

Gender Bias and Artificial Intelligence: A Challenge within the Periphery of Human Rights

Prashant Chauhan¹, Gagandeep Kaur²

¹ School of Law, University of Petroleum and Energy Studies, India. Email: legum.jus@gmail.com

² School of Law, University of Petroleum and Energy Studies, India. Email: gkaur@ddn.upes.ac.in

Abstract: Technology is advancing at an exponential rate, and artificial intelligence has become a contentious issue of the day. A plethora of fields influencing human life has been impacted by artificial intelligence, whereas the development of artificial intelligence has opened Pandora's box of legal concerns. Several international organizations, including the United Nations, have identified gender equality as an indispensable constituent of the protection of human rights. The voyage of gender equality has seen a long phase of struggle and persists. This paper aims to analyze, in what manner artificial intelligence is affecting gender equality, raising concerns on the issues regarding the role played by the United Nations in securing gender equality through conventions and resolutions, is artificial intelligence capable of posing a threat to gender equality and what measures can be implemented to secure gender equality about artificial intelligence.

Keywords: Artificial Intelligence; Gender Equality; Gender Discrimination; Human Rights

1. Introduction

Considering the existence of Cyrus' Cylinder on Human Rights in 539 B.C., to the present day, the entire notion of human rights has stood the test of time.¹ The voyage has not only strengthened the core of human rights but has also witnessed its expansion. Despite their common genesis, several aspects of human rights have been recognized as having a separate existence. Civilizational development, on the other hand, has been the result of technological advancement.² Technology has played a pivotal role in the transformation of human lives. The impact of technology has affected every aspect of human life. Every successive day has seen a more sophisticated type of technology, that has an inevitable impact on human existence.

Artificial Intelligence is one such futuristic form of technology that has gained the center of attraction. The notion that Human rights are inherent to the human being³ appears to be contradictory concerning the marginalized group of a section of society. Women represent almost half of the world population and discrimination of any kind is not only

¹ O'Byrne, Darren J. *Human Rights: An Introduction*. 1st ed. (New York: Longman, 2003).

² Zait, Adriana. "Exploring the Role of Civilizational Competences for Smart Cities' Development." *Transforming Government: People, Process and Policy* 11, no. 3 (2017): 377–92. <https://doi.org/10.1108/tg-07-2016-0044>.

³ Donnelly, Jack. "Human Rights as Natural Rights." *Human Rights Quarterly* 4, no. 3 (1982): 391. <https://doi.org/10.2307/762225>.

an injustice to women themselves but also humanity.⁴ This imbalance has not only been witnessed in a social context, but it has also begun to influence a technological context.

With the increased usage of artificial intelligence (AI) in human lives, not only the positive aspects but also the negative impacts are becoming apparent.⁵ The expanding usage of AI-based technologies has raised serious doubts about its applicability in a variety of industries, resulting in a matter of concern.⁶ The situation becomes even more serious when such a threat is to human rights. The number of AI-based applications has resulted in gender biasness. A surge in implementation of these applications by the organizations has showcased more incidents of gender biasness.⁷ Establishing women's rights has been a painstaking journey and yet to be completely accomplished. Even in the 21st century, the concept of gender equality is struggling in the societal context, technology in the form of artificial intelligence has opened another front in this struggle.

This research paper is an attempt to address those questions left unanswered by previous studies and the research paper of various authors. The objective of this research paper is to determine the effectiveness of the current convention/protocol, declaration related to gender equality and, bring into notice the rising use of artificial intelligence. During the literature review for the current study, it was found that the previous studies and research papers focused upon the technical aspect of AI-based application concerning gender equality. In terms of the significance of this research paper, it attempts to draw the attention of the international organization to make an effort to amend and update the existing framework related to gender equality by including provisions related to the application of AI-based systems. The issue of gender discrimination is not just related to territorial limits but is a global matter the resolution of which requires an international effort.

2. Method

The research paper employs the legal normative method therefore understanding the existing framework regarding gender equality, would require an approach of analyzing existing texts, such as conventions/protocols and declarations. The findings of existing studies and research papers of different authors have been considered to understand the problem of gender discrimination concerning AI to arrive at a probable solution to the problem.

⁴ Das, Satya Prakash. "HUMAN RIGHTS: A GENDER PERSPECTIVE." *The Indian Journal of Political Science* 66, no. 4 (2005): 755–72. <http://www.jstor.org/stable/41856167>.

⁵ Yudkowsky, Eliezer. "Artificial Intelligence as a Positive and Negative Factor in Global Risk." In *Global Catastrophic Risks*, edited by Nick Bostrom and Milan M. Ćirković, 308–345. New York: Oxford University Press, 2008, DOI:10.1093/oso/9780198570509.003.0021.

⁶ Niu, Yingfang, Jie Hou, and Yajun Li. "Commercial Application and Prospects of Artificial Intelligence." *Proceedings of the 2019 International Conference on Education Science and Economic Development (ICESED 2019)*, 2020. <https://doi.org/10.2991/icesed-19.2020.44>.

⁷ UNESCO [62468]. Artificial intelligence and gender equality: key findings of UNESCO's Global Dialogue. Paris, France, UNESCO's 2020, <https://unesdoc.unesco.org/ark:/48223/pf0000374174>

3. Review of Literature

Several gender-related obstacles and prejudices have diminished over the years; however, gender preconceptions persist to hinder women's career progression.⁸ Notwithstanding significant developments in promoting gender equality in organizations, most organizational hierarchies are still male-dominated.⁹ With the reliance on modern-day technology, the mode of interaction with human resources has begun to change. Computers with constrained capacity will communicate with their surroundings as well as other individuals. Several of these devices will rely on machine learning techniques to decode the meaning and behavior hidden in sensor information, allowing them to make correct estimates and draw conclusions.¹⁰

Such conclusions will be drawn based on their programming or the algorithm on which they are based. Machine prejudice in Artificial Intelligence (AI) tends to propagate gender inequality in society today.¹¹ Here the input photographs for such numerous face-recognition algorithms comprised 80 percent of images of white people, out of which 75 percent of images represented human males. As a result, the system identified male faces with a high precision of 99 percent. The system's ability to recognize black women, on the other hand, was worse, at only 65 percent of the time. Consequently, focusing exclusively on gender will make it difficult to tackle other intersectional concerns in AI.¹²

On the other hand, gender prejudice in job vacancies emphasizing biasness on a wide scale in algorithms could impede women's advancement opportunities. Such discrimination reinforces and perpetuates traditional gender roles, contributing significantly to recognized gender imbalances in Science, Technology, Engineering, and Mathematics (STEM).¹³ The data being an essential factor in an algorithm, its collection might get affected by the preconceptions of the creator. AI programmers have adopted assumptions and beliefs about how separating oneself from one's work accomplishes unbiased objectivity from antecedents in the AI discipline. As a result of these preconceptions having a substantial impact on practitioners' comprehension of technology, few ethics procedures are in place. Since they underestimate the implications

⁸ Tabassum, Naznin, and Bhabani Shankar Nayak. "Gender Stereotypes and Their Impact on Women's Career Progressions from a Managerial Perspective." *IIM Kozhikode Society & Management Review* 10, no. 2 (2021): 192–208. <https://doi.org/10.1177/2277975220975513>.

⁹ Latu, Ioana, and Marianne Schmid Mast. "The Effects of Stereotypes of Women's Performance in Male-Dominated Hierarchies: Stereotype Threat Activation and Reduction through Role Models." *Gender and Social Hierarchies*, (2015), 87–99. <https://doi.org/10.4324/9781315675879-15>.

¹⁰ Merenda, Massimo, Carlo Porcaro, and Demetrio Iero. "Edge Machine Learning for AI-Enabled IOT Devices: A Review." *Sensors* 20, no. 9 (2020): 2533. <https://doi.org/10.3390/s20092533>.

¹¹ Stanovsky, Gabriel, Noah A Smith, and Luke Zettlemoyer. "Evaluating Gender Bias in Machine Translation." In *Proceedings of the 57th Annual Meeting of the Association for Computational Linguistics*, 1679–84. Florence, Italy: Association for Computational Linguistics, 2019.

¹² Niethammer, Carmen. "AI Bias Could Put Women's Lives at Risk - a Challenge for Regulators." *Forbes*. *Forbes Magazine*, May 27, 2020. <https://www.forbes.com/sites/carmenniethammer/2020/03/02/ai-bias-could-put-womens-lives-at-risk-a-challenge-for-regulators/?sh=401fb266534f>.

¹³ Fatourou, Panagiota, Bran Knowles, and Chris Hankin. "Gender Bias in Data-Driven AI Systems." *FORTH Institute of Computer Science*. Accessed March 18, 2022. <https://users.ics.forth.gr/~faturu/PolicyPaper-GenderDiscriminationAndAI.pdf>.

of power, these preconceptions distort their understanding of what constitutes bias against women in AI into a technical issue.¹⁴

There is a need to understand how and why technologies like automation and artificial intelligence might be gendered. This approach still not necessarily feminist, is unquestionably critical.¹⁵ There is no doubt that technology will certainly change the course of human life in the coming years. There might be several issues in the implementation of AI but the shortcomings can be reduced with the help of technology itself. Furthermore, to reduce inequalities between men and women, as well as dark and lighter-skinned categories, the darker-skinned female subgroup underwent the most striking update, with a 17.7 percent from 30.4 percent decrease in inaccuracy across audit periods.

By minimizing these inequalities, the overall error on the Pilot Parliaments Benchmark (PPB) for targeted organization APIs was decreased by 5.72 percent from 8.3 percent. Amazon and Kairos' overall performance trails far behind that of the targets, with inaccuracy rates of 8.66 percent and 6.60 percent error rates of 31.37 percent and 22.50 percent for the darker female category respectively.¹⁶ Hence it is clear that the discrimination caused by AI can be reduced by the method of model training.¹⁷ The researchers must take into consideration the ways by which there is the least possibility of error in creating the Algorithm. That will certainly increase the confidence of people in such advanced technology.

4. Gender Equality: Revisiting the Concept

The gender of individuals refers to the particular attributes, traits, and behaviors that determine how they would be perceived in a given socio-cultural context. It can be understood instead of predetermined physiologically, apart from sex. Sexual identity is not a fixed variable; it varies based on a range of factors including age, social standing, religion, accent, culture, and much more. Egalitarianism between men and women means having equality of rights. Gender equality is the only aim in every aspect since gender inequality exists in all cultures and countries, involving disparate treatment and availability of resources, prospects, and independence depending on gender.¹⁸ Concepts of gender inequality and women's empowerment are not new but existing since old age

¹⁴ Bui, Cathrine Kieu Trang. "Exploring Bias against Women in Artificial Intelligence: Practitioners' Views on Systems of Discrimination." DUO, September 26, (2021). <https://www.duo.uio.no/handle/10852/88551>.

¹⁵ Coeckelbergh, Mark. "Technology Games/Gender Games. from Wittgenstein's Toolbox and Language Games to Gendered Robots and Biased Artificial Intelligence." *Techno:Phil – Aktuelle Herausforderungen der Technikphilosophie*, (2019), 27–38. https://doi.org/10.1007/978-3-476-04967-4_2.

¹⁶ Raji, Inioluwa Deborah, and Joy Buolamwini. "Actionable Auditing." *Proceedings of the 2019 AAAI/ACM Conference on AI, Ethics, and Society*, (2019). <https://doi.org/10.1145/3306618.3314244>.

¹⁷ Kelley, Stephanie, and Anton Ovchinnikov. "Anti-Discrimination Laws, AI, and Gender Bias in Non-Mortgage Fintech Lending." *SSRN Electronic Journal*, (2020). <https://doi.org/10.2139/ssrn.3719577>.

¹⁸ DCAF, Inclusive Security and. *Inclusive Security and DCAF*, n.d. https://www.dcaf.ch/sites/default/files/imce/Women%27s%20Guide%20Curriculum/InclusiveSecurity_Curriculum_Series_SSR_MOD3.pdf.

Governments and many other national and international organizations have made consistent efforts toward establishing systems and mechanisms to resolve issues related to gender over the decades. Developmental awareness is seen as a transitory measure to address gender issues.¹⁹ Gender equality acknowledges that everybody, irrespective of gender, has an equitable chance to lead a joyful life. Young girls and women too have the right to engage equally and fully in all fields of human endeavors and any kind of discrimination will lead to the denial of gender equality. They too have the right to live their life on their terms like their male peers irrespective of the differences that prevail in society.²⁰ Socially progressive measures ensure that everyone should have the same opportunities and resources irrespective of their gender

Males and females should indeed be considered equal irrespective of their sexuality or sexual preference perceptions of their existence, not solely to safeguard their rights, prospects, or participation in the community.²¹ Gender disparities start from the day of birth and continue till the last leg of life. Women continue to be prejudiced in elementary education at a slightly faster rate than boys in the poorest nations, where females comprise a much bigger proportion of those who seldom attend school.²² The existence of such evil practices in the 21st century makes it quite challenging in securing human rights and gender equality.

5. Human Right and Gender Equality: Notions Distinct Yet Entwine

Achieving gender equality and empowering women and girls requires that all women and young girls have full access to their basic rights and freedoms, as per a resolution adopted by the Economic and Social Council on June 8, 2015; to accelerate the realization of gender equality for women, and the Convention on the Elimination of All Forms of Discrimination Against Women are mutually supportive in attaining gender equality and empowering women.²³ Concerned with the persistence of prejudices that highlight women's traditional responsibilities as women in the family, the Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW) Committee raises concerns for their social position as well as their academic and employment opportunities in Macedonia. It expresses significant concern that the mainstream press continues to portray stereotypical perceptions thus affecting the image of women in the society

Gender equality must be prioritized in the creation, execution, and monitoring of participatory procedures. Participation requires the eradication of power disparities through the countering of systemic inequalities. As consequence, as part of the membered substantive equality guideline involvement necessarily requires a significant

¹⁹ Atuase, Diana. "Gender Equality and Women Empowerment in Ghana, the Role of Academic Libraries." *Journal of Applied Information Science* 6, no. 2 (2018): 14–20.

²⁰ Izah, Maimuna. "Role of Libraries and Information Centers in the Provision of Information Resources and Services for Gender Equality in Nigeria." *International Journal of Gender Studies* 6, no. 1 (2021). <https://doi.org/10.47604/ijgs.1304>.

²¹ Ibid.

²² "Achieving Gender Equality in Education: Don't Forget the Boys." Unesdoc.unesco.org. Global Education Monitoring Report, (2018). <https://unesdoc.unesco.org/ark:/48223/pf0000262714>.

²³ "Future Organization and Methods of Work of the Commission on Status of Women." E/RES/2015/6. ECOSOC, June 8, (2015). <https://undocs.org/E/RES/2015/6>.

focus on the other dimensions redressing drawbacks, tackling stereotypes, discrimination, stigmatizing, and transformation even though inequality persists and effective participation is impossible without all of these.²⁴ Hence it can be said that a single objective approach will not redress the problem of gender inequality. The participation and contributions of all the stakeholders are necessary to achieve this task.

6. United Nations and Gender Equality: A Journey Towards the Accomplishment

Since the establishment of the United Nation constant efforts have been made to safeguard the interest of females. The most progressive approach has been made toward securing gender equality. Article 1(1) of the United Nations Charter, intends “To achieve international co-operation in solving international problems of an economic, social, cultural, or humanitarian character, and in promoting and encouraging respect for human rights and fundamental freedoms for all without distinction of race, sex, language, or religion.”²⁵ The article provides a much broader approach by encompassing the matter that can form the subject of discrimination. As the objective is to treat all humans equally the concept of gender equality is somewhat inherent in human rights. A similar approach is reflected by Article 1 of the Universal Declaration of Human Rights, which states that “All human beings are born free and equal in dignity and rights.”²⁶ Whereas Article 2 specifies that “Everyone is entitled to all the rights and freedoms outlined in this Declaration, without distinction of any kind, such as race, color, sex, language, religion, political or another opinion, national or social origin, property, birth or another status”²⁷ dignity of the individual is considered to be of paramount importance be it, men or women.

Certainly, the efforts to secure human rights have progressed at a swift pace still, but the desired results concerning the right of females have not been achieved yet. In this direction, a more women-centric approach is required. For this aforesaid purpose Article 1 of the Convention on the Elimination of All Forms of Discrimination Against Women states that “Discrimination against women shall mean any distinction, exclusion or restriction made based on sex which has the effect or purpose of impairing or nullifying the recognition, enjoyment or exercise by women, irrespective of their marital status, on a basis of equality of men and women, of human rights and fundamental freedoms in the political, economic, social, cultural, civil or any other field.”²⁸

Together with that, the Beijing Declaration focuses on “Promoting gender equality through the promotion of women’s studies and implementing the results of studies and gender research in all fields, including the economic, scientific and technological fields.”²⁹

²⁴ Fredman, Sandra, and Beth Goldblatt. “Gender Equality and Human Rights.” *UN Women Discussion Papers*, 2015. <https://doi.org/10.18356/e50499ba-en>.

²⁵ U. N. Charter art. 1 (1).

²⁶ U.D.H.R art. 1

²⁷ U.D.H.R art. 2.

²⁸ United Nations, Convention on the Elimination of all Forms of Discrimination Against Women art. 1.

²⁹ *Beijing Declaration and Platform for Action Beijing+5 Political Declaration and Outcome*. UN Women. New York: UN Women, n.d. https://www.unwomen.org/sites/default/files/Headquarters/Attachments/Sections/CSW/PFA_E_Final_WEB.pdf.

The objective of the CEDAW and Beijing Declaration is more women-centric with an overall and all-around development and progression of women, a broader approach to the objective of gender equality can be attained. In continuance with the objective of charter/conventions/declarations, the United Nations and concerned agencies have been making constant efforts to attain gender equality.

The UN Geneva year 2014 under the policy of women empowerment and gender equality has been making consistent efforts in the form of several common measures by examining the moves made by various UN entities. The UN Geneva has been publishing the UN-SWAP reports annually and also attempted to reach out to the masses. Reaffirming its commitment, the director-general of UN Geneva Tatiana Valovaya stated that “As the first female Director-General of the United Nations Office at Geneva and having worked in male-dominated spheres during many years of my career, my ultimate goal is that women and men are granted equal opportunities in my organization and beyond. It is self-evident that we will not achieve any of our goals if half of humanity is left aside.”³⁰ UNECE undertakes to continue implementing the ECOSOC approved conclusions 1997/2 on mainstreaming a gender perspective in its areas of operation.

“As a follow-up international summits and conferences, UNECE pledges to address current and emerging gender inequalities in the UNECE region in the area of gender and economy. Many of these inequalities are the result of exclusionary stereotypes that limits women's educational opportunities and financial strains with unpaid care and create obstacles for women in the workplace, both for initial employment and education appropriate for their educational status and progression in decision-making levels. Furthermore, ongoing political tensions and issues in Europe have aggravated the condition of women, including refugees, thus exacerbating existing inequities.”³¹ The gender policy of UNECE has three core objectives:

1. To make efforts for increasing the role of women as decision-makers in institutions/organizations at par with their male counterparts.
2. To include a more gender-oriented approach in structural groups and subgroups.
3. Make efforts to decrease gender inequality in its member states including the UNECE in accessing the benefits and the available resources.

Hence the UNECE's principal objective is to recognize the efforts of both men and well women to strengthen gender relations. The efforts to some extents have taken a backseat in times of pandemic. COVID-19 has compounded all dimensions of inequality and pulled back hard-won achievements at a time when global progress and gender equality had already departed from their course. Following the epidemic, countries have an opportunity to rebuild better by including gender equality in all aspects and take actions to restore society and economies, address the needs of all women and girls, and leave no one behind. This will necessitate steadfast political will, more funding, and a focus on bold measures that can accelerate the speed of change, all of which UN-Women

³⁰ “Gender Equality.” Gender Equality, UN GENEVA. Accessed March 19, 2022. <https://www.ungeneva.org/en/topics/gender>.

³¹ United Nations Economic Commission for Europe, UNECE Policy on GEEW Final, (07 July 2019). https://unece.org/fileadmin/DAM/Gender/publications_and_papers/UNECE_Policy_on_GEEW_Final.pdf.

wants to push proactively as part of the Strategic Plan.³² The UN-Women under its capacity is making the following efforts:

1. To support member states in efforts to strengthen the world norms concerning women empowerment and gender equality.
2. To coordinate the efforts of agencies across the United Nations to enhance accountability.
3. To undertake activities at the request of the member states to formulate states policies and legislation following the world norms.

The efforts of UN Women are not only fulfilling the objective of the agency but also acting as the torchbearer for the member states and other world agencies in promoting women empowerment and gender equality.

7. AI Technology Inevitable vis-a-vis Apprehensive

AI (Artificial Intelligence) is the discipline that allows computer systems to learn, evaluate, and implement their reasoning. As technologies are becoming more sophisticated, the requirement for Artificial Intelligence expands owing to its capacity to handle difficult problems using minimal resources and experience, including in a limited period.

AI employs capabilities to augment technical expertise and can amplify expertise to develop and apply techniques and applications. There's been a huge breakthrough in the field of object recognition using machine learning, as well as in large amounts of data and GPU (Graphics processing units), which have significantly aided the evolution of Artificial Intelligence.³³ During a conference on the topic in 1956, John McCarthy came up with the term Artificial Intelligence (AI). Nevertheless, Alan Turing, who devised the Turing test to separate people from machines, stressed the potential of machines mimicking human behavior and genuine thinking. Ever since computational complexity has grown to the point where it can perform instantaneous computations and examine new information in real-time based on the previously assessed data.³⁴

Considering success in the quest for artificial intelligence seems to have the capability to yield humankind extraordinary benefits, it's important to consider how to maximize those advantages while avoiding any downsides. The research goal described in this work, including the motivations for it, has indeed been characterized as anti-AI, however, researchers strongly disagree. It seems self-evident that AI's growing capabilities would have a greater influence on people's society. It is the responsibility of AI researchers to maximize the potential impact assumption can be made as an achievable goal, and the

³² "United Nations Entity for Gender Equality and the Empowerment of Women (UN-Women) - Strategic Plan 2022–2025 (UNW/2021/6) [En/Ar/Ru/Zh] - World." ReliefWeb. Accessed March 19, 2022. <https://reliefweb.int/report/world/united-nations-entity-gender-equality-and-empowerment-women-un-women-strategic-plan-0>.

³³ Sarmah, Simanta Shekhar. "Artificial Intelligence and Automation." *Research Review Journal* 4 (2019): 1. https://www.researchgate.net/publication/336085049_Artificial_Intelligence_in_Automation.

³⁴ Mintz, Yoav, and Ronit Brodie. "Introduction to Artificial Intelligence in Medicine." *Minimally Invasive Therapy & Allied Technologies* 28, no. 2 (2019): 73–81. <https://doi.org/10.1080/13645706.2019.1575882>.

researchers hope that the research agenda will support in achieving the task.³⁵ Machine learning accomplishments and substantial changes in processing capabilities have generated a flow of research financing, as well as increasing concerns about where AI might lead humanity.³⁶

The notion of building a machine in our image has fascinated everyone, but this enthrallment is associated with considerable apprehension. Researchers are nervous about losing control of their creation and having it turn on us. Writers have expertly exploited this tension, creating a contradiction between the impulse to create and the direct consequences of that invention. It is also attributable to this enthusiasm that the field of AI Technology (AI) has subsequently received a lot of coverage. Latest innovations with far-reaching potential implementation have already shown AI's enormous potential. If researchers look beyond exceptions and abandon our concerns, misconceptions, and imaginations behind, one can appreciate AI's genuine and long-term relevance.³⁷

8. AI and Gender Biases: Myth Versus Reality

Biasness is a characteristic or trait which forms a part of human nature be it consciously or subconsciously. Human behavior somehow reflects preconceived notions as the AI acts as per the algorithm which has been programmed. The programming is created by humans. Be it unintentional there are possibilities that the personal preconceptions of an individual might be reflected in the structure of the program.

Three commercial facial-analysis algorithms from major technical organizations have been used to analyze Buolamwini's recently developed set of data. Across all studies conducted, the gender classification error rates were consistently higher for females than those for men, and also for darker-skinned participants than for lighter-skinned individuals.³⁸

On a similar footing, according to Reuters, Amazon's algorithm learned to depreciate applications with the word "women" on them and to assign lower scores to pupils of two women-only universities. Meanwhile, it was identified that words like "executed" and "caught," appearing more frequently in male engineers' resumes suggested that the applicant should have been ranked higher.³⁹ In another experiment, evidence of partiality was revealed. Having altered the gender of the agents on Google's Ad Settings section to female or male. Having followed that, both the female and male groups of agents accessed job-related web pages. It was discovered as one would expect, that

³⁵ Russell, Stuart, Daniel Dewey, and Max Tegmark. "Research Priorities for Robust and Beneficial Artificial Intelligence." *AI Magazine* 36, no. 4 (2015): 105–14. <https://doi.org/10.1609/aimag.v36i4.2577>.

³⁶ Russell, Stuart, and John Bohannon. "Fears of an AI Pioneer." *Science* 349, no. 6245 (2015): 252–52. <https://doi.org/10.1126/science.349.6245.252>.

³⁷ Giannetti, William. "Artificial Intelligence: Myths and Realities." *Air & Space Power Journal* 32, no. 3 (2018): 92–95. https://www.airuniversity.af.edu/Portals/10/ASPJ/journals/Volume-32_Issue-3/C-Giannetti.pdf.

³⁸ Hardesty, Larry. "Study Finds Gender and Skin-Type Bias in Commercial Artificial-Intelligence Systems." MIT News | Massachusetts Institute of Technology, February 11, 2018. <https://news.mit.edu/2018/study-finds-gender-skin-type-bias-artificial-intelligence-systems-0212>.

³⁹ Meyer, David. "Amazon Killed an AI Recruitment System Because It Couldn't Stop the Tool from Discriminating against Women." *Fortune*. Fortune, June 8, 2021. <https://fortune.com/2018/10/10/amazon-ai-recruitment-bias-women-sexist/>.

Google utilized gender information to select the advertisement. Its noteworthy finding was how the advertisement varied between both groups;⁴⁰ during the investigation, Google displayed ads from a specific occupational coaching agency that promised huge salaries to males more consistently than girls, suggesting that prejudice was present.⁴¹

The study is the first to provide statistical evidence of discrimination in internet advertising when demographic information is offered via a transparency-control methodology.⁴² Though the possibility of AI is increasingly productive and much less prejudiced decisions, is not a "blank slate." The information that drives artificial intelligence can only be as good as the data that inputs it. How skilfully its developers constructed it to analyze, evaluate, experience, and act to reflect its value. As a result, artificial intelligence can inherit or even enhance its creators' preconceived notions and are often unconscious of their prejudices as artificial intelligence may be using biased data. AI and gender bias are mitigated when data from such a group of the population is made publicly available through some kind of transparency-control mechanism.⁴³

Borocas' study reveals that the use of machine learning in recruitment, and its application in face recognition software, can lead to inadvertent discrimination. Algorithms can be contaminated by programmers' implicit preconceptions. They can also be manipulated to favor particular knowledge and competencies that are disproportionately represented in a certain data set.⁴⁴ Similarly, one of two types of reasons can motivate a seller's discrimination based on race and gender. The first is noneconomic inclinations for discrimination (including conventional methods of animus or prejudice) exhibited by a company's owner, workers, or clients.⁴⁵

Since other merchants appreciate young women's 'eyeballs', any advertisement algorithm designed to allocate advertisement imprints cost-effectively will not display ads that are purported to be gender-neutral in a gender-neutral approach, but would instead favor cheaper - male - eyeballs. Ad algorithms that enhance ad dissemination to be cost-effective may discriminate by delivering advertising that seems to be gender-neutral. The finding provides a more comprehensive picture of the potential for obviously

⁴⁰ Merrill, Jeremy B. "Google Has Been Allowing Advertisers to Exclude Nonbinary People from Seeing Job Ads – the Markup." *The Markup*, February 11, 2021. <https://themarkup.org/google-the-giant/2021/02/11/google-has-been-allowing-advertisers-to-exclude-nonbinary-people-from-seeing-job-ads>.

⁴¹ Gibbs, Samuel. "Women Less Likely to Be Shown Ads for High-Paid Jobs on Google, Study Shows." *The Guardian*. Guardian News and Media, July 8, 2015. <https://www.theguardian.com/technology/2015/jul/08/women-less-likely-ads-high-paid-jobs-google-study>.

⁴² Datta, Amit, Michael Carl Tschantz, and Anupam Datta. 2015. "Automated Experiments on Ad Privacy Settings." *Proceedings on Privacy Enhancing Technologies* 2015 (1): 92–112. <https://doi.org/10.1515/popets-2015-0007>.

⁴³ Daley, Lauren Pasquarella. "AI and Gender Bias (Trend Brief)." *Catalyst*, December 15, 2021. <https://www.catalyst.org/research/trend-brief-gender-bias-in-ai/>.

⁴⁴ Greenfield, Rebecca, and Riley Griffin. "Can Artificial Intelligence Take the Bias out of Hiring? - The Boston Globe." *BostonGlobe.com*. The Boston Globe, August 12, 2018. <https://www.bostonglobe.com/business/2018/08/12/can-artificial-intelligence-take-bias-out-hiring/SXVO2h7eYeQArnnjp0kPtL/story.html>.

⁴⁵ Ayres, Ian, and Peter Siegelman. "Race and Gender Discrimination in Bargaining for a New Car." *The American Economic Review* 85, no. 3 (1995): 304–21. <http://www.jstor.org/stable/2118176>.

discriminatory consequences even from supposedly neutral algorithms.⁴⁶ According to the findings of a study, technology can lead to discriminatory consequences, but simultaneously can be used to eliminate discrimination.⁴⁷

9. Conclusion

There seems to be no reason for individuals to escape the influence of Artificial Intelligence living in the technological age. On one hand, AI has immense potential to contribute to the improvement of human lives but is also accompanied by certain concerns. The role of AI in terms of human rights, in particular, must be reassessed. The concept of equality of gender has been the focus of this research paper, which demonstrates the concern for the marginalized sector of society, namely women. Establishing human rights has not only been a long hard road but has also witnessed many ups and downs. The road to achieving equality between men and women has been more challenging, as half of the world's population has been unable to meet the optimum status.

With the advent of technology, the concerning gender equality has started to encounter new challenges. AI, a new-age technology, has been creating severe challenges in terms of gender equality. The developments in Artificial intelligence in face recognition software or the recruitment and selection process suggest that AI appears to be discriminatory toward women. As AI is an algorithmic program created by a human, there seems to be a chance that it will be infused with inherent bias. Since the algorithm is dependent on the data sets, data collection and analysis, are critical factors. As an individual gathers and classifies data, the data set may represent the individual's preconceived notions, whether consciously or subconsciously. Hence there must be a cautious approach to using such technology to preserve gender equality. The United Nations must also take steps to draft new resolutions, conventions, and declarations, as well as amend existing ones, to accommodate the usage and use of artificial intelligence in the context of gender equality.

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