

Research Article

Artificial Intelligence (AI) as a Window to Inclusion and Independence for People with Disabilities

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Abstract: This study highlights the substantial role of artificial intelligence (AI) in improving the lives of persons with disabilities, in alignment with the rights articulated in the Convention on the Rights of Persons with Disabilities (CRPD) and the objectives of the Sustainable Development Goals (SDGs). AI has the potential to support key domains such as education, healthcare, mobility, employment, independent living, social inclusion, and equality, thereby reshaping how persons with disabilities interact with their surroundings. A wide range of corporations and large organisations have invested in developing AI-driven technologies designed specifically for individuals with impairments, with the aim of enhancing independence and daily functioning. As AI technologies continue to expand in use, it is essential to evaluate their societal implications, particularly for persons with disabilities, and to address the ethical challenges associated with their deployment. The study aims to demonstrate how AI can strengthen accessibility and self-determination for persons with disabilities by providing sustainable advantages that enhance quality of life, open previously inaccessible opportunities, remove structural barriers, and foster inclusive participation in society regardless of disability status. It further underscores the necessity of advancing AI systems, ensuring inclusive design, and maintaining compliance with human rights principles outlined in the CRPD. The findings indicate that AI has enabled the development of multiple assistive technologies that simplify daily activities for persons with disabilities, although these solutions remain imperfect, susceptible to inaccuracies, and in need of continuous refinement. Additionally, the study presents recommendations directed at governments, human rights practitioners, organisations representing persons with disabilities, civil society stakeholders, and private sector entities. These actors are encouraged to assess and mitigate the risks that AI may pose to the rights and standards established in the CRPD, while also supporting the SDGs, particularly the principle of equitable treatment. Organisations are advised to undertake further research, collaborate with disability communities and specialised groups, and engage directly with users with disabilities to ensure that technological innovations are effective, inclusive, and accessible.

Keywords: Artificial Intelligence, Persons with Disabilities, Social Inclusion, Ethics of Artificial Intelligence, Human Security, Sustainable Development.

1. Introduction

Disability is a universal phenomenon present across all societies and can affect any individual. A major contemporary challenge is addressing the needs of persons with disabilities and ensuring their full participation in social, economic, and personal life. Reports from the World Health Organization and other international bodies indicate that more than one billion people worldwide, including children, adolescents, adults, and older populations, experience some form of disability. Disabilities may be visual, physical, auditory, psychological, or cognitive, which can limit individuals' ability to communicate, interact, express emotions, or manage daily self-care activities.

AI is transforming the experiences of persons with disabilities by offering innovative pathways for autonomy and inclusion, expanding access to opportunities, and eliminating structural and social barriers that restrict participation in society [1]. AI enables progress through intelligent systems and algorithms that identify and address complex challenges faced by persons with disabilities. It also assists organisations and institutions in gaining deeper insights into the needs and expectations of these populations [2]. By analysing large-scale data, AI can detect existing obstacles and propose corrective strategies. Moreover, AI-based tools can enhance efficiency, deliver personalised interventions, and increase

accessibility across multiple sectors. The integration of AI into inclusive initiatives can also raise societal awareness regarding the challenges encountered by persons with disabilities. The research problem focuses on the extensive benefits that AI offers to persons with disabilities by supporting social integration, promoting independence, and enabling full engagement in education, employment, healthcare, and everyday activities. Nevertheless, these benefits require critical examination to understand the capabilities of AI technologies and the rationale for their further development. It is also essential to assess the potential risks posed to human rights under the CRPD and to formulate mitigation strategies to ensure that AI applications contribute positively to societal objectives.

Accordingly, the study addresses the following research questions: Do AI developments primarily serve the general population while insufficiently addressing the needs of persons with disabilities? What benefits does AI provide to persons with disabilities? Can AI support independence and full societal participation? What challenges may emerge from AI deployment? To what extent do AI approaches comply with the human rights principles established in the CRPD? The importance of this research arises from the widespread adoption of AI across multiple sectors. Governments seek to utilise AI to enhance the physical, psychological, personal, and professional development of persons with disabilities. However, these outcomes can only be achieved by addressing associated

risks, including privacy violations, data protection concerns, discrimination, and the rights of persons with disabilities recognised in international frameworks. As a result, organisations and enterprises have prioritised identifying ethical concerns to design AI systems that are fair, secure, and responsible, thereby supporting inclusive development [3; 4; 5].

This study adopts a descriptive, analytical, and deductive research approach to examine AI applications for persons with disabilities, evaluate the extent of their effectiveness, identify existing challenges, and propose solutions. The first section examines AI technologies and their adaptability to the needs of persons with disabilities. The second section analyses the ethical and practical issues associated with the use of AI for persons with disabilities.

2. Literature Review and Theoretical Framework

Human Security Integration (Health): The application of AI in diagnosis, monitoring, and rehabilitation has implications for health security, including safe and timely access to treatment, and personal security, such as the risk of harm arising from incorrect system outputs or unsafe equipment, while also requiring compliance with the CRPD. Elevated costs and unequal access to AI-based healthcare services may undermine employment security, and opaque decision-support systems may restrict individual autonomy and informed decision-making, thereby constraining civic participation.

The concept of “persons with disabilities” remains dynamic and subject to debate regarding its scope and appropriate usage. This debate has extended to the international level in efforts to establish a unified legal definition. Although the term “persons with special needs” is often used interchangeably with “disabled” or “handicapped,” international legal and policy frameworks predominantly adopt the term “persons with disabilities.” The CRPD, which entered into force in 2008, constitutes a legally binding instrument for the 153 signatory states and carries moral and political obligations for the international community [6]. Within this framework, persons with disabilities are understood as individuals with long-term physical, mental, intellectual, or sensory impairments that, in interaction with barriers, may hinder full and effective participation in society on an equal basis with others. Some scholars extend this definition to include any condition that limits an individual’s ability to perform social roles, even in the absence of visible physical impairment. This broader perspective encompasses legally recognised physical or mental impairments, as well as conditions such as social withdrawal and introversion that impede integration into the community, despite intact physical functioning [7; 8].

The World Health Organization has emphasised the role of environmental determinants in shaping disability and has promoted a social model rather than a purely medical model for understanding disability [9]. In the context of this research, disability is viewed as the outcome of interacting health-related, genetic, cultural, and social factors that vary across societies and historical periods. These factors hinder social integration and include multiple categories of impairment. Mental impairment covers a spectrum of intellectual and psychiatric conditions ranging from mild to severe. Sensory impairment refers to dysfunction in hearing, speech, or vision. Psychological disability involves mental or neurological conditions that significantly affect an individual’s cognitive or behavioural functioning, limiting occupational performance and social adaptation. Physical or motor impairments include paralysis, mobility limitations, and limb loss. Given this diversity, policymakers and technology developers must understand the specific needs of individuals to design appropriate innovations and provide tools that support independent living and social integration.

Social inclusion of persons with disabilities entails ensuring equal and full participation in all areas of community life by eliminating physical, social, cultural, and economic barriers. It represents a fundamental principle for safeguarding human rights, ensuring equality, supporting independent living, enabling active participation, fostering a sense of belonging, and facilitating the realisation of individual potential. Disability empowerment refers to a set of interventions and services aimed at strengthening the capacities of persons with disabilities, enhancing autonomy, and increasing societal participation. Empowerment extends beyond

assistance, focusing on enabling individuals to exercise control over their lives, make independent decisions, and engage in society on an equal basis with others [9; 10; 11; 12]. AI refers to the capacity of digital systems to perform tasks traditionally associated with human intelligence. This includes mechanical and electronic systems and applications that utilise speech recognition, expert systems, natural language processing, multilingual processing, and robotics to emulate human learning and decision-making processes [13]. AI ethics encompasses a framework of moral principles, practices, and governance mechanisms designed to guide responsible behaviour in the development and deployment of AI technologies [14].

In low- and middle-income contexts, AI-driven inclusion is shaped by factors such as financial constraints, connectivity limitations, linguistic diversity, and the quality of public infrastructure. Smartphone-based speech-to-text tools, visual assistance applications, low-bandwidth tele-rehabilitation services, and community-led accessibility initiatives can expand reach and inclusion. However, disparities in digital literacy and weak procurement safeguards may exacerbate exclusion. Governance measures, including accessibility-by-default standards, public financing or subsidies, and participatory oversight mechanisms, are proposed to address these contextual challenges.

3. Methodology

Clarification of Article Type: This study adopts a policy-focused conceptual review approach using qualitative documentary analysis. Instead of conducting a systematic review with meta-analytic techniques, it synthesises insights from peer-reviewed academic studies and authoritative normative documents, including CRPD-related frameworks, to develop governance- and human-security-oriented conceptual arguments. Qualitative documentary analysis was applied to explore how AI-driven tools and systems influence inclusion and independent living among persons with disabilities. The analytical strategy is deductive, as the coding framework was predefined based on CRPD principles and a human-security framework. Evidence extracted from the reviewed materials was categorised to generate analytically grounded interpretations and policy recommendations.

The source selection followed a structured classification into three categories: (A) scholarly literature on AI, assistive technologies, and disability; (B) international legal and policy instruments and guidelines, including CRPD and documents from organisations such as the UN, WHO, UNESCO, and OECD; and (C) documented case studies describing AI applications in education, healthcare, employment, and mobility or independent living for persons with disabilities. Human security is conceptualised as the protection and enhancement of individuals’ capacity to live safely and with dignity. Accordingly, the study evaluates whether AI systems reduce or exacerbate vulnerabilities related to personal security (risk of harm or misuse), health security (availability and safety of care and assistive technologies), economic security (employment opportunities and affordability), community security (social inclusion and discrimination), and political or civic security (participation, representation, and voice). The deductive analysis proceeded through four sequential stages: first, the development of an a priori coding framework derived from CRPD rights provisions and human-security dimensions; second, the extraction of evidence from each selected source concerning AI applications, advantages, risks, and protective measures; third, the mapping of each evidence unit to corresponding CRPD benchmarks and security dimensions to enable cross-sectoral comparison; and fourth, the synthesis of recurring mechanisms through which AI supports inclusion and independence, alongside persistent risks through which AI may undermine rights, resulting in targeted recommendations for governments, private-sector actors, and civil society organisations.

This review is subject to several limitations. It relies on secondary documentary evidence rather than primary empirical data from persons with disabilities, the AI and disability literature exhibits heterogeneity in research designs and reporting practices that limits comparability, and there is potential for publication and language biases. Consequently, the conclusions are presented as analytically substantiated interpretations

based on reviewed sources rather than definitive causal assessments. Future research should employ participatory and field-based methodologies, including interviews, focus groups, and co-design approaches, to empirically validate and contextualise these findings.

4. Key Findings from Documentary Synthesis

AI has undergone substantial evolution since its emergence in the twentieth century, progressing from basic rule-based algorithms designed for narrowly defined tasks to advanced techniques such as artificial neural networks and deep learning. These advances have enabled AI systems to process complex datasets, learn adaptively, and achieve higher levels of predictive and analytical accuracy. Contemporary AI models are increasingly data-driven, relying on large-scale datasets to recognise patterns, generate inferences, and forecast outcomes [15; 16; 17; 18]. A wide range of AI applications has been developed to address the needs of persons with disabilities. These applications have the potential to transform daily living conditions and enhance individuals' capacity to interact effectively with their environments. AI-enabled solutions encompass diverse tools, including smart devices and assistive software, designed to overcome barriers encountered in everyday activities by individuals with various forms of disability [19]. When appropriately implemented, AI can support the realisation of rights articulated in the CRPD across multiple domains, delivering substantial advantages for persons with disabilities. The following sections examine the influence of AI across key areas affecting persons with disabilities and outline relevant application examples.

4.1 Education

AI serves as a powerful instrument in education by enhancing academic performance and expanding learning opportunities. For persons with disabilities, AI facilitates access to educational resources, supports communication and interaction, and reduces dependence on external assistance. Compared with traditional educational approaches that may inadequately address diverse impairments, AI-driven educational systems provide adaptive and individualised learning pathways aligned with learners' abilities and requirements. Consequently, AI contributes to educational equity, fosters inclusive learning environments, and supports the integration of persons with disabilities into mainstream classrooms. Article 24 of the CRPD explicitly recognises the right of persons with disabilities to education. AI-based educational innovations include intelligent tutoring systems and self-assessment platforms that promote comprehension and engagement. Customisable educational software that adapts to individual learning preferences further enhances participation and communication. These developments demonstrate the importance of investing in AI technologies to ensure equitable access to knowledge regardless of physical, cognitive, or psychological limitations. Evidence from European Union reports indicates that AI-enabled applications designed for individuals with visual impairments are the most widely used assistive technologies for digital accessibility, exceeding those developed for other categories of disability [20].

Individuals experiencing difficulties with writing can benefit from speech recognition systems. AI-based tools can modify font size, contrast, and provide audio renditions of written content to improve readability for individuals with reading challenges. Screen reader technologies powered by AI currently play a critical role in enabling access to online content [21]. For individuals who are deaf or hard of hearing Umashankar ,N [22], AI-based speech-to-text technologies convert spoken language into written text in real time, facilitating inclusive communication. Applications such as Ava provide live transcription of conversations, supporting everyday interpersonal interactions (<http://www.ohchr.org/en/issues>). AI can also assist persons with learning disabilities by adapting instructional methods to individual learning profiles, thereby delivering personalised educational experiences [23].

4.2 Health

AI is increasingly utilised in healthcare to support persons with

disabilities, particularly in diagnostic processes and the provision of appropriate medical interventions. These technologies enhance clinical efficiency and contribute to greater personal autonomy. The CRPD affirms the right of persons with disabilities to bodily integrity under Article 25 on health and Article 17 on the protection of the integrity of the person. A range of AI-enabled applications can support persons with disabilities, including remote health monitoring, automated medication management, detection of health-related changes with preventive alerts, large-scale health data processing, and the provision of personalised medical information and services for persons with disabilities [24].

4.3 Labour

AI-driven recruitment systems and workplace analytics influence economic security by affecting employment stability and income, and community security by shaping inclusion and non-discrimination in organisational settings. Power asymmetries arising from employer-controlled surveillance technologies may threaten workers' safety and dignity and could discourage civic or political engagement due to concerns about profiling or retaliation. At the same time, AI contributes to more inclusive and equitable workplaces for persons with disabilities by facilitating skill development, improving access to employment opportunities, and enabling more autonomous exercise of labour rights. Articles 27 and 28 of the CRPD affirm the rights of persons with disabilities to work, attain an adequate standard of living, and access social protection.

The integration of AI in workplace environments generates new opportunities for persons with impairments. These developments extend beyond convenience or assistance, influencing productivity, professional performance, and organisational contribution. AI has the potential to enhance fairness in recruitment processes by evaluating curricula vitae and competencies without reliance on subjective bias, thereby promoting equal opportunity for applicants with disabilities. AI-based adaptive systems can also tailor workplace conditions to individual needs, for example by providing text-to-speech tools or visual enhancement features for individuals with visual impairments. Furthermore, AI-enabled monitoring and performance assessment systems can identify areas where additional support or reasonable adjustments may be required, particularly for employees with impairments. Communication tools powered by AI, including machine translation and real-time transcription services, facilitate interaction among colleagues with diverse linguistic backgrounds or hearing impairments [25]. The adoption of AI in organisational contexts represents a progression towards a more inclusive society in which skills and competencies are recognised irrespective of physical or cognitive differences.

4.4 Mobility, Independent Living, and Community Participation

Mobility-related AI technologies influence personal security by facilitating safe travel and reducing the risk of injury, community security by enabling participation in social activities, and political engagement by improving access to public spaces and civic events. Excessive dependence on private platforms, high costs, and uneven infrastructure may exacerbate exclusion, particularly in contexts with limited public transportation, pedestrian pathways, or connectivity. The CRPD recognises the rights of persons with disabilities to mobility, independent living, social inclusion, and political participation, as outlined in Articles 19 (Living independently and being included in the community), 20 (Personal mobility), 29 (Participation in political and public life), and 9 (Accessibility). AI applications support mobility through various means, including autonomous vehicles, voice-guided navigation and location assistance, real-time software providing alerts on obstacles or optimal routes, and powered exoskeletons that enhance or assist limb movements [26]. For instance, Cyberdyne's Hybrid Assistive Limb (HAL) amplifies bioelectric signals from the brain to muscles, assisting persons with motor impairments in walking or standing [27]. Voice-controlled assistants such as Amazon Alexa and Google Assistant enable individuals with limited mobility to navigate their homes, manage schedules, and control

appliances using only voice commands [28].

AI also enhances navigation for individuals who are blind or visually impaired. Advanced algorithms detect environmental features, identify barriers, and provide safe guidance. Applications like Microsoft Soundscape utilise three-dimensional audio cues to assist orientation, while image recognition tools such as Seeing AI analyse visual scenes and convey relevant information verbally [29]. Smart reading technologies, including AI-enabled glasses, convert text to audio to improve access to written content [3]. Devices with integrated speech recognition allow hands-free command execution and messaging. Additionally, AI programmes, such as Pataky, support children with developmental language impairments in improving speech and comprehension [30]. Home safety alert systems equipped with remote sensors, automated alarms, and emergency response functionalities provide early warnings for natural disasters such as storms and floods [31]. Collectively, these AI-driven solutions are crucial for enhancing independence, inclusion, and autonomy among persons with disabilities. By addressing physical and cognitive challenges in daily life and work, they provide tailored support that enables fuller societal participation (Centre for Assistive Technology and Environmental Access). Their development and maintenance are essential components of broader societal efforts to promote equality, accessibility, and empowerment for persons with disabilities.

5. Discussion of Ethical Implications

AI offers significant potential to enhance the inclusion of persons with disabilities and to strengthen the protection of their rights; however, it also introduces challenges and ethical dilemmas that may undermine trust in AI deployment [32]. Addressing these ethical issues from the outset of technology development is crucial to ensure that AI benefits all individuals, including those with disabilities, without creating additional barriers or forms of exclusion. Ethical considerations should therefore be central to organisational strategies and long-term planning, requiring active engagement from decision-makers and corporate leaders [33]. Governments and private-sector organisations have published a variety of ethical frameworks intended to guide the lawful and responsible development of AI. While these frameworks are not legally binding, they provide foundational principles for operationalising AI ethics [34]. Recognising the potential risks these technologies pose to human rights, the discourse must focus on the specific implications for persons with disabilities as articulated in the CRPD, particularly regarding rights to privacy, non-discrimination, autonomy, education, employment, health, independent living, and participation. This paper examines the ethical issues associated with AI in alignment with the Artificial Intelligence Principles adopted by the OECD and 193-member states, including G20 countries, during 2021-2022. The 2021 report by the Social and Human Sciences Commission (SHS), endorsed by 193 nations, similarly provides guidance on anticipating, mitigating, and preventing ethical risks in AI systems, with particular attention to human rights and inclusive practices.

5.1 Privacy and Data Security

The implementation of AI systems to enhance workplace inclusion for persons with disabilities often requires the collection of sensitive personal information. Ensuring the confidentiality of this data and safeguarding individuals' rights to privacy and data protection is paramount, particularly when handling sensitive health information or using data in unethical ways. Articles 22 (Respect for Privacy) and 31 (Statistics and Data Collection) of the CRPD emphasise the necessity of protecting the privacy and personal data of persons with disabilities. Ethical oversight must extend across the entire lifecycle of AI systems, encompassing data acquisition, categorisation, processing, selection, and protection, as well as model design, testing, and operational deployment [35].

A key governance consideration is that AI governance is inherently value-laden. When governments or large technology platforms make decisions regarding system design, datasets, or procurement without meaningful participation from persons with disabilities or their representative organisations, power asymmetries emerge. These

imbalances can limit effective use of technology through inaccessible default settings, costly features, or linguistic and accent barriers, while also diminishing public accountability. This study frames ethical concerns not merely as technical challenges, such as algorithmic bias or privacy violations, but as socio-political factors that may exacerbate human vulnerability. The relationship between innovation and human security is complex: rapid AI deployment can enhance capabilities but may also compromise individual security, for instance through workplace surveillance, autonomous mobility risks, or restricted access to education and healthcare due to automated systems. A human-security perspective therefore advocates for prudent governance, incorporating participatory design, accessibility-by-default standards, affordability measures, and clear remedies for outcomes that infringe upon rights.

5.2 Lack of Up-to-Date and Comprehensive Data

AI-enabled applications rely on extensive datasets to detect patterns and adapt their functionality, yet data concerning persons with disabilities is often incomplete or insufficient across various types of impairments. This limitation reduces the capacity of these applications to adequately address the needs of all users. Furthermore, data collected in one geographic or cultural context may not be applicable to individuals in other regions due to differences in living conditions and environmental factors [36].

5.3 Discrimination, Bias and Lack of Transparency

This situation raises multiple concerns regarding the rights of persons with disabilities. AI technologies that fail to account for the specific needs and circumstances of these individuals may perpetuate discrimination, contrary to Article 5 (Equality and non-discrimination) of the CRPD. As AI systems are trained on large datasets, any gaps or biases within these datasets can reinforce or exacerbate existing prejudices, thereby creating additional barriers for persons with disabilities. A UN report highlights instances of inequity in AI applications, such as inadequately designed image recognition systems that fail to correctly identify persons with mobility impairments, resulting in unintentional discriminatory outcomes (<https://tinyurl.com/ybekfzjn>).

Data used for AI training must be comprehensive, accurate, unbiased, and generalisable across contexts. Similarly, system development should follow responsible practices to prevent discriminatory effects. When AI progresses without consideration of the needs of persons with disabilities, it may contribute to reduced employment opportunities and increased job insecurity, thereby intensifying discrimination. Articles 9 and 27 of the CRPD safeguard the right to work and access to employment, underscoring the obligation of governments to ensure inclusive curricula, appropriately adapted learning materials, and training programmes that enable individuals to acquire skills required for the workforce. Article 24 emphasises the right to education, highlighting that technology should foster inclusion rather than exclusion. Likewise, Article 25 guarantees equal access to healthcare and rehabilitation services, indicating that cost-saving or poorly implemented AI can inadvertently compromise the health of persons with disabilities and reinforce inequality.

AI may also contribute to social exclusion. For example, search engines often fail to display images of persons with disabilities when querying terms such as “social activist,” “athlete,” “lawyer,” or “engineer,” reflecting an underlying bias. Addressing these issues requires careful scrutiny of training data and active support for organisations to implement corrective measures. AI development should involve persons with disabilities to ensure that systems address genuine needs rather than relying on assumptions or stereotypes. Moreover, many AI systems, particularly those employing machine learning, are opaque, making their internal processes and decision-making mechanisms difficult to interpret. This lack of transparency can lead to biased or inaccurate outputs, favouring certain races, genders, or social groups, undermining user trust, and complicating legal accountability in cases of malfunction or harm.

5.4 Impact on the Individual, Society and the Environment

Excessive reliance on AI-based tools for employment may create

vulnerabilities for persons with disabilities if these technologies malfunction, become obsolete, or are inadequately maintained. It is essential to ensure that AI does not compromise the autonomy or decision-making capacity of individuals when assistive technologies are provided. Articles 19 and 21 of the CRPD affirm the right of persons with disabilities to exercise autonomy and make independent choices. AI is also transforming labour markets by displacing certain traditional roles, potentially destabilising job security and contributing to inequitable income distribution. To mitigate these risks, policymakers must examine strategies to support workforce adaptation and implement measures that promote equitable transitions to new technological contexts. AI should function as a facilitator of economic development and the expansion of diverse, inclusive employment opportunities, particularly for persons with disabilities. Article 28 of the CRPD highlights the right to an adequate standard of living and quality of life, reinforcing the need for AI to enhance, rather than diminish, social and economic well-being.

Beyond employment, AI has the potential to alter social engagement and interactions, weakening interpersonal skills and diminishing integration into community life, with implications for health and psychosocial outcomes. Evaluating AI's societal effects, including impacts on education and workforce participation, is therefore critical. Additionally, the training of AI models is highly energy-intensive; research indicates that training a single natural language processing model can produce carbon emissions equivalent to the manufacture and operation of five automobiles [39-43]. Consequently, the ongoing assessment of AI's effects on individuals, society, and the environment is necessary, alongside regulatory oversight that enforces ethical practices in the development and deployment of AI, particularly within corporate settings.

5.5 Costs

The cost of acquiring AI technologies can be prohibitive, leaving some organisations unable to afford them. As a result, persons with disabilities may be denied access to tools that ought to be universally available, irrespective of financial resources. Governments have an obligation to support these individuals by collaborating with the private sector to establish policies and regulatory frameworks that incentivise investment in AI technologies for persons with disabilities, ensuring that such tools facilitate employment opportunities and broader social inclusion.

5.6 Defining Responsibility and Accountability

AI systems raise critical questions regarding responsibility for their outcomes and any associated harm or losses. A key challenge is the absence of comprehensive regulations that clearly define duties and protect users when AI produces erroneous or unexpected results. The principle of responsibility and accountability is essential for both individuals and organisations, as it clarifies the limits of authority in the development and deployment of AI systems, and specifies the obligations of those required to interpret and take responsibility for AI-generated decisions. Establishing these accountability frameworks is necessary to address legal complexities and to compensate for gaps in existing legal structures that arise when intelligent systems replace human judgement.

6. Conclusion and Future Work

This study examined the influence of AI on the lives of persons with disabilities, producing several key findings and recommendations:

1. AI facilitates the removal of societal barriers and enhances independence for persons with disabilities through technologies tailored to their specific needs, including speech recognition, voice commands, image analysis, text processing, visual perception, and decision-support tools.
2. AI supports the realisation of equal rights for persons with disabilities, encompassing equality and non-discrimination, respect for human dignity and autonomy, full and effective participation in society, accessibility, recognition of human diversity, and equal opportunities.
3. The development of AI tools must involve persons with disabilities and their representative organisations, as they possess the most accurate

understanding of their needs.

4. AI applications have expanded considerably across education, employment, healthcare, and social engagement. Nonetheless, these systems remain imperfect, prone to errors, and require continual refinement to mitigate negative impacts and prevent recurrence.
5. AI introduces significant ethical and practical challenges, including concerns regarding privacy, data security, discrimination, bias, opacity, high costs, and insufficient legal accountability.
6. States, human rights experts, organisations of persons with disabilities, civil society, and private sector actors should monitor AI-related risks to the fundamental rights and standards enshrined in the CRPD, while actively promoting the Sustainable Development Goals, particularly those aimed at ensuring equal treatment.
7. Governments should conduct comprehensive reviews of legislation to guarantee the protection of the rights of persons with disabilities, prohibit discriminatory technologies, and establish penalties and compensation mechanisms for breaches of privacy, misuse of data, discrimination, and other ethical violations.
8. Disability considerations should be integrated into national AI strategies, accompanied by robust regulations to prevent ethical violations in sectors such as education, healthcare, employment, independent living, and public life, as well as in the procurement of AI-based goods and services designed for persons with disabilities.
9. Collaboration between governments, businesses, disability organisations, and civil society is essential to ensure that persons with disabilities are central to the design and implementation of AI and related technological solutions.
10. To ensure effectiveness, accessibility, customisation, and affordability, companies should engage in research and maintain ongoing consultation with communities, expert groups, and persons with disabilities.
11. The establishment of an international body is recommended to coordinate global efforts regarding AI for persons with disabilities, including monitoring impacts, reporting discriminatory practices, compiling best practices, conducting research to mitigate negative outcomes, raising awareness, and providing training on available technologies.

To strengthen the conclusions of the current study, future research should focus on evaluating the direct experiences of persons with diverse impairments who use AI technologies in practical, real-world settings through empirical field investigations. Participatory approaches should be prioritised in designing AI models, ensuring that individuals with disabilities and their representative organisations are actively involved from the initial conceptualisation stage through to implementation. Improving AI outcomes requires the development of datasets that incorporate a broad spectrum of disability experiences, thereby ensuring inclusive and accurate results. Comparative cross-cultural research could provide valuable insights into how the cost, accessibility, and ethical deployment of AI applications differ across geographical regions and socio-economic contexts. Additionally, it is essential to examine the long-term effects of AI on the social and emotional lives of persons with disabilities, including the potential risks associated with excessive dependence and social isolation. Legal frameworks and policy guidelines should be established to uphold ethical standards, ensure universal accessibility, and provide clear responsibilities for developers and users alike. Consideration should also be given to the environmental sustainability and durability of assistive AI technologies to ensure that inclusive solutions remain feasible over time. Addressing these research areas has the potential to guide future technological developments in a manner that promotes a more equitable and just society, where artificial intelligence serves to unite individuals rather than create division.

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