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THE INFLUENCE OF ADVANCING TECHNOLOGIES ON HUMAN RIGHTS

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ABSTRACT

The rapid advancement of emerging technologies, including artificial intelligence, biotechnology, and surveillance systems, presents a transformative landscape for societies worldwide. While these technologies offer immense promise in various sectors, they also raise profound concerns regarding human rights. This research paper delves into the intricate interplay between cutting-edge technologies and fundamental human rights, focusing on the challenges and ethical considerations that emerge in this dynamic intersection. The research critically examines the ways in which artificial intelligence algorithms, for instance, can perpetuate biases and discrimination, thereby infringing upon the principles of equality and non-discrimination. It explores the ethical implications of biotechnological innovations such as gene editing, considering the potential violation of bodily autonomy and privacy. Through a comprehensive analysis of international human rights frameworks and emerging ethical guidelines, this research aims to identify gaps and propose recommendations for safeguarding human rights in the face of technological progress. The study also investigates innovative solutions, such as robust transparency mechanisms, accountable algorithms, and international cooperation, to mitigate the adverse effects of these technologies on vulnerable communities. By understanding the multifaceted challenges posed by emerging technologies, societies can work towards harnessing their benefits while upholding the fundamental principles of dignity, equality, and freedom for all. It is crucial to consider the effects of the framework for human rights for the investigation and

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clinical use of genome editing given the rapid technological advancements in this area of genetics. The more fundamental normative concern is whether the current human rights norms are adequate to address the issues raised by this novel technology. While genome editing is not explicitly forbidden it is subject to significant limitations. It will be argued that new standards are required to handle the particular issues raised by this novel innovation. Ideally, these standards would be outlined in a new international document backed by a legal framework.

KEYWORDS

Artificial intelligence, biotechnology, human rights, genome editing.

INTRODUCTION

Emerging technologies, such as artificial intelligence, biotechnology, and surveillance systems, have become ubiquitous in our society, revolutionizing various aspects of life. These advancements promise immense benefits, but they also raise significant ethical and human rights concerns.

New technologies have the potential to both support and violate human rights. They can open doors for the advancement of human rights in various contexts and environments like social media e-surveillance and e-incarceration, bias in facial recognition software that results in prejudice against persons of colour, machine learning techniques, algorithm-based programming, and the use of non-representative data sets but emerging technologies, such as artificial intelligence, biotechnology, and surveillance systems, have become ubiquitous in our society, revolutionising various aspects of life.

While these technologies offer unparalleled opportunities, they pose threats to human rights, including privacy, non-discrimination, and freedom of expression. Striking a balance between technological progress

and the protection of fundamental human rights is an urgent global challenge. Technological advancements have historically shaped societies and impacted human rights. The industrial revolution, for example, transformed labour practices and living conditions, leading to social and legal changes.

IMPACT OF ARTIFICIAL INTELLIGENCE ON HUMAN RIGHTS

The impact of Artificial intelligence (hereinafter 'AI') can be broadly categorised into two, that is positive and negative.

A few positive impacts would be firstly, the improved access to services. AI can enhance access to education, healthcare, and other essential services, especially in remote or underserved areas. For instance, AI-powered educational platforms can provide personalised learning experiences. AI technologies, such as predictive analytics and data processing, can also help organizations respond more effectively to natural disasters and humanitarian crises, thereby safeguarding people's right to life and safety. It also aids in medical diagnosis, drug discovery, and personalized medicine, improving the right to health. It can in cases of criminal justice and security enhance law enforcement capabilities, improve crime prediction, and ensure public safety although this raises concerns about surveillance and privacy.

On the other hand, a few negative impacts of AI on Human rights would be how there is job displacement. Automation through AI and robotics might lead to job losses, potentially impacting the right to work and the economic well-being of individuals and communities. It acts as an autonomous weapon sometimes as AI-powered military systems raise ethical concerns about the right to life during armed conflicts. Uncontrolled or misused AI in military applications could result in catastrophic consequences. Another negative impact is how AI can be used to create convincing fake content, which can be used to manipulate public

opinion, threatening the right to information and freedom of expression. AI algorithms in social media can create reinforcing existing beliefs and polarizing societies, potentially undermining democratic processes and the right to participate in public affairs.[2]

These negative impacts can be mitigated by promoting the development and use of AI systems that are ethical, transparent, and accountable is crucial. Ethical guidelines and regulations are necessary to ensure AI technologies respect human rights. Ensuring diverse representation in AI development teams can also help mitigate biases in algorithms, leading to more inclusive and fair AI systems. Moreover, establishing clear legal frameworks that protect individuals from AI-related violations of their rights, including privacy breaches and discrimination, is essential and raising awareness about these technologies, their capabilities, and potential risks can empower individuals to make informed decisions and advocate for their rights.

- ***Algorithmic Bias and Discrimination***

  Algorithmic bias and discrimination have significant implications for human rights, particularly in the context of fairness, equality, and non-discrimination. AI algorithms can inherit biases present in training data, leading to discriminatory outcomes. This can affect marginalised communities disproportionately, infringing upon their right to equal treatment. All individuals have the right to equal treatment under the law.[3] Algorithmic bias that results in discriminatory outcomes violates this principle, as it leads to unequal treatment of people based on their race, gender, ethnicity, or other protected characteristics. An illustration could be when discriminatory algorithms in hiring processes can infringe upon the right to work. If algorithms favour

[2] Katz, Brian. "*The Collection Edge: Harnessing Emerging Technologies for Intelligence Collection*", Center for Strategic and International Studies (CSIS), 2020.
[3] Sun, H., *"The Human Right to Technology",* Technology and the Public Interest, pp. 16-39, Cambridge University Press.

certain groups over others, it can lead to unfair employment opportunities, denying individuals their right to gainful employment.[4]

Moreover, this has been contemplated by the Human Rights Council when it adopted resolution 41/11. This resolution requested the Advisory Committee to compile a report examining the potential effects, advantages, and difficulties posed by new and emerging digital technologies in relation to the promotion and safeguarding of human rights. The report also aimed to map out existing United Nations initiatives in this area and provide recommendations on addressing human rights opportunities, challenges, and gaps arising from these technologies.[5]

- ***Privacy Concerns***

Algorithmic systems often rely on extensive data about individuals. If this data is used in a biased manner, it can lead to privacy violations, as individuals might be targeted or treated differently based on their sensitive attributes. There are issues related to data collection, storage, and sharing. Explore the tension between national security needs and personal privacy rights. Privacy is a fundamental human right recognized in various international conventions and legal frameworks, such as the Universal Declaration of Human Rights and the International Covenant on Civil and Political Rights. It is essential for the protection of individual autonomy, dignity, and freedom.[6] Privacy concerns in the context of human rights are multifaceted and arise in various scenarios like mass surveillance that is when there are widespread surveillance programs, especially those conducted without

[4] Molly K. Land, Jay D. Aronson, "*Human Rights and Technology*", Annual Review of Law and Social Science, Vol. 16:223-240.

I. **[5] Samuel Madibi, "*New and emerging digital technologies and human rights*", United Nations Human Rights Council. https://www.ohchr.org/en/hr-bodies/hrc/advisory-committee/digital-technologiesand-hr**

[6] Rand, Lindsay, "*Emerging Technologies*.", Center for International & Security Studies, pp. 14–20.

proper oversight, can infringe upon the right to privacy. Citizens may feel inhibited in their activities and expressions if they believe they are constantly being monitored.

Data Mining is another way where companies collecting vast amounts of personal data for profiling and targeted advertising can compromise privacy. Users often are not fully aware of the extent of data collected about them and security vulnerabilities can also lead to data breaches, exposing individual's sensitive information without their consent, leading to privacy violations.[7]

Addressing privacy concerns in the context of human rights involves enacting and enforcing robust privacy laws, ensuring transparency in data collection and usage, and empowering individuals with control over their personal information. Striking a balance between technological advancements and safeguarding privacy rights is crucial to protect the dignity and freedom of individuals in the digital age. AI systems often require vast amounts of data. Mishandling this data can lead to privacy breaches, impacting the right to privacy.

- ***Freedom of Speech***

Freedom of expression is a fundamental human right recognized internationally, as outlined in Article 19 of the Universal Declaration of Human Rights and Article 19 of the International Covenant on Civil and Political Rights. This right is vital for the functioning of democratic societies and the individual development of every person. freedom of expression is a cornerstone of democratic societies and is closely intertwined with various other human rights. It empowers individuals to voice their opinions, challenge injustices, and contribute to social, cultural, and political progress. Protecting and promoting freedom of

[7] Metzl, Jamie F. "*Information Technology and Human Rights*." Human Rights Quarterly, vol. 18, no. 4, 1996, pp. 705–46.

expression is vital for upholding human rights principles and ensuring a just and inclusive society.

BIOTECHNOLOGY AND HUMAN RIGHTS

The application of biological knowledge and techniques to develop new technologies and products, has the potential to greatly impact human rights in various ways.

The Universal Declaration on the Human Genome, which stands as the initial global instrument in the field of biology, aims to protect human rights, fundamental freedoms, and research freedom.[8] However, despite its noble intentions, numerous challenges hinder the realization of its lofty goals. For instance, Article 4 states that "the human genome in its natural state shall not give rise to financial gains," and Article 6 emphasizes that "no one shall be subjected to discrimination based on genetic characteristics." Despite these provisions, there is evidence suggesting that these principles might not be upheld. Detailed examinations have been conducted on the issue of "who will offer what to whom and at whose expense in health care in the USA," expressing concerns that genetic information could be misused to influence healthcare access in a nation marked by a history of racial and ethnic discrimination, as well as a persistent belief in biological determinism.[9]

The massive generation of genomics data has led to significant challenges, particularly in the context of corporate interests and patent applications. The United States Patent and Trademark Office has been inundated with numerous requests for patents on nucleic acid sequences, reflecting the growing interest of major players in biotechnology, chemical, pharmaceutical, and agribusiness industries in molecular technologies.

[8] Universal Declaration on the Human Genome and Human Rights*, UN Scientific and Cultural Organisation. 1997.*
[9] Murray TH, Rothstein MA, Murray RF, editor. "*The Human Genome Project and the Future of Health Care.*", Indiana University Press, Bloomington; 1996.

However, these developments raise concerns, especially regarding the potential control of farming and world food production by giant agrochemical companies.[10] This scenario poses a threat to subsistence farmers in impoverished countries. The potential consequences of reducing the genetic diversity of agricultural products or excessively protecting intellectual property rights could be severe, locking farmers into corporate control of production and negatively impacting the economies of developing nations and the lives of their citizens.

Alternatively, there is a need to actively promote more optimistic attitudes to change existing patterns of behaviour in addressing these challenges.

Given the prevalent abuse of power in this era, it is justifiable to conclude that human rights declarations, despite their noble intentions, have not sufficiently ensured widespread access to even the most fundamental necessities for a decent human life. Consequently, there arises a need to question whether, in the age of biotechnology, relying solely on the language of rights can secure the respect we aim for all individuals. Alternatively, it becomes essential to consider whether the moral ideals we aspire to necessitate a more comprehensive moral language and a stronger emphasis on social justice.

- **Gene Editing and Bodily Autonomy**

  The swift expansion of the life sciences has given rise to biotechnologies with the capacity to influence various facets of human existence. Genome editing stands out as a powerful tool capable of precisely altering human gene sequences to meet our requirements. While it holds the potential to significantly improve human health, it also presents bio-risks and potential harm that are often invisible or irreversible. Nevertheless, managing the impact of this emerging

[10] Singer PA, Daar AS, "*Harnessing genomics and biotechnology to improve global health equity.*", vol. 5, no. 4, 1992.

biotechnology on both individuals and society poses a universal challenge for all nations and concerned parties. The broader implications concerning public health, environment, and national security are still unfolding, making it imperative for global collaboration in addressing this issue.[11]

Gene editing technologies, such as CRISPR-Cas9, have immense potential for treating genetic diseases and advancing medical research. However, these technologies also raise significant ethical and human rights concerns, especially regarding bodily autonomy. Bodily autonomy is the right to make decisions about one's own body and health without coercion or interference. It is a fundamental aspect of personal freedom and individual rights. Gene editing alters an individual's genetic makeup, making informed consent crucial. Ensuring that individuals understand the risks, benefits, and potential consequences of gene editing procedures is essential to respect their bodily autonomy.[12]

Editing the genome of human embryos raises ethical concerns, particularly regarding the fundamental human right to inherit a genome without deliberate manipulation. The World Health Organization (WHO) has recently developed a governance framework for human genome editing, offering global recommendations to establish appropriate governance mechanisms for this technology. It is crucial for this framework and related efforts to explicitly incorporate a human rights-respecting approach. Such recognition holds significant implications, not only in clarifying the responsibilities of states but also emphasizing the obligation of non-state actors, especially biotech enterprises, to align their practices with human rights.

[11] Piracés, E., "*The Future of Human Rights Technology",* New Technologies for Human Rights Law and Practice, pp. 289-308, Cambridge University Press.
[12] James William, "*The clinical cutting edge.*", Nat. Biotechnol., (2020), p.p 767.

In implementing this approach, the United Nations Guiding Principles on Business and Human Rights (UNGPs) offer valuable guidance. These principles serve as a resource for states, biotech enterprises, and other stakeholders to raise awareness and promote responsible practices in the field, ensuring that genome editing adheres to human rights standards

The WHO's framework fails to acknowledge the importance of integrating a human rights-respecting approach into the governance of human genome editing. This approach aligns with the spirit of the 1946 Constitution of the WHO and internationally recognized human rights norms. The WHO Constitution emphasizes that ensuring "the enjoyment of the highest attainable standard of health" for all individuals is the organization's core function as designated by its Contracting States.

The right to health, being a fundamental human right, is interconnected with various other human rights, including freedom from discrimination, privacy, family, access to remedies, and the right to benefit from scientific progress. Violations of the right to health can often impede the enjoyment of these interrelated human rights. Therefore, it is essential for the Committee to ensure that its recommendations for human genome editing governance are leveraged to progressively fulfil the WHO's core function, contributing to the realization of these fundamental human rights.[13]

- **Right to Heath**

Biotechnological advancements impact healthcare accessibility and affordability and also contribute to the development of new medicines, treatments, and therapies. Access to these advancements is crucial for

[13] J. Halpern, S.E. O'Hara, K.W. Doxzen, L.B. Witkowsky, A.L. Owen, *"Societal and ethical implications of germline genome editing: How can we secure human rights?",* CRISPR J., 2 (2019), pp. 293-298.

the right to health. However, there are concerns about equitable access, especially in lower-income countries, raising questions about the right to health for all.

The concept of the right to health was initially outlined in the 1946 Constitution of the WHO, defining it as "the enjoyment of the highest attainable standard of health." The Contracting States recognized that advancements in the promotion and protection of health benefit all nations. Consequently, these states established the WHO as a specialized agency of the United Nations, with the shared goal of achieving the highest possible standard of health for all people.

The right to health is indeed recognized as a fundamental human right in nearly all key international human rights documents. The Universal Declaration of Human Rights from 1948, for instance, asserts that "everyone has the right to a standard of living adequate for the health of himself and his family." The 1966 International Covenant on Civil and Political Rights (ICCPR) elaborates on this right in Article 12, stating that "everyone has the right to the enjoyment of the highest attainable standard of physical and mental health." The ICCPR encourages nations to take all necessary measures to fully realize this right. Additionally, the Committee on Economic, Social and Cultural Rights, a treaty body overseeing the implementation of the ICCPR, defines the right to health as “a fundamental human right essential for the exercise of other human rights.”[14]

The right to health, in all its forms and contexts, encompasses several essential requirements. First, health facilities, products, and services must be accessible to everyone without discrimination based on gender, age, or disabilities (accessibility). Second, these health offerings must adhere to medical ethics and culturally appropriate norms

[14] Sun, Nina, “*Human Rights and Digital Health Technologies*.” Health and Human Rights, vol. 22, no. 2, 2020, pp. 21–32.

(acceptability). Third, they should be scientifically and medically suitable and of high quality (quality). Fourth, mechanisms for monitoring and holding stakeholders accountable must be established to safeguard the right to health in various scenarios (accountability).[15] A human rights-respecting approach ensures that these requirements are diligently considered in all health-related situations.

JUDICIAL PRECEDENTS

In the case of *Bernh Larsen Holding AS and Others v. Norway*,[16] there were three Norwegian companies raised concerns about a decision made by the tax authorities, which required them to provide tax auditors access to a computer server jointly used by the companies. The companies argued that this action was taken arbitrarily. However, the Court ruled that there was no violation of Article 8 (right to respect for home and correspondence) of the European Convention of Human Rights.[17] The Court supported the Norwegian court's reasoning that, for the sake of efficiency, tax authorities should not be hindered when taxpayers use a "mixed archive," even if it contains data belonging to other taxpayers. Additionally, the Court noted that there were adequate safeguards in place to prevent abuse of this authority.

In another case of, *Brunet v. France*,[18] the complainant specifically objected to an intrusion into his private life when he was added to the police database STIC (system for processing recorded offenses) after the termination of criminal proceedings against him. This database contained information from investigation reports, including details about individuals involved and victims. The Court ruled that there was a violation of Article 8 (right to respect for private life) of the Convention. It found that the

[15] Sekalal, Sharifah, *"Analyzing the Human Rights Impact of Increased Digital Public Health Surveillance during the COVID-19 Crisis."* Health and Human Rights, vol. 22, no. 2, 2020, pp. 7–20.
[16] Bernh Larsen Holding AS and Others v. Norway 24117/08 – HEJUD, ECHR 220.
[17] Sec. 8, European Convention of Human Rights, 4 November, 1950.
[18] *Brunet v. France*, ECHR 970.

French State had exceeded its discretion "(margin of appreciation)" in making decisions in such cases. The retention of the complainant's information could be seen as an excessive infringement of his right to privacy and was not necessary in a democratic society. The Court noted that the complainant had no real opportunity to request the removal of the information about him from the database. Additionally, the 20-year retention period of the data was considered to be akin to indefinite retention, resembling a norm rather than a maximum limit.

Further, in the case of *Libert v. France*,[19] there was dismissal of an employee from SNCF (the French national railway company) after explicit content and forged certificates for third parties were found on his work computer during a seizure. The complainant argued that his employer had accessed personal files on his work computer in his absence. The Court determined that there was no violation of Article 8 (right to respect for private life) of the Convention. It concluded that the French authorities had not exceeded the margin of appreciation allotted to them in this instance. The Court emphasized that the employer's examination of the files served the legitimate purpose of safeguarding employers' rights. Employers were entitled to ensure that their employees were using provided computer facilities in accordance with contractual obligations and regulations. Additionally, French law included privacy protection measures allowing employers to access professional files, barring files specifically identified as personal, which could only be opened in the presence of the employee. Domestic courts had ruled that the absence of proper identification as private files justified the employer's access. The Court also affirmed that the domestic courts had appropriately evaluated the complainant's claim regarding the violation of his right to privacy and based their decisions on relevant and adequate grounds.

[19] *Libert v. France*, ECHR 185.

S. and Marper v. the United Kingdom,[20] was a case that involved the indefinite retention of the applicant's fingerprints, cell samples, and DNA profiles in a database, even after criminal proceedings against them were terminated following an acquittal in one case and discontinuation in the other. The European Court of Human Rights determined that there was a violation of Article 8, which safeguards the right to respect for private life under the European Convention on Human Rights. The court stressed that the incorporation of modern scientific techniques in the criminal justice system should not occur at any cost and must involve a careful balance between the potential benefits of extensive use of such methods and crucial private life interests. Any state claiming a pioneering role in the development of new technologies carried a special responsibility to "strike the right balance." The court concluded that the broad and indiscriminate retention powers regarding fingerprints, cellular samples, and DNA profiles of individuals suspected but not convicted of offenses, as applied in this specific case, failed to strike a fair balance between the conflicting public and private interests.

Lastly, in the case of *Youth Initiative for Human Rights v. Serbia*,[21] the issue revolved around the Serbian Intelligence Agency's denial of access to information acquired through electronic surveillance. The non-governmental organization (NGO) applicant argued that the agency's refusal to furnish requested information about the number of individuals subjected to electronic surveillance in 2005 hindered its role as a "*public watchdog*." The European Court of Human Rights ruled that there was a violation of Article 10 (freedom of expression) of the Convention. The court determined that the agency's persistent refusal to comply with a final and binding order to provide the requested information amounted to defiance of domestic law and constituted an arbitrary action. According to Article 46 (binding force and implementation) of the Convention, the court further

[20] *S. and Marper v. the United Kingdom*, ECHR 1581.
[21] *Youth Initiative for Human Rights v. Serbia*, ECHR 842.

stated that the most appropriate way to implement its judgment in this case would be to ensure that the agency supplied the NGO applicant with the information it had sought regarding the individuals subjected to electronic surveillance in 2005.

Therefore, in these ways human rights get violated due to the above-mentioned AI algorithms can perpetuate biases and discrimination, thereby infringing upon the human rights.

CONCLUSION

The relationship between emerging technologies and human rights is complex and multifaceted. On one hand, emerging technologies have the potential to significantly enhance the enjoyment of human rights by improving access to information, healthcare, education, and communication. They can also empower individuals and communities, promote social inclusion, and facilitate civic participation. For example, the internet and social media platforms have played a crucial role in enabling freedom of expression and assembly on a global scale. On the other hand, there are several concerns regarding the impact of emerging technologies on human rights.

There must be a striking balance between technological progress and ethical safeguards with the help of continued research, international collaboration, and public awareness in ensuring a future where human rights are upheld alongside technological innovation.

While AI has the potential to enhance various aspects of human life, it is crucial to manage its development and deployment carefully, ensuring that it aligns with human rights principles and values. This requires collaboration between governments, technology developers, and civil society to create a future where AI benefits everyone while respecting fundamental human rights.