society, and several influential companies have taken steps to combat all-too-common images depicting disability as tragic and infantile. In addition to Apple's 2019 emoji collection described above, Getty Images launched the Disability Image Collection in 2018. This project depicts disabled people doing everyday things, including parenting, playing sports, painting, in family, and in community, and goes to great lengths to humanize subjects and avoid falling into rhetorical tropes such as the supercrip (i.e., depictions of individuals "overcoming" their disabilities). Similarly centered on representation, advertising mogul McCann London piloted Visability93 to create a response to the current International Symbol of Access, which omits people with invisible disabilities. This open source collection includes icons depicting disabilities such as fibromyalgia, anxiety, dyslexia, narcolepsy, IBS, migraines, and more, and intends to grow through community contributions. These projects not only indicate a growing awareness of authentic disability inclusion among image-makers but also lay the foundation for myriad projects to come.

Disability-led design and entrepreneurism: *Disabled entrepreneurs are designing for disabled audiences.*

A growing number of projects have been instigated by disabled people for disabled people. Unlike some of the larger projects spearheaded by corporations, these projects introduce a level of intimacy with disability experiences, and center disabled people as the primary audience, in ways that have earned them public acclaim by both design and disability communities alike.

For example, Ciara-Beth Ní Ghríofa, mentioned above, has designed a game app that helps autistic people make eye contact more consistently. Similarly designed through lived experience, Ability Enabled, created by Eboni J. D. Freeman, is a product that expedites the accommodation approval process for employers. In Gallaudet University's Motion Light Lab, Matt Malzkuhn created "What Type Are You" (WTAU), a project meant to build awareness around Deaf experience and, in particular, underscores the differences between sign

interpreters. These projects differ in their interest and ability to change the narrative around disability, but what they share are disabled people designing from their lived experiences in order to build habitable worlds and, at times, comedic narratives.

INDUSTRIAL DESIGN[14]

Wearable design: *Products focus on adaptation and marketing campaigns bend toward shifting the narrative of what is "normal."*

There is a rising market for wearable assistive products which work toward redesigning notions of what is normal. Throughout history, the aim of prosthetic design was to be as inconspicuous as possible to hide the disability in question. Many people who use prosthetics, however, are tired of having their disability either fixed or hidden, and instead wish to normalize the "non-normal." Products include customizable covers for prosthetic limbs to showcase individual style, robotic arms made from LEGO bricks which can be changed by the user, and a range of jewelry-like hearing aids that change the stigma of hearing loss.

Toward a cyborg embodiment: *Designs that aim for seamless integration between bodies and technology can transform how disabled people navigate the world, but also raise questions and skew perceptions of the people they serve.*

Medical and biotechnical assistive products are on the rise, engaging with the vision of the device-assisted disabled person as the "original cyborg." Tied to the theory that all people are cyborgs (human/machine hybrids) in some form, tech products claim that they can erase disabilities through a long list of sensory enhancements, increased mobility, and more. Products such as robotic arms and the OrCam MyEye device, which attaches to glasses to employ a user interface that reads for and describes the world to visually-impaired users, are intended largely to restore "normative function."

Other products seek to push the frontiers of human capacity or utilize sensory feedback in new ways. Echo-location devices that expand the sensory range of blind individuals and a glove that translates sign language into speech are some examples, but notably, overlook important elements of lived experience for the people they aim to serve. And questions are raised: no longer limited by biology, can technology be used to redesign a more efficient hand or pair of legs? There are a few examples of products and technologies in this category, along with high profile and controversial stories in the news about the ethics of disabled athletes competing (and winning) in non-disabled sporting events.

In the realm of wheelchairs, modern studio redesigns have, with some thoughtful, notable exceptions, trended toward applying a slick cyborgian gloss to the disabled body while ignoring the realities of wheelchair acquisition and repair for most users. One promising development is

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[14] This section of the full report coauthored with Franchesca Spektor, PhD candidate.

Detroit's Adaptive MoGo bike-sharing program, which has launched a fleet of 13 adaptive bicycles, from a hand-pedaled tricycle to a cargo bike with enough space to carry a passenger with mobility impairments.

Products for affordability: *Devices are increasingly made for low- to moderate-income markets.*

In highlighting community-based efforts for assistive technology, designs created specifically for low-resourced individuals have also begun to surface. 3D printing has emerged as a potential tool for equitable products. For example, since 2014 LimbForge has delivered low-cost 3D printed prostheses to people in developing countries around the world with their Upper Limb System, which is designed as modules for multiple parts of the arm. Desiree Riny has created an even more accessible DIY lower-limb prosthetics model that uses easily sourceable parts, including bicycle parts, wood, scrap metal, hemp, and bolts. The project comes with a manual for DIY design that offers individuals the opportunity to learn best practices and apply them independently, hopefully mitigating the muscle pain and bone deterioration that often comes with people creating their own prosthetics.

Universal design for household products: *Universal design principles are being applied to industrial design nearly equal to their use in the domains of fashion design, architecture, and landscape architecture.*

Assistive technologies often carve out niche market spaces, but some of the most helpful designs come from universal adaptations to existing products. With disability in mind, these redesigns have the potential to make life a little bit easier for everyone. Recent innovations in this realm include the TILT. Kettle designed by Andy Walton, which operates with a unique hinge system that eliminates the need to lift, and Gillette's Treo razor which features a guarded blade and built-in shave gel tube to make shaving easier for caregivers. IKEA's ThisAbles furniture hacks include 13 design adjustments, such as easy handles that snap onto dressers, couch lifts, and pads for increasing the surface area of switches, though the company's marketing campaign misfired in claiming that their designers were the original source of the idea.

PUBLIC SPACE-BASED DESIGN

Accessible public space background: Prior to the last century, disabled people were absent from architectural and spatial design manuals, making the built environment egregiously inaccessible. A number of events in the 20th century changed this exclusionary past. First, the U.S. needed to revive its economy after World War II, and much of the workforce was disabled due to injuries from the war. As a result, corporate and public facilities were among the first to be designed (or redesigned) for accessibility. Second, architect Ronald Mace popularized the idea that architecture could be built with disabled people in mind from the outset. A wheelchair user himself, Mace called this approach universal design, and the idea found widespread adoption after the passage of the Rehabilitation Act of 1973, which required all federal facilities

to be wholly accessible. Lastly, private spaces, as well as state and local government buildings, were brought to the same level of accountability through the passage of the Americans with Disabilities Act in 1990. With the Department of Justice now protecting against disability discrimination in the built environment, designers working on spatial conceptualization and implementation cannot overlook disabled people as likely inhabitants of their designs.

Popularizing scholarly approaches that influence public space design: *Space-based design influences politics, technology, and society at large. In response, scholars with interdisciplinary expertise, from the humanities to human-computer interaction (HCI), are sharing their ideas with the public and changing how designers consider accessibility.*

A growing number of disability scholars in adjacent, non-design fields are making their critiques available to the public and influencing how designers approach accessibility in public spaces. Their collective commentary on urban accessibility and political power, along with reconceptualizations of spatial justice and applied disability studies, work together to reorient designers by introducing them to concepts previously reserved for academic conversations in university circles. Victor Pineda offers a non-Western vantage point on questions of spatial justice and society, establishing accessible criteria for building inclusive cities from the ground up.[15] Kevin Gotkin published a piece of criticism introducing architects to the disability studies concept of ablenationalism in order to show how disabled people are routinely left out of the design process due to perceptions of who belongs in society.[16] Aimi Hamraie published one of the first histories of universal design and exposed its exclusionary and white-led politics.[17] Chancey Fleet illustrated how apps created for blind users are supportive in navigating public spaces but introduce a host of data privacy and usage problems.[18] Together, these scholars and others continue to shape our collective imagination and ideas about public space design by contributing to popular media.

Citizen criticism: *Disabled people are openly critiquing the design of public space, prompting institutional change.*

Responding to city design that doesn't meet their needs despite the passage of the Americans with Disabilities Act more than 30 years ago, disabled people, with the support of aging communities, have banded together to criticize existing systems and begin rebuilding for the next generation. For example, wheelchair user Emily Ladau has mapped New York City's subway system, surfacing new knowledge about its inaccessibility and compiling a practical how-to guide for disabled newcomers and visitors based on her lived experience. More attention is

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[15] Pineda, Victor. Building the Inclusive City, 2019.

[16] Gotkin, K. (2020). Stair Worship: Heatherwick's Vessel. *The Avery Review*. Retrieved from https://www.averyreview.com/content/3-issues/33-33/5-stair-worship/gotkin-stair-worship.pdf

[17] Hamraie, A. (2017). *Building Access: Universal Design and the Politics of Disability*. Minneapolis: University of Minnesota Press.

[18] Fleet, C. (2019, November 6). Accessibility, Augmented. *Urban Omnibus*. Retrieved from https://urbanomnibus.net/2019/11/accessibility-augmented/

being given to the needs of older adults, many of whom will acquire disabilities, given that their population is expected to reach 98.2 million by 2060 based on U.S. Census 2015 estimates. Self-appointed whistleblowers and interdisciplinary think tanks alike have assembled to redesign cities in the image of small towns, where recreation and commerce is accessible by foot, light rail, and wheel. City planners in Phoenix, for example, have reversed their approach to urban design, moving away from a sprawling, loose-edged metropolitan model to a focus on ultra-dense urban centers with walkable and rollable communities with access to schools, hospitals, bodegas, parks, and restaurants.

Spatial design frameworks, not guidelines: *Rather like open-source computing, design veterans and newcomers alike are publishing frameworks to guide open space design that can be tested and iterated upon, rather than rigid guidelines that reinforce inflexible design responses.*

Despite our compulsion toward following guidelines, suggestive frameworks have best suited spatial design with and for disabled people. In addition to greater consciousness about the relatively well-known principles of universal design, there is a growing movement away from a universalist, one-size-fits-all approaches to public space. For example, in 2019 the American Society of Landscape Architects (ASLA) released universal design guidelines that went beyond the basics to reflect on personal experience, considering whether spaces are accessible, participatory, comfortable, ecological, predictable, multisensory, and walkable in addition to complying with ADA guidelines. Beyond a focus on physical disabilities, neurodiversity has garnered attention in recent years and is expanding the ways people and technologies interact in the environment. As designers and design constituencies engage a broader spectrum of people in the spaces they design, many are still experimenting and developing ideas, relying on frameworks rather than guidelines to point toward more equitable design possibilities.

Changing the sensory landscape: *Human senses that are often overlooked in the built environment are being integrated and elevated.*

A growing number of space-based designers and design organizations/collectives are considering how the design of urban space might change if senses that are not usually elevated in such contexts (i.e., smell, sound, touch) are brought to the foreground. Adopting this approach marks a major shift in spatial design practices that would likely impact national legislation such as the Americans with Disabilities Act. For example, the new LightHouse for the Blind headquarters in San Francisco and So & So's MAC House both build on existing architectural accessibility guidelines by integrating a whole new opportunity: soundscapes and haptic (touch) feedback. The research of Alexa Vaughn-Brainard, a Deaf landscape architect, applies Gallaudet University's DeafSpace Guidelines to the urban environment through her DeafScape project, amplifying a rich sensory experience that considers degrees of enclosure, mobility, and proximity, visual and tactile cues, transparency and reflectivity, and fixed and flexible furniture. Several other projects, including Stalled!, MoDE's Restroom Map, and Aimi Hamraie's Mapping Access, create ways to build and find bathrooms that are safe and accessible for disabled and gender non-binary people alike, integrating two communities who experience ongoing erosion of their civil liberties in public space and how it is designed.

Appendix A: DEFINITIONS RELATED TO DISABILITY DESIGN

Combing through literature at the intersection of disability and design has the potential to leave one confused about the meanings of different terms. Universal design, inclusive design, adaptive design, and disability-led design are among the most prolific terms used across academic and activist communities. Their definitions are far from universal, and influencers continue to attempt clarity. Cognizant of inevitable anomalies and disagreement across disciplines, the NEA asked field scan author Josh Halstead (who collaborated on this task with Liz Jackson & Alex Haagaard of the Disabled List) to draft the following definitions.

Notably, universal design is used most in architecture, landscape architecture, and fashion contexts, inclusive design and adaptive design are prominently featured in graphic design and technology discourses, and disability-led design is a political term used to highlight disabled maker cultures by disability activists.

Universal Design

Universal design (UD) seeks to create products, spaces, and systems that meet the needs of the widest possible range of users, "regardless of their disability status" (Centre for Excellence in Universal Design, n.d.). It is closely related to the concepts of barrier-free design and to accessibility movements. It typically seeks to retrofit or adapt existing systems, spaces, structures, and objects in order to make them more widely usable—though the philosophy is characterized through considering myriad embodiments from the beginning of design processes. It adheres to the social model of disability, where disability is produced by societal inaccessibility (in other words, by design). UD also follows a problem-led methodological framework, where the problems it seeks to solve are those of inaccessibility.

Inclusive Design

Like universal design, inclusive design seeks to maximize the usability of products, spaces, and systems for users with diverse needs. However, whereas universal design seeks to apply basic design principles in order to accommodate a wide range of possible users, inclusive design starts from a point of design for specific users cast to the margins of society by systems and structures of exclusion (not always disabled). Typically, these users are "extreme users" whose needs and behaviors would represent an edge case in traditional user-centered design methodologies. Inclusive design argues that designing "from the edges" will ultimately produce things that are usable not only by "extreme users" but by normative users as well, while at the same time potentially identifying sources of both exclusion and opportunities for innovation that may not be revealed through universal approaches. It also acknowledges that truly universal design is impossible because of practical project constraints and conflicting and competing access needs. Like universal design, inclusive design also adheres both to the social model of disability and to a problem-led methodological framework.

Adaptive Design

Adaptive design is often used when referring to medical devices or technology and takes a "hacking" approach to increasing usability by modifying existing inaccessible objects—either individually or categorically—in order to make them more usable by people with diverse or specific needs. It overlaps philosophically with both universal and inclusive design but is more focused on solving specific existing design/accessibility problems than addressing prospective ones through the application of generalized principles. It also tends to draw more directly from the existing hacking practices that disabled people engage in in their day-to-day lives.

Disability-led Design

In contrast to the other three approaches, disability-led design adheres to a cultural/identity model of disability and does not involve the definition or solution of a design problem. Instead, it seeks to speculatively respond to, amplify, or celebrate some aspect of disabled identity and culture. Disability-led design outcomes are characterized by a shift in the way we perceive and interact with a category of object, space, or system, and an attendant shift in the meaning assigned to it.

Appendix B: KEY CONTRIBUTORS

This summary report is derived from a much longer field scan commissioned by the National Endowment for the Arts. The following list of contributors includes the field scan's primary author as well as interviewees, direct contributors, and influential designers and disability advocates whose work is imbedded in the literature review and Halstead's research.

Primary Author/Researcher

Joshua A. Halstead (they/their/them or he/his/him) is an epistemic activist working at the intersection of critical disability studies, design pedagogy, and community organizing. A recognized contributor to disability design discourse, they seek to unsettle and rupture normative systems of thought by centering marginalized perspectives. Halstead has been an invited lecturer in academic and industry settings—from Stanford to Google—and is co-author of the book *Extra Bold: A Feminist, Inclusive, Anti-Racist, Non-Binary Field Guide for Graphic Designers*. Their current project, Cripjoy, is a transnational, majority-BIPOC community of practice focused on reworlding mental health through an intersectional, anti-ableist, and anti-sanist lens.

Interviewees

Nine influencers working in disability design and adjacent spaces were identified through consecutive meetings with the NEA project team, prior knowledge of the researcher, and drawing from the literature review. These candidates were then engaged in the capacity most accessible for them. Seven were interviewed via phone and/or videoconference for ~60 minutes. Two (Pullin and Pineda) were unable to engage with this format, so their perspectives were gathered over email and WhatsApp messenger respectively. After collating all transcripts and written data, thematic analysis (Braun & Clarke, 2006) was deployed to identify codes, then broad descriptive themes articulated by participants in aggregate. Both similarities and deviations were considered. The below table lists each participant and their respective affiliations, pronouns, and contact information.

Name	Affiliation(s)	Biography
Aimi Hamraie They, their, them	Vanderbilt University; Critical Design Lab	**Aimi Hamraie** is associate professor of medicine, health, & society and American studies at Vanderbilt University, and director of the Critical Design Lab. Hamraie is author of *Building Access: Universal Design and the Politics of Disability* (University of Minnesota Press, 2017) and host of the Contra* podcast on disability, design justice, and the lifeworld. They identify as disabled, SWANA, and diasporic Iranian. Their

		interdisciplinary research spans critical disability studies, science and technology studies, critical design and urbanism, critical race theory, and the environmental humanities. https://aimihamraie.wordpress.com/
AJ Paron-Wildes She, hers, her	SANDOW Design Group; Autism advocate	**AJ Paron-Wildes** has acquired significant experience working in the design/build industry. She has created and led a multimillion-dollar, award-winning design/build firm, developed national programs for ASID (American Society of Interior Designers), developed and funded design research programs for the University of Minnesota, and pioneered various charitable programs. She, and her work, is featured in many television segments on HGTV, PBS and Bob Vila. Paron-Wildes has also been a design consultant for interiors in healthcare and education, specifically dealing with autism. From school settings, therapy environments to her most noted work on the building for the MIND Institute in Sacramento, California; she has used her skills as a designer and blended them with her experience of raising a son with autism.
Alexa Vaughn-Brainard She, hers, her	OLIN; 2020 2020 Landscape Architecture Foundation (LAF) Olmsted Fellow	**Alexa Vaughn-Brainard**, Associate ASLA, is a Deaf landscape designer in OLIN's Los Angeles office, a 2018 Olmsted Scholar, and a 2020 LAF Olmsted Fellow. Her research explores methods to more effectively include Disabled people as stakeholders and experts in the design process and to make a toolkit for landscape architects and planners to use to create accessible and inclusive landscapes. She has served as adviser to the ASLA Universal Design Guide and is actively involved in OLIN's People Lab. Her work "DeafScape: Applying DeafSpace to Landscape," originally published in *Ground Up Journal*, has been widely featured.

Christina Mallon She, hers, her	Open Style Lab, Wunderman Thompson	**Christina Mallon** is head of inclusive design and accessibility at Wunderman Thompson Global and partner/board member of Open Style Lab (OSL), founded at MIT. Mallon's work has received nation-wide attention and has been featured on PBS, Vice, Fast Company, CNBC, Vogue, Forbes, and YAHOO!. She has been asked to speak about inclusive design in numerous settings from SXSW to the United Nations. More recently, the Open Style Lab team won a 2019 National Design Award from the Cooper Hewitt Smithsonian Design Museum. https://www.christinamallon.com/
Ellen Lupton She, hers, her	Maryland Institute College of Art; Cooper Hewitt Smithsonian Design Museum	**Ellen Lupton** is a writer, curator, educator, and designer. Lupton is the Betty Cooke and William O. Steinmetz Design Chair at MICA (Maryland Institute College of Art) in Baltimore, where she also serves as director of the Center for Design Thinking. She serves as a senior curator at Cooper Hewitt, Smithsonian Design Museum in NYC. https://ellenlupton.com/
Graham Pullin He, his, him	THIS Institute; DJCAD, University of Dundee	**Graham Pullin** is a designer, researcher, teacher and author of the manifesto *Design Meets Disability* (MIT Press, 2009). He is senior lecturer in interaction design and product design at the University of Dundee, where he co-founded the Social Digital group and founded the Museum of Lost Interactions. He has worked as a senior designer at IDEO, one of the world's leading design consultancies, and at the Bath Institute of Medical Engineering, a prominent rehabilitation engineering center in the United Kingdom. He has received international design awards for design for disability and for mainstream products.
Jos Boys	DisOrdinary Architecture Project;	Jos Boys is an architect, activist, educator, and writer. She was a founder member of Matrix

She, hers, her	University College London	Feminist Design Co-operative and co-author of their 1984 book *Making Space: Women and the Man-Made Environment* (Pluto Press 1984). Since 2008, she has been co-director with disabled artist Zoe Partington of the DisOrdinary Architecture Project, a disability-led platform that works with disabled artists to explore new ways to think about disability in architectural and design discourse and practice. She is also senior lecturer in environments for learning at University College London's Bartlett Real Estate Institute.
Sara Hendren She, hers, her	Olin College of Engineering	Sara Hendren is an artist, design researcher, writer, and professor at Olin College of Engineering. She is the author of *What Can A Body Do? How We Meet the Built World*, published by Riverhead/Penguin Random House. Her work of 2010-2020 includes collaborative public art, social design, and writing that engages the human body and technology, much of it around the condition of disability. She also co-founded the Accessible Icon Project, co-created a digital archive of low-tech prosthetics, and has a long-running obsession with the inclined plane. https://sarahendren.com/about
Victor Pineda He, his, him	World Enabled	**Victor Santiago Pineda** is a Venezuela-born social development scholar and disability rights advocate. He is also an international speaker and consultant on accessibility-related issues. Early in his career, he served as the youngest government delegate to participate in the drafting of the United Nations Convention on the Rights of Persons with Disabilities and thereafter launched the World Enabled Global Initiative, a disability affiliate program that combines the reach of the world's most active disabled persons' organizations (DPOs) and intergovernmental agencies. He also launched

		the Pineda Foundation, a voluntary nonprofit that promotes the rights and dignities of young people with disabilities. https://victorpinedafoundation.org/en/

Influential Contributors

Academic journals in design and disability studies domains were reviewed to identify leading scholars in both fields. The list below represents some key contributors that are shaping discourses. Note, academia continues to struggle to connect with activists. A number of the contributors below have attempted to bridge this gap. Mia Mingus, Alice Wong, Leroy Moore, and Leah Lakshmi Piepzna-Samarasinha should be noted as key figures in this work but are not listed below due to their focus on disability justice (and not design per se). However, design commentaries are almost always present in conversations about access.

Aimi Hamraie
- Website: https://aimihamraie.wordpress.com
- Twitter: @AimiHamraie
- Academia: https://vanderbilt.academia.edu/AimiHamraie

Alex Haagaard
- Website: alexhaagaard.wordpress.com
- Twitter: @alexhaagaard

Alice Sheppard
- Website: alicesheppard.com
- Twitter: @wheelchairdancr

Bess Williamson
- Website: https://besswilliamson.com
- Twitter: @besswww
- Academia: https://saic.academia.edu/BessWilliamson

Cynthia Bennett
- Website: https://www.bennettc.com
- Twitter: @clb5590

David Gissen
- Website: https://davidgissen.org
- Twitter: @davidgissen
- Academia: https://cca.academia.edu/DavidGissen

David Serlin
- Website: https://davidserlin.academia.edu
- Academia: https://ucsd.academia.edu/DavidSerlin

Elizabeth Guffey
- Academia: https://purchase.academia.edu/ElizabethGuffey

Emeline Brulé
- Website: http://emelinebrule.net
- Twitter: @e_mln_e
- Academia: https://sussex.academia.edu/EmelineBrulé

Jarah Moesch
- Website: jarahmoesch.com

Joshua Miele
- Websites: mielelab.org
- Twitter: @BerkeleyBlink

Kelly Fritsch
- Websites: http://www.kellyfritsch.ca
- Academia: https://carleton-ca.academia.edu/KellyFritsch

Kevin Gotkin
- Website: https://kevingotkin.com
- Twitter: @KGotkin
- Academia: https://upenn.academia.edu/KevinGotkin

Liz Jackson
- Website: https://www.thegirlwiththepurplecane.com; https://www.disabledlist.org
- Twitter: @elizejackson

Margaret Price
- Website: https://margaretprice.wordpress.com/about-margaret/

Melanie Yergeau
- Websites: http://melanieyergeau.com/

Rob Imrie
- University: https://www.researchgate.net/profile/Rob_Imrie

Rosemarie Garland-Thomson

- Website: http://www.rosemariegarlandthomson.com
- Academia: https://emory.academia.edu/RosemarieGarlandThomson

Chun-shan (Sandie) Yi
- University: https://ahs.uic.edu/disability-human-development/news/chun-shan-sandie-yi/
- Website: https://www.cripcouture.org

Shannon Finnegan
- Website: https://shannonfinnegan.com
- Twitter: @shanfinnegan

Appendix C: NEWS ARTICLES AND RESEARCH

Title	Link to article	People/organizations	Category	Year	Quote explaining project
Sensory Design Workshop	https://www.instagram.com/p/B2jAo0YhVG9/	Sensory Design Workshop in BBox Theater; Ellen Lupton	Workshop	2019	Sensory Design Workshop in BBox Theater. Smell, analyze, sketch. Thanks for participating! @mica_gd
The Politics of Design in Chicago's History of Disability Rights, 1940-1990, Bess Williamson	https://www.newberry.org/09192019-bess-williamson-school-art-institute-chicago	Access Living; Rehabilitation Institute of Chicago (now Shirley Ryan AbilityLab)	Seminar	2019	This paper will look at the history of medical, design, and activist efforts to establish and improve design for disabled people in Chicago.
Imagine Otherwise: Aimi Hamraie on the Politics of Disability and Design	http://ideasonfire.net/67-aimi-hamraie/	Mapping Access Project; Critical Design Lab; Journals to publish Hamraie: Disability Studies Quarterly, Foucault Studies, Design and Culture, Hypatia, philoSOPHIA, and Age, Culture, Humanities, as well as Disability Space Architecture, and The Politics of Place and Space; Building Access: Universal Design and the Politics of Disability; Patty Berne; Ronald Mace; Mia Mingus; Jay Dolmage; Tanya Titchkosky; Margaret Price; Melanie Yergeau; UN Convention on the Rights of Persons with Disabilities	Design theory	2018	In this episode, host Cathy Hannabach talks with professor and designer Aimi Hamraie about their new book *Building Access: Universal Design and the Politics of Disability*.
Inclusive design: a better way to design (podcast)	https://confessionsofamarketer.com/inclusive-design-a-better-way-to-design/	Christina Mallon; Wunderman Thompson; Open Style Lab;	Design theory	2019	On Episode 95, we're talking with Christina Mallon, inclusive design lead at Wunderman Thompson and partner/board member of Open Style Lab, which was founded at MIT. Christina has a fascinating story to tell about her career path and her creation of the inclusive design practice at Wunderman Thompson.

Architecture for the Blind: Intelligent and Inclusive Spaces for the Blind User	https://www.archdaily.com/923028/architecture-for-the-blind-intelligent-and-inclusive-spaces-for-the-blind-user	The MAC House by So & So Studio; The Center for the Blind and Visually Impaired by Taller de Arquitectura and Mauricio Rocha; The Friendship Park by Marcelo Roux and Gastón Cuñaes	Architecture	2019	Inclusive design is vital in order for all users to be able to develop comfortably and to correctly understand the various functions of a space. Given the need for our cities to promote integration, we present three exemplary projects for a blind user; a house, a building and a public space.
Why inclusive cities start with safe streets	https://www.curbed.com/2019/8/28/20835301/universal-streets-accessible-street-design	American Society for Landscape Architecture (ASLA); Alexa Vaughn, a Deaf landscape architect; DeafSpace, a 10-year-old architectural approach rooted in how Deaf people experience space; Bell Street Park, a shared street in Seattle by MIG | SvR and Hewitt & Jackson Street, the recently redesigned thoroughfare in St. Paul. by Toole Design	Urban design	2019	"Access to public space truly is—and always should be—a civil right," says Alexa Vaughn, a Deaf landscape architect who consulted with the ASLA on the guidelines. "If we continue to design and plan cities that are inaccessible to certain people, we are committing a serious injustice towards these people. This is about guaranteeing the right to public space to all, regardless of dis/ability."
American Society of landscape architects: universal design guidelines (just released)	https://www.asla.org/universaldesign.aspx	Danielle Arigoni, director of livable communities, AARP; Brian Bainnson, ASLA, founder, Quatrefoil Inc.; Melissa Erikson, ASLA, principal, director of community design services, MIG, Inc.; Emily O'Mahoney, FASLA, partner, 2GHO; Clare Cooper Marcus, Hon. ASLA, professor emerita of architecture and landscape architecture and environmental planning, University of California, Berkeley; Danielle Toronyi, OLIN; Alexa Vaughn, Associate ASLA, Deaf landscape designer at OLIN	Landscape design	2019	Because of their focus on technical aspects of accessibility over experiential quality, ADA standards often result in spaces that are still very challenging for people with disabilities to access, leaving them physically and mentally disconnected from public life.
DisArt Process and Presence Fashion Show	https://www.artprize.org/68402	2016, ELEVATE: A DisArt Fashion Show; DisArt 2018 Process and Presence Fashion Show; Process and Presence: Contemporary Disability Sculpture exhibition at Frederik Meijer Gardens & Sculpture Park	Fashion	2019	A DisArt Fashion Show celebrated disability fashion alongside Disabled identity, innovative design practices, and community building.

New exhibition 'Access + Ability' opens at Nelson-Atkins	https://www.bizjournals.com/kansascity/news/2019/10/17/new-exhibition-access-ability-opens-at-nelson.html	The Nelson-Atkins Museum of Art's "Access + Ability" exhibition; Nike (NYSE: NKE) flyease; shoe inspired by teenager Matthew Walzer, who has cerebral palsy; Alleles' prosthetic leg covers; shirt by CuteCircuit that translates the notes of a symphony into vibrations; a robotic dog by Joy for All that serves as a therapeutic device; EnChroma glasses for color blindness; organized by Cooper Hewitt Smithsonian Design Museum; Art Beyond Sight Tour, which is designed for people who are blind or who have low vision; Low Sensory Morning, in partnership with The Autism Society of the Heartland; Rick Haith, recreation outreach coordinator at The Whole Person	Exhibition	2018	"Access + Ability" features more than 70 objects that help people with different abilities interact with one another and the world around them.
ALLELES Design Studio Ltd.	https://alleles.ca/		Fashion	n.d.	Mission statement: The mission of the Alleles is to help amputees express their creativity, individuality, and confidence through providing more cosmetic options for their prosthesis. Being influenced by the eyeglass industry, we will use fashion and design to transform prosthetic cosmesis from a medical device into a new stream of fashion.
Nike Embracing Universal Design	https://www.disabilityscoop.com/2019/09/03/nike-embracing-universal-design/27104/?fbclid=IwAR3nB0CfXq1QYgvqMZntxzj152AW4k6T9J2UbiHrSeIqUvjphZzyaFuX0yl	Nike Air Zoom UNVRS; Elena Delle Donne, a star forward for the WNBA's Washington Mystics and an Olympic gold medalist	Fashion	2019	The Nike Air Zoom UNVRS features a magnetized heal that folds down so that the wearer can slide their feet in and out without using hands, the company said. An articulated strap allows the shoe to be secured with one hand.

What are Complete Streets?	https://smartgrowthamerica.org/program/national-complete-streets-coalition/publications/what-are-complete-streets/	The National Complete Streets Coalition	Urban design	n.d.	Creating Complete Streets means transportation agencies must change their approach to community roads. By adopting a Complete Streets policy, communities direct their transportation planners and engineers to routinely design and operate the entire right of way to enable safe access for all users, regardless of age, ability, or mode of transportation.
Ailbhe Keane of Izzy Wheels on pimped out wheelchairs, spreading positivity and their new collaboration with Barbie	https://www.creativeboom.com/features/izzy-wheels/	Ailbhe and Izzy Keane; Collaborations so far include Malike Favre, Hattie Stewart, Callen Schaub, Craig & Karl, Kelly Anna, Timothy Goodman, Orla Kiely, Supermundane and Camille Walala; partnership with Barbie; Irish Wheelchair Association; International Wheelchair Day	Fashion	2019	Izzy Wheels is a Dublin based brand founded by Irish sisters Ailbhe (pronounced Alva) and Izzy Keane. The idea was inspired by Izzy who was born with Spina Bifida and is paralyzed from her waist down. Izzy always saw her wheelchair as a symbol of freedom but never felt it expressed her bubbly personality. Ailbhe created Izzy Wheels as her final year college project in The National College of Art and Design (NCAD) in 2015. --- from https://www.izzywheels.com/wheelchair-wheel-covers
Styling my Alleles prosthetic cover	https://mamacax.com/2015/11/04/styling-my-alleles-prosthetic-cover/	Alleles, a company based in Canada specializing in designing prosthetic covers	Fashion	2015	
DeafScape: Applying DeafSpace To Landscape	http://groundupjournal.org/deafscape	Hansel Bauman, hearing architect who uses ASL; DeafSpace is "[a space] in which Deaf culture, in all its diverse dimensions, can thrive through full access to communication and the unique cognitive, cultural and creative dimensions of the Deaf experience are encouraged."; Gallaudet University	Landscape design	2019	Applying the principles of DeafSpace to landscape design.

We Are the Original Lifehackers	https://www.nytimes.com/2018/05/30/opinion/disability-design-lifehacks.html	Betsey and Sam Farber; OXO; dancer and writer Jerron Herman; Emily Ladau who uses kitchen tongs to extend her reach; Wayne Westerman, who as an electrical engineering doctoral student at the University of Delaware works with John Elias to develop touch-screen technologies and establish a company called FingerWorks	Design theory	2018	These stories exemplify what it means to be an original lifehacker; our unique experiences and insights enable us to use what's available to make things accessible. Yet, despite this history of creating elegant solutions for ourselves, our contributions are often overshadowed or misrepresented, favoring instead a story with a savior as its protagonist.
Critical Axis	http://www.criticalaxis.org		Media representation	2018	#CriticalAxis is a community driven project from The Disabled List that collects and analyzes disability representation in media.
LEGO Braille Bricks	http://www.criticalaxis.org/critique/lego-braille-bricks/	LEGO Braille Bricks from The LEGO Foundation; Meryl Alper, Assistant Professor in the Department of Communication Studies at Northeastern University, and author of Giving Voice: Mobile Communication, Disability and Inequality (2017) and Digital Youth with Disabilities (2014); Tack-Tiles, a Braille-based toy developed in the early 1980s by a father named Kevin Murphy	Industrial design	2019	The LEGO Foundation is piloting this product to help blind and visually impaired children learn to read Braille in a fun new way. The bricks represent Braille letters and numbers and can be used by sighted and visually impaired children together. Each set will have around 250 bricks in 5 colors. As well as inspiration for teaching and interactive games. They are also being tested in several different languages. The colorful bricks will augment DIY teaching methods. Helping kids have fun while they learn. The final products are set to launch in 2020. They will be provided for free to selected institutions around the world.
Designed to look like jewelry, the Facett Hearing Aid makes wearables precious	https://www.yankodesign.com/2018/10/11/designed-to-look-like-jewelry-the-facett-hearing-aid-makes-wearables-precious/	Facett hearing aid designed by Leah Heiss	Industrial design	2018	Integrating medical design and fashion design (in its broadest sense possible) is, in my book, one of the biggest areas where designers can intervene to create products that don't just save lives, but enrich them too.
This Wheelchair is #Winning	https://www.yankodesign.com/2018/09/20/this-wheelchair-is-winning/	André Fangueiro designed the The Superstar wheelchair for Küschall	Industrial design	2018	The Superstar wheelchair is the latest in stigma-busting mobility. It utilizes a modern mix of materials, cutting-edge tech, and forward-thinking biomechanics to enhance the lives of those who need it.

Smashing Assistive Tech Stigma	https://www.yankodesign.com/2017/11/07/smashing-assistive-tech-stigma/	OH design by Julia Marina Cunha	Industrial design	2018	OH is at once a hearing aid and a fashion accessory. It allows the user to customize the product by changing the external ring's range of textures and colors. It can also be used as an earring or attached hearing pin. However it's worn or in whatever style, its aim is to diminish the stigma associated with assistive technology and enhance the user's self confidence.
The walking stick gets a minimal makeover	https://www.yankodesign.com/2017/08/22/the-walking-stick-gets-a-minimal-makeover/	Studio Shiro challenges convention with the ENEA walking stick	Industrial design	2018	You'll notice that all products one associates with the aged have a vintage style. Walking sticks are seldom made to look minimal or contemporary. Rocking chairs too. You'll seldom find a pair of futuristic looking bifocals.
Easy Tea	https://www.yankodesign.com/2017/02/16/easy-tea/	TILT. designed by Andy Walton	Industrial design	2017	Designed with this in mind, TILT. is a kettle that makes it easy for anyone to fill, heat, and pour despite disability, weakness, mobile impairment or age.
The World's First 3D-Printed Wheelchair	https://www.yankodesign.com/2016/05/19/the-worlds-first-3d-printed-wheelchair/	GO by Layer Design	Industrial design	2016	Up until now, the problem with wheelchair designs has been their one-size-fits all approach to patient needs. GO is an innovative wheelchair design that addresses this problem with the latest 3D printing technology... GO is custom-fitted to each user's unique biometrics and functional preferences.
Your OCD Will Love This	https://www.yankodesign.com/2015/10/06/your-ocd-will-love-this/	The Lift Up Storage System designed by Igor Lobanov	Industrial design	2015	
Open Bionics: company	https://openbionics.com/about		Industrial design	2014	We're a bionics company developing affordable, assistive devices that enhance the human body. We've started by introducing the Hero Arm, a stylish multi-grip bionic hand. Current upper limb prostheses exist as hooks, grippers, or expensive bionic hands. We're on a mission to make beautiful bionic limbs more accessible.

Open Bionics: Hero Arm	https://openbionics.com/hero-arm/		Industrial design		Meet the Hero Arm, the world's first medically certified 3D-printed bionic arm, with multi-grip functionality and empowering aesthetics. Engineered and manufactured in Bristol, UK, the Hero Arm is a lightweight and affordable myoelectric prosthesis, available now in the USA, UK and France for below elbow amputee adults and children aged eight and above. Welcome to the future, where disabilities are superpowers.
Verizon disability collection	https://www.verizonmedia.com/accessibility/disability-collection	Verizon Media, Getty Images and the National Disability Leadership Alliance have partnered to create The Disability Collection; The National Disability Leadership Alliance (NDLA); American Association of People with Disabilities, the American Council of the Blind, the Autistic Self Advocacy Network, Little People of America, the National Association of the Deaf	Media representation	2018	Verizon Media, Getty Images, and the National Disability Leadership Alliance have partnered to create The Disability Collection, a growing collection of stock images that break stereotypes and authentically portray people with disabilities in everyday life. We are empowering our industry to get real about disability representation with stock photos that can be licensed and used by anyone in the world.
Moonlight lab at Gallaudet University				Started 2009	We are an interdisciplinary lab bringing people from different departments that include Art, Deaf Studies, Deaf Space and Urban Planning, Communications, Psychology, and the Science of Learning Center on Visual Language and Visual Learning. Motion Light Lab (ML2) is one of three labs housed under the Science of Learning Center on Visual Language and Visual Learning.
WHAT TYPE ARE YOU?	http://www.motionlightlab.com/new-page-4	Matt Malzkuhn; The Typography Project (part 2) was led by Bethany Weiner	Graphic design	Part 1: 2012; part 2: 2014-2016	What Type Are You is a take on fingerspelling styles through typography. Ask yourself this: are you a good, legible, clear fingerspeller? Or, are you pretty terrible at your pacing (kerning)? To help bad fingerspellers, and to help identify our model fingerspellers, we decided to tackle on that through the

					exploration of assigning fingerspellers fonts.
When Medical and 3D-printed Technology Connects Future Creations	https://fashnerd.com/2019/03/when-medical-and-3d-printed-technology-connects-future-creations/	Jordan Reeves, who was born without part of her left arm; nonprofit called Born Just Right; Museum of Science and Industry's Wired to Wear Chicago exhibition; David Rotter, the clinical director of prosthetics for Chicago-based Scheck & Siress; Autodesk mentor Sam Hobish	3D printing	2019	Jordan and her Autodesk mentor Sam Hobish are hoping that as the merger of medical and 3D-printed technology strengthens, the outcome will allow people to create their own printed hands. Hobish is doing this by helping to develop a software program, called LimbForge that can adjust the size of an entire 3D model based on changes to a specific measurement.
Bespoke Bodies: The Design and Craft of Prosthetics	https://designmuseumfoundation.org/boston/blog/2019/01/24/bespoke-bodies-design-craft-prosthetics-boston/		Exhibition	2018	Bespoke Bodies: The Design and Craft of Prosthetics, is a multimedia exhibition highlighting people at the intersection of healthcare, style, and technology in prosthetic design.
Born just right	https://www.bornjustright.org	Project Unicorn!; co-founder, Jordan Reeves; BOOST Workshop	Organization	N/A	Every child is born just right. This site started is a place where parents could come to share stories, read stories and feel safe as we all learn how to be advocates for our kids. It's a wild ride that is best experienced when you lean on others and get the support you need.
New York Subway System: Accessibility	http://wheelchairtraveling.com/new-york-nyc-subway-wheelchair-travel-access/	Emily Ladau	Urban design	N/A	Not every subway stop is accessible or has an elevator.
When Necessary Tools Of Life Are Turned Into Fashionable Wearables	https://fashnerd.com/2018/02/assistive-technology-fashion-tech-wearables/	Elana Langer's work on the Earring Aid; Layer Design founded Benjamin Hubert; Reveal, created by Awake Labs; Stylishly Translating Music For Those Hard of Hearing, Cute Circuit; Galaxy Dress as part of the Permanent Collection of the Museum of Science and Industry in Chicago and their iMiniSkirt as part of the Digital Revolution exhibition of the Barbican Museum in London	Industrial design	2018	Elana Langer's work on the Earring Aid

London-based Layer Design http://layerdesign.com/, founded by Benjamin Hubert, have come up with a whole new concept for the term 'made to measure' with their stylish 3D printed wheelchair named 'Go'.

Reveal, created by Awake Labs <http://www.awakelabs.com/> (product for Autistic people).

Cute Circuit — wearable that |

					distributes music across a garment for deaf individuals.
Rooted in Rights Presents at Accessibility and Inclusive Design: A University of Washington Master Class	https://rootedinrights.org/event/rooted-in-rights-presents-at-accessibility-and-inclusive-design-a-university-of-washington-master-class/	University of Washington's Communication Leadership and Human Centered Design and Engineering graduate programs	Workshop	2019	We are partnering for the first time to co-host a "Master Class" on the principles of inclusive design and ways to apply those practices to content strategy and interaction design. We are intentionally inviting industry professionals and graduate students to join us for this daylong learning experience to encourage cross-disciplinary collaboration.
It's About All of Us: Building a Better Future With Inclusive Design	https://siliconvalleyforum.com/us-building-better-future-inclusive-design/	partnered with Microsoft on "One for All: Designing a Better Future with Inclusive Design; Tobiah Zarlez, Senior Tech Evangelist at Microsoft; Jennison Asuncion, Accessibility Engineering Manager at LinkedIn; KR Liu, Board Member at Deaf Kids Code; Julia Benini, Senior Design Research Lead at IDEO	Seminar	2018	On March 27th, 2018, we [Silicon Valley Forum] partnered with Microsoft on "One for All: Designing a Better Future with Inclusive Design." Hosted by WeWork in downtown San Jose, the evening featured an in-depth discussion on the principles and best-practices of inclusive design.
3D-printed prosthetics improve lives in the world's poorest regions	https://www.autodesk.com/customer-stories/limbforge	Sam Hobish, LimbForge's creative director;Healing Hands for Haiti in Port-au-Prince; Doctors Without Borders	Industrial design	Establish 2014	LimbForge's belief is that "if we can make high-quality, low-cost prosthetics available that are culturally appropriate in the developing world, we can change lives," Hobish says. By creating devices to match a patient's specific needs and social context with the right skin tone, fit, and functionality, it would impact "not just the amputee but their families, their communities, and even their countries, by reducing the negative impact of limb loss."

Target just launched Halloween costumes for kids with disabilities	https://www.fastcompany.com/90384817/target-just-launched-halloween-costumes-for-kids-with-disabilities	Magic Wheelchair	Clothing, cosutume, children,	2019	Target "has launched an affordable line of adaptive halloween costumes that allow kids with a range of disabilities to trick or treat in style."
Ikea is hacking its own furniture for people with disabilities	https://www.fastcompany.com/90317579/ikea-is-hacking-its-own-furniture-for-people-with-disabilities	nonprofits Milbat and Access Israel	furniture,	2019	"...Ikea Israel has teamed up with the nonprofits Milbat and Access Israel, each of which specializes in making the world more accessible, to develop a series of modifications to fix popular Ikea furniture pieces."
Does the universal symbol for disability need to be rethought?	https://www.fastcompany.com/90216071/does-the-universal-symbol-for-disability-need-a-redesign	Liam Riddler, a creative at London's McCann office; McCann London's deputy of art Lisa Carrana; project they have titled Visability93; Symbol of Access (ISA), which was created by Danish design student Susanne Koefoed	Access	2018	Do we need other symbols for people with invisible disabilities?
How To Make Snow-Bound Cities Less Of A Frozen Hell For People With Disabilities	https://www.fastcompany.com/40515235/how-to-make-snow-bound-cities-less-of-a-frozen-hell-for-people-with-disabilities	Brent Toderian, founder of Toderian UrbanWorks, a Vancouver-based urban design consultancy; Access-A-Ride service, NYC's network of vans that can be scheduled to pick up and transport people with disabilities; Community networking platform SeeClickFix; Traffikonteret, the Stokholm agency that manages streets	Urban planning, Urban design, transportation	2018	"Without clear, accessible streets, people with restricted mobility often face a tough choice in winter: struggle to cross icy sidewalks ... or stay indoors. But it's very possible for cities to better design their winter strategies for people of all abilities."
Target announces adaptive apparel for kids living with disabilities	https://www.fastcompany.com/40482996/target-announces-adaptive-apparel-for-kids-living-with-disabilities	kids' clothing line, Cat & Jack	Clothing	2017	Target "announced they are expanding their kids' clothing line, Cat & Jack, to include a line of adaptive apparel made specially for kids and toddlers living with disabilities."
Microsoft's trickiest product might be its most important	https://www.fastcompany.com/90400552/microsofts-trickiest-product-might-be-its-most-important	Xbox Adaptive Controller; Bryce Johnson, inclusive lead at Microsoft	Hardware, accessible tech,	2019	"Microsoft announced a surprise project called the Xbox Adaptive Controller, designed to make gaming more accessible to people with all sorts of disabilities." - It won FastCompany's 2019 Innovation by Design product of the year award.

This Designer Is Making Brand-Name Fashion Friendlier To Kids With Disabilities	https://www.fastcompany.com/3056989/meet-the-designer-making-brand-name-fashion-friendlier-to-kids-with-disabilities	Runway of Dreams founded by Mindy Scheier; MagnaReady, a company that makes washable magnets; OXO's good grips line; Sabi's line of accessible bathroom products	Clothing, children	2016	"The ultimate goal is adaptive departments that are no different than 'petite' or 'plus size,'" Scheier says of her aspirations. "We want to help we help bridge that gap between the fashion industry and a demographic that hasn't been serviced."
New Apple Ads Show How Accessible Tech Helps People Living With Disabilities	https://www.fastcompany.com/40422000/new-apple-ads-show-how-accessible-tech-helps-people-living-with-disabilities	Global Accessibility Awareness Day; Carlos Vasquez, the lead singer, drummer, and PR manager for the metal band Distartica who lost his eyesight to glaucoma; Ian MacKay is a cyclist who also happens to be paralyzed form the neck down, and who is set to travel 3,000 miles on the Olympic Discovery Trail; Meera Phillips is a 15-year-old soccer player unable to fully use her natural voice as a result of Schizencephaly; Todd Stabelfeldt is quadriplegic, but also a software engineer and successful entrepreneur; Andrea Dalzell is a nursing student and former Ms Wheelchair New York, who lives with spina bifida; Patrick Lafayette is a producer and radio DJ in New York, who has a vision disability; Shane Rakowski is a middle school band director, who lives with hearing loss	Devices, hardware, accessibility	2017	"May 18th (2017), Apple has launched its "Designed for Everyone" campaign with short video profiles of seven people who are using its accessible tech in their everyday lives."
A MS Patient Builds A Yelp For People With Disabilities	https://www.fastcompany.com/3042583/a-ms-patient-builds-a-yelp-for-people-with-disabilities	Jason Da Silva, filmmaker whose work has aired on HBO and PBS, diagnosed with multiple sclerosis; Jason + Alice Cook created AXSmap, a crowdsourced map to rate businesses based on how accessible they are	built environment, architecture design, disabled designer built	2015	Da Silva "and his wife, Alice Cook, created AXSmap, a crowdsourced map to rate businesses based on how accessible they are."
This Google Spoon Makes Eating Easier For People With Disabilities	https://www.fastcompany.com/3068218/this-google-spoon-makes-eating-easier-for-people-with-disabilities	Liftware	Hardware, accessible tech, disabled designer built	2017	Video, "The company, LiftWare, developed products to help people with movement disorders eat independently…"

Google Has A $20 Million Plan To Beat Disabilities Around The World	https://www.fastcompany.com/3046694/google-has-a-20-million-plan-to-beat-disabilities-around-the-world	The Google Impact Challenge: Disabilities; Enable Community Foundation; World Wide Hearing		2015	"The Google Impact Challenge: Disabilities is a program out of the company's Google.org charitable division that will dole out $20 million in grants to nonprofits for ideas that can help address physical impairments among the world's population..."
7 simple landscape designs that make cities better for everyone	https://www.fastcompany.com/90391912/7-simple-landscape-designs-that-make-cities-better-for-everyone	American Society of Landscape Architects	Urban design, universal design	2019	"The American Society of Landscape Architects, a professional organization for 15,000 landscape architects in the United States, has just published a guide to applying universal design principles—or designing for everyone—in parks, streets, and other public spaces."
How to build a bike-share system for people of all abilities	https://www.fastcompany.com/40574394/how-to-build-a-bikeshare-for-people-of-all-abilities	MoGo, Detroit's bike-share system; Lisa Nuszkowsi, MoGo's founder and executive director; John Waterman, who heads up a Ypsilanti-based nonprofit initiative called Programs to Educate All Cyclists; Rory Lincoln, MoGo's director of programming and operations	Mobility	2018	The adaptive MoGo program aims to make bike sharing accessible to people of all abilities via specially designed bicycles in Detroit.
Comcast unveils a remote for changing channels with your eyes	https://www.fastcompany.com/90364476/comcast-unveils-a-remote-for-changing-channels-with-your-eyes	Jimmy Curran, a Philadelphia-based research analyst and author who has spinal muscular atrophy, was one of the product's first customers	accessibility	2019	"For the millions of people with disabilities like ALS and muscular dystrophy, Comcast's new eye-tracking remote control could help them channel surf on their own."
This blind skater is doing tricks thanks to this cool sound-based tech	https://www.fastcompany.com/90372781/this-blind-skater-is-doing-tricks-thanks-to-this-cool-sound-based-tech	competitive skateboarder Justin Bishop; Sonic Localizer, a portable sound system that's the size of a boom box; Technology company Not Impossible Labs; "Absurdity Project" with the shoe and clothing company Zappos; The nonprofit No Barriers Initiative	assistive technology,	2019	A device that creates a ""soundscape" of machine-made echolocation.
Microsoft is quietly changing the way we work, again	https://www.fastcompany.com/90172289/microsoft-is-quietly-changing-the-way-we-work-again	Accessibility Checker; Microsoft's chief accessibility officer Jenny Lay-Flurrie; Microsoft's Disability Group	inclusivity	2018	Microsoft's Accessibility Checker in its productivity apps

What You're Getting Wrong About Inclusive Design	https://www.fastcompany.com/90166413/what-youre-getting-wrong-about-inclusive-design	Kat Holmes' book Mismatch	inclusive design,	2018	Re inclusibity: "You get people using the word and not always having the true intentions behind it."
The goal of design's next generation? Radical accessibility	https://www.fastcompany.com/90232959/the-goal-of-designs-next-generation-radically-accessible-design	Relay, a robot designed specifically to help people with physical disabilities made by Lebanese industrial designer and IBD award-winner Nour Malaeb; UX designer Keri Lam created a digital music player for elderly people called Musy; By Design finalist Maptic made by Industrial designer Emilios Farrington-Arnas	Radical accessibility,	2018	From the Fast Company's Innovation By Design Awards student category; "Student honorees show that the best accessible design looks just like furniture or sculpture or jewelry. Rather than showcasing the technology, these designs push it to the background, helping the user feel empowered to be more independent without any stigma attached."
Want to see the future? Just look to this year's top designs	https://www.fastcompany.com/90227465/this-years-innovation-by-design-honorees-point-toward-empowerment-and-inclusivity	Nike React shoe; Universal Favourite Complements modular chocolates; Ressence Type 2 e-Crown Watch; Vollebak Solar Charged Jacket; Herman Miller Cosm chair; Fiskars Summit Knives	inclusivity	2018	"Another focus for designers this year is inclusivity. Companies are incorporating the needs of historically excluded communities, such as people with disabilities, into the design process. Google, for example, worked with developer Tania Finlayson, who was born with cerebral palsy and lacks the use of her limbs or voice, to create a keyboard that allows people with limited mobility to communicate in Morse code through their smartphones. Microsoft partnered with the visually impaired developer Saqib Shaikh to design Seeing AI, an app that uses artificial intelligence to identify people, things, colors, text, and more for low-vision and blind users."
The Radical Frontier Of Inclusive Design	https://www.fastcompany.com/90170656/the-radical-frontier-of-inclusive-design	Association for Computing Machinery's CHI Conference on Human Factors in Computing Systems; Microsoft Hololens AR headset; CodeTalk; Canetroller	inclusivity	2018	an "increasingly ubiquitous" presence for inclusive emerging technology at he Association for Computing Machinery's CHI Conference on Human Factors in Computing Systems.

This Design Practice Focuses On The One Sense Most People Ignore	https://www.fastcompany.com/90135878/this-designer-is-rethinking-sound-by-inventing-new-instruments	Yuri Suzuki, autistic Japanese sound designer creating installations and artifacts; musical platform Ototo lets you play music using any object that conducts electricity, like pots, pans, fruits, and vegetables; Looks Like Music features a robot that drives along lines it identifies on paper, playing different notes depending on what color users scribble over its track; AR Music Kit Suzuki developed for Google	sound design, accessible	2017	Dyslexic designer Yuri Suzuki' sound design studio in London creates accessible instruments.
The 25 Most Innovative Health Care Designs Of The Year	https://www.fastcompany.com/3063962/the-25-most-innovative-health-care-designs-of-the-year	PLANNED PARENTHOOD EXPERIENCE Company: Ideo; 3M FUTURO WATER RESISTANT WRIST BRACE Company: 3M Corporation; AMINO Company: Amino; C BY GE Company: GE Lighting; COLLECTIVE HEALTH MEMBER EXPERIENCE Company: Collective Health; DESKGEN Company: Desktop Genetics; EATWELL ASSISTIVE TABLEWARE SET Company: Sha Design; GO WHEELCHAIR Company: Layer; HEALTH HUB EXPERIENCE GUIDE Company: HDR; KINDUCT Company: R/GA; LOONCUP Company: LOONLAB; LUMEE BY PROFUSA Company: Herbst Produkt; MICROSOFT–NOVARTIS ASSESS MS Company: Microsoft Research; MY UV PATCH BY LA ROCHE-POSAY Company: L'Oréal; NAKED 3D FITNESS TRACKER Company: Box Clever; NIMA Company: Montaag; PAUSE Company: PauseAble, UsTwo; PHOENIX EXOSKELETON Company: suitX; SCHARP DATASPACE Company: Artefact; THE M+D CRUTCH Company:		2016	"The honorees for the health category of the 2016 Innovation by Design Awards ... all emphasize a key thing: the user…"

		Mobility Designed; THE WORLD COMMUNITY GRID: DISCOVER EXPERIENCE Company: IBM; UNIVERSITY OF MINNESOTA HEALTH, CLINICS & SURGERY CENTER Company: CannonDesign			
How Designing For Disabled People Is Giving Google An Edge	https://www.fastcompany.com/3060090/how-designing-for-the-disabled-is-giving-google-an-edge	Eve Andersson; Google Impact Challenge; Seeing AI; Voice Access; Google's Advanced Technology and Projects Group (or ATAP) has Project Tango	inclusive design	2016	"inclusive design means more than just hacking an app or product so that people with disabilities can use it. It's something that benefits literally everyone."
Bringing Wheelchair Design Into The Digital Age	https://www.fastcompany.com/3059932/this-designer-bringing-wheelchair-design-into-the-digital-age	Benjamin Hubert; GO Wheelchair by design agency Layer; Materialise, a 3-D printing and scanning company	mobility	2016	A wheelchair called the Go is custom-fit to its owner's unique proportions.
Urban Design Can Change The Lives Of People With Autism	https://www.fastcompany.com/3030109/urban-design-can-change-the-lives-of-people-with-autism	Landscape architecture student Elizabeth Decker creates urban design toolkit	Urban design, Landscape architecture,	2014	"A toolkit to help urban planners design more inclusive communities for adults with autism and other disorders."
The mouse of the future? Your eyeballs	https://www.fastcompany.com/90349741/the-mouse-of-the-future-your-eyeballs	Tablets: Tobii Dynavox EyeMobile+; ACM Computer-Human Interaction (CHI) conference; ReType; Gerald Weber, a computer science lecturer at the University of Auckland in New Zealand; Actigaze	inclusive design	2019	"Scholars presented three new methods for able-bodied people to take advantage of a user interface that has mostly stayed within the realm of assistive technology."
How Gillette designed a razor for men who can't shave themselves	https://www.fastcompany.com/90232951/how-gillette-designed-a-razor-for-men-who-cant-shave-themselves	Matt Hodgson, a principal design engineer at Gillette's product development facility		2018	Gillette's Treo "assistive shaving razor designed specifically to alleviate the challenges of shaving someone else."
How To Make Fashion More Accessible For Wheelchair Users And The Disabled	https://www.fastcompany.com/3051709/how-to-make-fashion-more-accessible-for-wheelchair-users-and-the-disabled	Fashion designer Lucy Jones; Advantage Blocks	Clothing	2015	Interview w/ Lucy Jones of Advantage Blocks, "*designing stylish clothing adapted to wheelchair-bound individuals*," "blocks I developed act as tools and inserts that could improve the fit of standard and traditional patterns for individuals" seated in wheelchairs

Ammunition Designs Slick Hearing Aids For People Who Don't Want Hearing Aids	https://www.fastcompany.com/90146645/ammunition-designs-slick-hearing-aids-for-people-who-dont-want-hearing-aids	EarGo, a tech startup; founder Raphael Michel; design consultancy Ammunition; Matt Rolandson, a partner at Ammunition	Hardware,	2017	Designing unseen hearing aids to overcome stigma.
How Google and Morse code are helping to make gaming more inclusive	https://www.fastcompany.com/90276135/how-google-and-morse-code-are-helping-to-make-gaming-more-inclusive	Adaptive Design Association—an organization that builds custom adaptations for children with disabilities; Gboard Morse keyboard; HSynth, where you play notes by typing them in Morse; Morse Striker where you shoot soccer balls at targets by typing their corresponding Morse letters; Alphabet's Got Talent	communication, gaming, empowering disabled designers	2018	Google partnered with the Adaptive Design Association (which "builds custom adaptations for children with disabilities") on a hackathon to design games around learning Morse code into fun. Morse code is easy for people "with varying degrees of physical ability to communicate."
Exclusive: Google's new plan to help designers make more accessible products	https://www.fastcompany.com/40574015/exclusive-googles-new-plan-to-help-designers-make-more-accessible-products	Google Primer app; Google Accessibility page and the Android Developers site for free accessibility tools	Web design, empowering designers	2018	"Google is launching a new resource center to help creators, marketers, and designers build more inclusive products and designs that address the needs of users with various kinds of disabilities."
Google Built An App That Critiques Other Apps	https://www.fastcompany.com/3058805/google-built-an-app-that-critiques-other-apps	Android app called the Accessibility Scanner	inclusive design,	2016	"Google has released an Android app called the Accessibility Scanner. With the touch of a button, it allows you to analyze any screen or app on your phone for accessibility and inclusivity–in other words, how well it will work for people with sight or fine motor control issues."
Student Develops An App That's Like Uber For Disabled People	https://www.fastcompany.com/3046413/student-develops-an-app-thats-like-uber-for-disabled-people	Access-A-Ride; SVA grad Meghan Lazier's MFA thesis project in the Design for Social Innovation department, she created an app, Alert-A-Ride	mobility, web/app design	2015	For a thesis project a student created an app prototype called Alert-A-Ride "that acts as a kind of Uber for accessible rides."
To Click This Assistive Mouse, Just Bite	https://www.fastcompany.com/3059471/to-click-this-assistive-mouse-just-bite	Mehmet Nemo Turker, a Turkish electronics designer based in Shenzhen; Caner Cem Marti, was paralyzed from the neck; GlassOuse	Hardware, accessible tech,	2016	A designer created a "head-controlled assistive device that was as affordable as a regular computer mouse, and just as easy for the disabled to use."

This Prosthetic Arm Doubles As A Lego Set, So Kids Can Express Their Creative Side	https://www.fastcompany.com/3048744/this-prosthetic-arm-doubles-as-a-lego-set-so-kids-can-express-their-creative-side	Carlos Torres designed IKO Creative Prosthetic System; Future Lab, Lego's famous R&D center; CIREC, which has long provided prostheses to land mine victims	prosthetics	2015	"With their Lego robot arm, now disabled kids will be the envy of the classroom."
Microsoft announces $25M initiative to create apps that help the disabled	https://www.fastcompany.com/40568730/microsoft-announces-25m-initiative-to-create-apps-that-help-the-disabled	AI for Accessibility Initiative; Seeing AI app, as well as Microsoft Translator	web design,	2018	"Microsoft wants to work with developers to create apps that leverage artificial intelligence to help disabled people."
This Glove Translates Sign Language Into Speech	https://www.fastcompany.com/90133915/this-glove-translates-sign-language-into-speech	Designer and programmer Hadeel Ayoub founded a company called Revoice	communication,	2017	A designer crafted a a glove with "off-the-shelf sensors that can translate a person's sign language gestures into text and speech in real time without relying on any external devices."
How Apple Made The Watch Work For Wheelchair Users	https://www.fastcompany.com/3061283/how-apple-made-the-watch-work-for-wheelchair-users	Lakeshore Foundation and the Challenged Athletes Foundation; Jeff Underwood, president of the Lakewood Foundation	fitness trackers, hardware,	2016	Interview with Apple's Ron Huang, director of software engineering for location and motion technologies.
These Wild Eyeglasses Celebrate Super-Thick Lenses	https://www.fastcompany.com/90135028/these-crazy-eyeglasses-celebrate-super-thick-lenses	Tamar Canfi	vision, glasses,	2017	A student design rethinks thick eye glasses to decrease the self conciousness of strong prescription lense weaers. The designer was inspired by her own thick glasses.
Pinterest Just Redesigned Its App For Blind People	https://www.fastcompany.com/90169317/pinterest-just-redesigned-its-app-for-blind-people	Long Cheng, lead designer Pinterest	vision, web design, app, inclusive design,	2018	"...Pinterest has committed to practicing inclusive design, and making its product more accessible to everyone. With a team of a dozen designers and engineers, Cheng developed a multi-part approach to redesigning Pinterest as a product that could be more accessible to everyone, leading to a fully redesigned app and desktop experience that's been slowly rolling out for months."

Our Infrastructure Fails Seniors Who Don't Drive, And That's A Problem For Everyone	https://www.fastcompany.com/3058785/our-infrastructure-fails-seniors-who-dont-drive-and-thats-a-problem-for-everyone	Sandra Rosenbloom of the Urban Institute; Liveable Cities is working on something called "Lifetime Community Districts," which will turn suburbs into something like the small-town neighborhoods of old	mobility, urban design, built environment	2016	"What will happen when so many people are left without a practical way to get around?"
This crowdsourced map helps people find the kind of bathroom they need	https://www.fastcompany.com/90246209/this-crowdsourced-map-helps-people-find-the-kind-of-bathroom-they-need	MoDE's Restroom Map developed by Christina Ingoglia & David Nykodym; Missouri Disability Empowerment (MoDE); Esri's Crowdsource Reporter, a mapping platform hosted on ArcGIS	web design, travel,	2018	Couple with a child with Mowat-Wilson Syndrome designed " MoDE's Restroom Map, a web-based app that that allows people to plot the addresses of gender-neutral or single occupancy public restrooms on a map so that others can plan trips around them"
The $1 Billion Company That's Building Wearable AI For Blind People	https://www.fastcompany.com/90170447/the-1-billion-company-thats-building-wearable-ai-for-blind-people	OrCam MyEye; founded in 2010 by computer scientist Amnon Shashua and entrepreneur Ziv Aviram	vision, glasses, hardware,	2018	"The wearable, called the OrCam MyEye, attached to his eyeglasses, and when he used his finger to point to a piece of printed text–a sign, the page of a book, a newspaper, a restaurant menu–it would use deep learning to parse the language and read it aloud to him via a tiny speaker."
Why you should buy your grandparents a 3D printer	https://www.fastcompany.com/90283611/why-you-should-buy-your-grandparents-a-3d-printer	Appropedia and MyMiniFactory; Makers Making Change	Hardware, 3d printing, design.build your self	2018	"3D printers can save arthritis patients money by more cheaply manufacturing plastic gadgets that help them do routine tasks like open jars and put on socks."
This lovely observation tower is everything NYC's Vessel isn't	https://www.fastcompany.com/90340128/this-lovely-observation-tower-is-everything-nycs-vessel-isnt	NYC landmark the Vessel; Danish architectural studio Effekt builds observation tower in nature with gentle slope	architecture	2019	"This is architecture at its best: thoughtful of both the people using it and the environment surrounding it."
Microsoft Releases An App That Helps Correct Colorblindness	https://www.fastcompany.com/3065705/microsoft-releases-an-app-that-helps-correct-colorblindness	software engineers Tom Overton and Tingting Zhu came up with Color Binoculars, an iPhone app released by Microsoft Garage; Cortana, Skype Translator, and the learning tools for OneNote		2016	"...Pinterest has committed to practicing inclusive design, and making its product more accessible to everyone. With a team of a dozen designers and engineers, Cheng developed a multi-part approach to redesigning Pinterest.

Adaptive Design Association	https://www.adaptivedesign.org	We partner with local organizations, such as the New York Department of Education		N/A	"We create low-cost or no-cost custom adaptations for people with disabilities in a landscape of expensive and non-custom commercial products. We make this happen using accessible cardboard building techniques in our workshop space and with the help of donors and volunteers."
The MIT Lab That's Quietly Pioneering Fashion For Everyone	https://www.fastcompany.com/3062726/the-mit-lab-thats-quietly-pioneering-fashion-for-everyone	MIT's International Design Center; New England Center for Children in Southborough, Massachusetts; Open Style Lab; Chrissy Glover, a fashion and fibers student at the Savannah College of Art and Design; Grace Jun, the education director for the Open Style Lab; Betabrand		2016	"Open Style Lab wants the fashion industry to think about more bodies, more ages, and more abilities."
Blind Architect Archives from Lighthouse for the Blind	https://lighthouse-sf.org/tag/blind-architect/	Chris Downey; Arup group	architecture	2019	"The cement floor is intentionally bare so that the sound of footsteps falling and canes tapping informs you that the space is full of life. If your hand were to graze against the furniture in the lobby, the material would be soft to the touch, as would the smooth wooden handrail to guide you up and down the staircase."