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Disability, AI, and Genome Editing: Rethinking the Paradoxes of Inclusion

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ABSTRACT

As science and technology progress rapidly, humanity now faces unprecedented opportunities to achieve desired goals, which in turn raise important ethical questions for careful reflection. Two transformative revolutions, artificial intelligence (AI) and genome editing (CRISPR-Cas9)1, offer promising implications for individuals with disabilities. AI enables the substitution of human activities with intelligent systems, while CRISPR-Cas9 provides promising possibilities for precise gene editing to address genetic differences. Although these technologies offer life-changing solutions for differently-abled individuals, they also present dilemmas and paradoxes.

The tension between contextual bioethics and universal ethical principles further complicates the discourse. This paper has two interconnected concerns. Firstly, it examines these paradoxes, exploring their epistemological and ontological dimensions, and investigates the ethical implications of technology within the context of bio-citizenship. Secondly, it aims to outline the contours of a modern bioethical theory that considers these polarities and addresses their contradictions within a dynamic dialectical framework.

Keywords: *Bioethics, Disability, Artificial Intelligence, Universal Ethics. .*

Introduction

The quest for knowledge has always driven humanity to explore deeper and deeper into the hidden layers of nature, but recent technological breakthroughs unmistakably mark a definitive turning point. The unprecedented rise of Artificial Intelligence (AI) and the precision of CRISPR-Cas9 gene editing have exponentially expanded the possibilities in almost all existing fields of technological advancement. On the philosophical and ethical front, this immensity of possibilities has led to the revival of an ancient but existential question: what is truly worth doing? This question challenges our existing ethical frameworks and calls for a redefinition of our relationship with technology. Any effort in this direction, at the same time, exposes our own finitude. This has pushed humanity into an existentially fragile zone where the inquiry into meaning, value, and existence becomes unavoidable. At this juncture, technological advancement is not merely instrumental; rather, it calls upon us to confront the very essence of the human condition while amplifying the promise of transformation on the one hand and the threat of self-annihilation on the other.

Artificial Intelligence, as an ambitious project to replicate and outperform human cognition, and CRISPR-Cas9, with its precise ability to rewrite/edit genetic code, are the defining elements of this new technological era (Doudna & Charpentier, 2014). These revolutionary technologies are not defined by the level of advancement of tools placed at the disposal of the human being; rather, they are developments that challenge our understanding of the human condition, our ethical approach, and the relation between the human being and technology. This has ramifications for every human segment whose experiences have survived on the margins, for example, those who are clubbed together as differently abled. Disability ethicists have long imagined and called for technologies that provide predictive and assistive mechanisms, enabling individuals to navigate a rigid world and participate in shaping one that affirms differences.

Contrary to this idea, gene editing seeks to modify the present and also redirect the future course of biological development. While such interventions may empower individuals, they also carry the risk of reinforcing norms that frame Disability as a shortcoming. Artificial Intelligence brings into high relief the uneven distribution of technological benefits and the danger of amplifying existing biases in the training data generated by a world already biased. A sharper paradox becomes evident here: the core bioethical principles of beneficence, justice, and respect for human dignity require that every individual be treated as inherently valuable (Beauchamp & Childress, 2019; UNESCO, 2005). Yet, the very effort to universalise access to emerging technologies often operates through standardised global frameworks. As a result, inclusion may come at the cost of conformity, where individuals are subtly shaped to fit dominant norms—thereby undermining the diversity that inclusive ethics is meant to protect. This contradiction underscores a philosophical dilemma that has continued to attract philosophers' attention over the centuries: contextualised particularity vs universalised principles. In our case, this translates into a dilemma between contextualised bioethics, sensitive to the particularities of human experience, and the disposition to guard universal ethical principles. Embracing Disability as a facet of human diversity calls for building an inclusive world, rich in and accommodating of various types of differences. However, compromising universal standards of justice, dignity, beneficence, transparency, and integrity in the name of contextual accommodation risks fraying the moral fabric that binds us. The question arises: Is the call to reshape the world for disabled people at odds with the possibility of 'editing' or reshaping people with disabilities according to the world?

The present paper seeks to highlight this paradox. Also, it attempts to probe the structure of the problem to determine whether the conflicts stem solely from differences in understanding ethical frameworks or have their roots in the ontology of the being itself. As we stand at a juncture where citizenship is being viewed as bio-citizenship2, with the convergence of biology, technology, and identity redefining what it means to be human, we cannot overlook the contours of contemporary bioethics that navigates the possibilities and problematics of our technological creations. In this fragile balance, we as philosophers cannot simply laud the efforts of the scientific community. We must actively become the custodians of humanity in this new world and engage with science and technology from the standpoints of ethics and philosophy. To move forward, humanity needs to pause a hasty exploration of what more can be done with emerging technologies. Philosophers must once again raise the existential question of who we are and re-adjust the ethical goals by asking what we ought to become. This is important to ensure that every technological leap is accompanied by a leap of faith in human beings' capacity to exercise power with wisdom. We must shape a world that honours both the universals and the particulars, and accept the challenges posed by paradoxes of our existence as the driving forces of an ethical and inclusive world. In this effort, bioethics becomes a way of being by nurturing a constant dialogue between what is possible and what is good.

The Technological Revolutions: AI and CRISPR-Cas9

1. Artificial Intelligence and Disability

AI has revolutionised assistive technologies, which have significant potential to enhance the quality of life for people with disabilities. Machine learning algorithms have enabled soft tools such as speech-to-text systems and predictive and generative models, as well as landmark advancements in prosthetics that now adapt to users' movements (Smith et al., 2020). Automated wheelchairs equipped with obstacle detection systems have contributed to safer mobility, and smart home systems enable greater autonomy for people with limited mobility (Brown et al., 2021). Predictive analytics can now anticipate health crises, such as seizures, allowing for timely interventions (Johnson et al., 2019). These advancements, so far, largely align with the principles of beneficence and autonomy, empowering disabled individuals to navigate their environments more effectively.

However, AI also comes with its own ethical challenges. Predictive algorithms are known to perpetuate biases, prioritising such normative outcomes (Whittaker et al., 2019), which may marginalise experiences and values important to disabled individuals. AI systems designed for workplace efficiency may view any process aimed at accommodating non-standard abilities as an added expenditure, thereby reinforcing ableist norms. The automation of care tasks, such as AI-driven care-giving robots, involves risks of depersonalising support, which may undermine the dignity of the intended beneficiaries. An observation on care-giving is apt to quote here: "Providers of care, in contrast, have to co-exist with the individuals they care for." (Kittay, 2011, p. 50).

The depersonalisation of the caregiver may lead to the dehumanisation of the act of care-giving, in contrast to the above-noted idea of coexistence between the caregiver and the one being cared for. Nonetheless, the development of AI technologies in this area prioritises commercial interests over other values, such as inclusivity, raising questions about whether these tools genuinely serve disabled communities or merely help them fit into existing societal structures. Moreover, the whole premise of productivity, speed and volume of work execution, if established as prioritised values of human society, instead of mere qualities of machines, is bound to contradict any endorsement of differences in abilities and replace them with the binaries of able and disabled.

2. CRISPR-Cas9 and Genetic Interventions

CRISPR-Cas9, a groundbreaking gene-editing technology, enables precise DNA modifications, offering the potential to eliminate genetic conditions such as cystic fibrosis, muscular dystrophy, and Down syndrome (Zhang et al., 2018). These are further classified into two types. Somatic gene editing targets specific cells to treat existing conditions, while germ-line editing prevents the inheritance of genetic impairments, promising transformative outcomes for future generations. For many types of disabilities, CRISPR can alleviate suffering and enhance quality of life, which undoubtedly aligns with the beneficence principle. The simplicity of CRISPR-Cas9 programming, together with its ability to target multiple sites and the diversity of CRISPR-Cas systems, has enabled efficient and precise genome engineering across a wide range of cells and organisms" (Doudna & Charpentier, 2014).

However, CRISPR raises serious ethical concerns. The social model of Disability, which views Disability as a societal construct rather than an inherent flaw, critiques gene editing for perpetuating the notion that disabilities must be «fixed" (Oliver, 1990). Critics argue that CRISPR risks reviving eugenic ideologies, prioritising «normalcy" over human diversity (Garland-Thomson, 2017). For example, editing out genetic conditions may diminish the cultural and social significance of disability communities, challenging their identity and visibility. How will a society of the future, which boasts of being a society freed of, say, Down syndrome, look at one of the past, which was not-so-fortunate? How will the historical worth of the individuals who once lived as 'the people with the syndrome' be looked at in the history of those future societies?

Practices of genome editing and genetic selection can be critically understood through what Rosemarie Garland-Thomson describes as "velvet eugenics."[3] Unlike earlier state-driven eugenics, this contemporary form operates through market mechanisms and individual choice, often appearing reasonable and even desirable. However, this apparent neutrality conceals deeper ethical concerns. Framed in terms of patient autonomy and voluntary consent, such interventions may obscure structural inequalities and social pressures that influence reproductive decisions. In this way, the language of choice can mask a subtle but powerful normativity that privileges certain forms of life over others. Consequently, market-oriented genetic practices risk perpetuating a eugenic logic by encouraging the reduction or elimination of perceived undesirable traits, particularly disability. Rather than fostering genuine inclusion, these developments may reinforce exclusionary ideals, raising serious philosophical questions about diversity, dignity, and the ethical limits of technological intervention in human life (Garland-Thomson, 2005).

From a humanities perspective, this raises a profound question: if individuals choose to eliminate certain traits—such as disability—are these truly independent decisions, or are they expressions of a socially conditioned imagination of the "good life"? Lennard J. Davis similarly argues that the idea of the "normal" body is a historical construct, sustained through language, institutions, and cultural representation (Davis, 2013). Velvet eugenics thus reveals a paradox at the heart of modern ethics: the more we emphasise individual freedom, the more we risk reproducing collective norms that quietly exclude difference.

Philosophically, this challenges the adequacy of liberal bioethics, particularly its reliance on autonomy as a sufficient moral principle. It calls instead for a relational and critical ethics—one that recognises how choices are embedded within power structures and that affirms human diversity as an intrinsic value, not a deviation to be corrected.

3. Bio-Citizenship and Disability

The concept of bio-citizenship, in which biomedical interventions shape identities and forms of belonging (Rose, 2007), is increasingly relevant in the era of AI and CRISPR. Differently abled individuals are positioned as bio-citizens who negotiate an environment in which their bodies and identities are subjects of technological modification (Scully, 2010).

Bio-citizenship raises ethical concerns about agency and identity vis-à-vis their rights as citizens. Differently-abled persons may face pressures to adopt technologies to conform to socially dominant norms. This undermines their autonomy (Parens, 1998). Persons with a genetic condition may feel social compulsion to go for therapies that claim or promise the removal of conditions, even if they do recognise their Disability as part of their identity and may have known only the world of their experience while living with it ever since. Moreover, the commodification of health through technologies broadens inequalities, as access to them is often determined by wealth (Baylis, 2020). By framing Disability as a condition to be managed through technology, bio-citizenship may tend to reinforce the medical model, which prioritises individual «fixes" over systemic change (Scully, 2010). This shift may marginalise disability communities, as their identities become defined by their relationship to technology rather than by their lived experiences. Individual autonomy exhibits a paradoxical meaning. On the one hand, the individual is forced to compromise under the social pressure to conform to norms. On the other hand, autonomy is commodified through technology, the access to which for individuals is mediated by their purchasing power.

The Paradox of Inclusion versus Intervention: Reframing Disability Through Bioethics

The ethical landscape of Disability studies has been dominated by a constant debate between two competing visions of ethics and justice, as discussed above: the social model, which calls for the transformation of social structures to accommodate human difference, and another, termed the medical model, seeks to transform the individual to conform to socially constructed norms. The social model of Disability ethics posits that the actual site of Disability does not lie within the impaired body; it exists within the norms of an inaccessible and exclusionary world (Oliver, 1990; Scully, 2008). This position in the social model seeks to dismantle architectural, discursive, and attitudinal barriers and cultivate environments where difference is not just tolerated but welcomed as an integral part of the human condition.

In this context, the idea of Universal Design[4], critically examined and developed by thinkers like Hamraie (2017), becomes a project of ethical praxis. It resists the privatisation of disadvantage and insists on collective responsibility. A ramp alongside a staircase, a caption in braille, or a sensory-friendly space is not merely a technological accommodation for differently-abled persons; it is rather a philosophical declaration that all forms of embodiment deserve recognition, dignity, and inclusion.

However, the emergence of technologies such as artificial Intelligence and CRISPR gene editing presumes the logic of the medical model, and that too with unprecedented sophistication and allure. These tools promise to «enhance" bodily functions, «correct" genetic anomalies, and optimise human potential. Thus, an unscrutinised push to prescribe them as a general solution to Disability implicitly presumes that Disability is a problem within an individual and is to be solved by intervention rather than a variation inherent to human society (Parens, 1998). CRISPR offers the tantalising possibility of editing out genetic conditions before birth.

Not only is there a presumption about the location of Disability, but one can also discern a teleology attached to this model. Achieving an ideal body, which is self-sufficient, free of deviation, competitively productive in a monetised arena, is the normative goal, a purpose to be achieved by all beings, in this teleology. This, when translated into polity and policy, will seek cost-effective, affordable-to-all solutions as a goal. This may be problematised, for example, while AI-assisted navigation and mobilisation tools may benefit blind users, their deployment may tend to become a substitute for designing public spaces which could be by design, inherently navigable by all. The danger is that technological intervention will eclipse social transformation, replacing the politics of inclusion with the bureaucratic thrust for correction. This highlights an ethical dilemma. While assistive technologies, on the one hand, hold the possibility of empowering individuals, affording them greater autonomy and participation, on the other hand, the expectation to «overcome" Disability through technology reinforces the very norms that disability ethics seeks to contest. Also, these technological interventions shift the responsibility of coping from society to the differently abled individuals.

An Epistemological or an Ontological Problem?

To fully grasp the nature of this problem, we must ask whether it is epistemological, i.e., stemming from fundamentally different frameworks of understanding, or ontological, touching the basic question of what it means to be human. The epistemological divide is clear on the very surface of the aforementioned ethical debate. The social model interprets Disability as a socio-political construct, while the medical model locates it in the individual body and brain. These differing perspectives yield different ethical commitments. The social mode demands inclusion-oriented structural reforms, whereas the medical model seeks intervention to cure the person (Amundson, 2000).

However, it may involve a deeper philosophical question than a clash of frameworks, as discussed above. The issue at hand may involve an ontological problem, i.e., the very being of Disability. Disability, as argued by scholars such as Scully (2008) and Saxton (2013), is not merely a bodily condition; rather, it is an embodied form of life. It may be construed as a mode of being-in-the-world, in the Heideggerian sense, that has its own ways of knowing and meaning-making. The treatment of Disability solely as a pathology may erase the ontological experience it embodies. The cultural, affective, and epistemic contributions of disabled communities are integral to an inclusive human society.

This ontological position highlights a threat that is more strikingly visible in the context of gene editing. The technology, when deployed for germ-line interventions, does not merely treat the illness/Disability at hand; rather, it prevents the existence of any difference in the human beings yet to come. The hypothetical eradication of conditions like Down syndrome through prenatal gene editing does not simply reduce perceived suffering; it potentially eliminates a community, its experience, as well as possibly, at some time in future, its history. It is pertinent to note what Sufian and Garland-Thomson (2021) plead in this context: People like us shouldn't be edited out of existence in some version of a utopian future. This vision of a future without people like us limits our ability to live in the present."

One may critically analyse the hypotheses that by editing the parental gene, the baby born to them may not have a condition of Down Syndrome, by posing a counter-hypothetical question, how does one know if the baby to be born with Down syndrome, is precisely the same as the one who actually was born, but without that syndrome? Going by this token of logic, one may conjecture, at least in a thought experiment, that they have not 'edited' the baby pre-emptively, but instead replaced the baby with Down syndrome with another without it. The question, then, is not whether we can eliminate Disability, but whether we should attempt to do so. Also, what such an elimination implies about our conception of human life, human experience and variation, one may imagine this as a circumstance surrounding all the babies, who are born with Down syndrome, despite the technology, as being reduced to a shortcoming or an inability on the part of their parents to opt for the technology. The word 'horrible' may not come from science and technology; it can surely come from ethics and philosophy. Moreover, that is what predicates the situation of those babies.

Disability, Technology and Ethics

Thus, the interrogation of this paradox of inclusion versus intervention forces us to confront another philosophical question: from understanding who we are, we proceed to: What kind of humans do we wish to become through our technological powers? If we see Disability as a flaw that we edited out, it risks enacting a vision of humanity in which only certain kinds of bodies and minds are welcome. Thus, we end up endorsing a hierarchical, layered human society with inherent violence of the superior over the inferior. However, if we wish to embrace Disability as part of human diversity, our technologies must be reimagined accordingly.

What is needed, then, is critical bioethics which questions the idealisation of the «normal" bodies and the construction of a polar binary between autonomy and social interdependence. The future of disability bioethics may lie in re-articulating the technological project as a practice of solidarity, where tools shall be designed to amplify the multiplicity of human lives and their experiences and may not end up homogenising all into a lump of ideal bodies. In this sense, disability ethics should serve as the philosophical vanguard of bioethics rather than remain peripheral to it.

Contextual Bioethics versus Universal Ethical Principles

Contextual bioethics begins from the insight that moral life is always situated—shaped by culture, social relations, and lived experience. Ethical judgment, therefore, cannot be reduced to the mechanical application of abstract rules. In contrast, universal ethical principles, as articulated by Tom L. Beauchamp and James F. Childress, propose norms such as autonomy, beneficence, nonmaleficence, and justice as part of a shared "common morality" (Beauchamp & Childress, 2019; Childress & Beauchamp, 2022). However, contemporary scholarship cautions that such universalism may overlook moral diversity and local ethical sensibilities (Appiah et al., 2024). Contextual bioethics does not reject universality but re-situates it within concrete human conditions. A philosophically robust approach, therefore, lies in a reflective balance, where universal norms are critically interpreted through context, enabling a more inclusive and dialogical bioethical practice.

The Contextual Approach: Situated Ethics in Disability Bioethics

The contextual approach to bioethics emphasises the moral element of locality, cultural specificity, and lived experience in processes of ethical deliberation (Turner, 2003). It argues that ethical judgments must take into consideration the context of place, history, and identity. In the domain of disability ethics, this nuance is vital. Experience of living with Disability changes over social structures (that among so-called upper or lower castes), political systems (racial supremacist or democratic regimes), familial ties (nuclear or joint families), religious beliefs and practices (Site of Disabled as good or bad omens), as well as economic realities (rich vs poor). A prosthetic limb may symbolise empowerment in one context, while the same limb may be seen as a social stigma in another. Assistive AI may turn out to be liberating in urban centres, whereas it may be irrelevant or even alienating in rural areas with limited technological literacy or infrastructural support (Ingstad & Whyte, 2007).

The situated ethical sensibility allows for the cultivation of practices that make room for community-based forms of care, indigenous healing practices, and alternative epistemologies of embodiment and dependency. The contextual approach thus champions a pluralistic vision of bioethics which honours diversity as a resource for moral imagination.

This pluralism does not come without its downside, by emphasising the primacy of local norms, contextual bioethics risks strengthening oppressive traditions or legitimating ethically problematic practices. Cultural interpretations of Disability may be rooted in stigma, exclusion, or theological fatalism. In such contexts, the normalisation of selective abortion based on prenatal disability diagnoses reflects an implicit endorsement of eugenic reasoning and cannot be considered to be an ethically neutral accommodation of cultural belief (Saxton, 2013). Similarly, a purely context-sensitive approach may lead to unequal access to transformative technologies like CRISPR or AI. This becomes still more alarming when global market forces intersect with local resource disparities (Baylis, 2020). In its well-intentioned effort to honour cultural difference, contextualism may inadvertently compromise the moral imperatives of dignity, justice, and human rights.

Universal Ethical Principles: Moral Foundations in a Fragmented World

Universalist bioethics is founded on the idea that there exist fundamental ethical principles that transcend geographical, cultural, and temporal boundaries. The four principles articulated by Beauchamp and Childress—autonomy, beneficence, non-maleficence, and justice—are widely regarded as a foundational framework for ethical analysis (Beauchamp & Childress, 2001). In the discourse on Disability, ethicists presume and assert that individuals are autonomous agents who can make informed choices about technological interventions. When, for example, a person adopts AI-assisted communication or rejects, say, gene-editing technologies on subjective or cultural grounds, others must respect that decision and oppose any coercion or paternalism (Knoppers & Chadwick, 2017). The principle of justice further mandates that technologies be made accessible to all without any bias. Beneficence and non-maleficence require that any technological intervention genuinely improve well-being and avoid any harm, i.e., physical, psychological, social, or existential. These principles collectively assert the equitable status of disabled individuals as members of the ethical community, irrespective of any context.

Universalism also has its limitations. If applied rigidly, it can obscure the conditions of vulnerability, which may, in turn, lead to their persistence and progression. A universal principle may appear to be just when seen in abstraction. However, the outcome may be found unjust when applied without regard for socio-cultural specificities. For example, insisting on the universal provisioning of AI technologies, without considering local infrastructure or cultural conceptions of care, the imposition of technocratic logic may lead to the isolation or marginalisation of individuals.

Exploring the Dialectics: Toward an Ethics of Situated Universality

The philosophical challenge lies in reconciling the polarity between universality and contextuality without collapsing into either moral relativism or rigid normativity. What is needed is a dialectical ethics that holds both poles together in a productive struggle. Such an ethics may be described as a situated universality that applies general principles through the interpretive lens of context, and one that remains critically vigilant about how “context” can itself be a site of power or exclusion.

Disability bioethics, situated within this framework, must not restrict itself to asking what is just or beneficent, but also raise questions about for whom, in what context, and at what cost? It must recognise that technologies like AI and CRISPR-Cas9 are value-laden tools and artefacts that carry embedded assumptions about normality and functionality. Therefore, ethical deliberations must include the experiences and first-person accounts of those whose lives are directly affected by these assumptions. These persons should not be treated merely as subjects of expert intervention but rather considered co-authors of the ethical world, shaped by the inclusion or restriction of their use.

So, the task of such bioethics is not to choose between the two poles of universality and context; instead, it is to develop the philosophical understanding and the practical ramifications of the dialectic between them. It requires a commitment to justice as a global ideal as well as a local praxis.

Outlines of a Contemporary Bioethical Theory

The ethical dilemmas posed by emerging biotechnologies such as AI and CRISPR necessitate a bioethical theory that can encapsulate the dialectics of universal moral commitments and context-sensitive realities. In this light, a renewed philosophical engagement should not merely mediate between individual rights and technological progress but reconceptualise the lens of relationality, vulnerability, justice, and solidarity.

Drawing on Callahan's (1999) critique of autonomy-focused bioethics, the notion of relational bioethics has been widely discussed in contemporary Bioethics. Such a theory begins with the premise that human beings are not isolated moral agents but situated, interdependent selves embedded within a network of social, biological, and technological ecologies. Disability, within this framework, is not an erring state to be corrected, but a relational phenomenon constituted by the dynamic interaction between the embodied self and the environment. This ontological reorientation of Disability as a mode of being-in-the-world challenges the liberal individualist paradigm on the one hand and the technology evangelists' utter disregard for value on the other, replacing it with a vision that places calibrated emphasis upon ethically relevant elements such as belongingness, autonomy, co-determination, choice, diversity and normalisation. Such a bioethical theory, therefore, must be anchored in the following philosophical commitments:

Principles of a Relational Bioethical Framework

Inclusive Design as Ethical Praxis:

Technological development must be an act of co-creation, where disability communities are constitutive participants in the design process. Drawing from Hamraie's (2017) epistemology of access, inclusive design must disrupt dominant norms of functionality and productivity by making space for diverse embodiments and diverse lived experiences.

Equitable Access as Distributive Justice:

Justice demands an equal distribution of the fruits of biotechnological advancement (Baylis, 2020). Equity, here, goes beyond the quantitative fairness and considers historical injustices, structural disadvantages and ethical commitments. Access to AI or CRISPR must be governed by an ethical framework to redress inequalities, ensuring that no innovation excludes or harms any section of society.

Autonomy and Agency as Situated Capacities:

We must reimagine autonomy/agency as a dialectical whole of contextually situated freedom of action. In this context, agency involves the ability to meaningfully participate in decisions about one's body and future, free from paternalistic coercion or techno-determinism mediated by informed consent. The process of transparent, dialogical informed consent should become indispensable, as should the respect for the dignity of choice in an embedded social context (Scully, 2008).

Transparency and Accountability as Epistemic Ethics:

Usage of AI and CRISPR must come with epistemic responsibilities. As Knoppers and Chadwick (2017) argue, the legitimacy of the use of biotechnological authority depends on developers' and researchers' capacity to acknowledge and communicate risks, uncertainties, and limits. Ethical checks should require institutions involved to cultivate reflexivity and constantly flag algorithmic opacity. There must exist formal mechanisms which ensure publicly accessible ethical scrutiny on these parameters.

Preservation of Human Diversity as a Moral Imperative:

At its core, this framework asserts the inherent value of diversity in human conditions. Disability variations should be considered a constitutive feature of the human condition, offering alternative modes of being, knowing, and relating (Garland-Thomson, 2017). Ethical bio-innovation must resist the temptation of ‹curative› erasure and instead aim to expand the likelihood of physical and societal conditions under which different bodies and minds may flourish.

Conclusion

In conclusion, this study has argued that technologies such as Artificial Intelligence and CRISPR-Cas9 are not merely tools that extend human capability; they quietly redefine what it means to be human. At this critical moment, the humanities—and disability ethics in particular—offer an indispensable space for reflection, not by opposing technology, but by questioning the values that guide its use. Our discussion has shown that disability is not simply a medical condition to be eliminated, but a meaningful expression of human diversity that expands our understanding of embodiment, interdependence, and justice. To treat it otherwise is to narrow the horizon of what counts as a life worth living. The central philosophical tension between universal principles and contextual realities, therefore, cannot be resolved by choosing one over the other. Rather, this study affirms that ethics must remain attentive to both—holding them in a dynamic relation that resists simplification while remaining responsive to lived experience.

At the same time, the emergence of bio-citizenship brings this tension into sharper focus, as individuals increasingly come to understand themselves through biological and technological categories. For persons with disabilities, this presents a deeply ambivalent condition: the promise of greater agency and participation coexists with the subtle pressure to conform to normative ideals of ability and perfection. What appears as freedom may, in fact, conceal new forms of exclusion. Our analysis suggests that the real ethical task is not simply to expand access, but to safeguard difference—to ensure that inclusion does not become a quiet demand for sameness. This calls for a reimagined bioethics, grounded in inclusive design, social responsibility, and a commitment to human plurality. Such an ethics must recognise persons with disabilities not as problems to be solved, but as co-creators of meaning, whose experiences reshape our collective understanding of dignity, belonging, and the future we seek to build together.

End Notes

1 CRISPR-Cas9, as a powerful genome-editing technology, enables precise and efficient modification of genetic material, thereby reshaping debates on human agency, responsibility, and the ethics of intervention in life processes. It problematises the distinction between therapy and enhancement while raising concerns about justice, access, and democratic governance. As scholars argue, ethical reflection on CRISPR must extend beyond technical regulation to include inclusive public deliberation (Doudna & Charpentier, 2014; Jasanoff et al., 2015).

2 For a deeper understanding of ‘bio-citizenship’, Nikolas Rose (2007) explains how advances in biomedicine reshape individual identity, responsibility, and social belonging, especially through genetic knowledge and health practices. In the context of AI and CRISPR, this idea becomes more significant as biological traits are increasingly monitored, modified, and governed. Scholars such as Jasanoff (2016) further argue that biotechnology transforms not only bodies but also civic life and public participation. Together, these works show that bio-citizenship is not merely a medical concept but a philosophical and political framework, raising questions about autonomy, rights, and ethical governance in technologically mediated societies.

3 The notion of “velvet eugenics,” articulated by Rosemarie Garland-Thomson, invites a deeper philosophical reflection on how power operates not through coercion but through desire, norms, and the subtle shaping of choice. Unlike classical eugenics, which functioned through explicit state control, velvet eugenics emerges within liberal societies that celebrate autonomy. Yet, as this concept reveals, autonomy itself is never neutral; it is already structured by cultural ideals of normalcy, health, and perfection. In this sense, what appears as free choice may in fact be an internalisation of normative expectations. From a humanities perspective, this raises a profound question: if individuals choose to eliminate certain traits—such as disability—are these truly independent decisions, or are they expressions of a socially conditioned imagination of the “good life”? Lennard J. Davis similarly argues that the idea of the “normal” body is a historical construct, sustained through language, institutions, and cultural representation (Davis, 2013). Velvet eugenics thus reveals a paradox at the heart of modern ethics: the more we emphasise individual freedom, the more we risk reproducing collective norms that quietly exclude difference. Philosophically, this challenges the adequacy of liberal bioethics, particularly its reliance on autonomy as a sufficient moral principle. It calls instead for a relational and critical ethics—one that recognises how choices are embedded within power structures and that affirms human diversity as an intrinsic value, not a deviation to be corrected.

4 The concept of Universal Design, as critically developed by Aimi Hamraie, extends beyond technical accessibility to a philosophical commitment to justice and relational ethics. It challenges the assumption that disability is an individual deficit, instead framing it as a product of social and material arrangements. In this sense, Universal Design becomes an ethical praxis that reimagines environments as shared spaces of inclusion, foregrounding interdependence over autonomy. It resists neoliberal tendencies to privatise disadvantage and instead affirms collective responsibility for enabling diverse forms of embodiment and participation (Hamraie, 2017).

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