Received 30 June 2021
Revised 17 July 2021
Accepted 26 July 2021

Evolution of artificial intelligence and its impact on human rights: from sociolegal perspective

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Abstract

Purpose – The applications of artificial intelligence (AI) in different sectors have become agendas for discussions in the highest circle of experts. The applications of AI can help society and can harm society even by jeopardizing human rights. The purpose of this study is to examine the evolution of AI and its impacts on human rights from social and legal perspectives.

Design/methodology/approach – With the help of studies of literature and different other AI and human rights-related reports, this study has taken an attempt to provide a comprehensive and executable framework to address these challenges contemplated to occur due to the increase in usage of different AI applications in the context of human rights.

Findings – This study finds out how different AI applications could help society and harm society. It also highlighted different legal issues and associated complexity arising due to the advancement of AI technology. Finally, the study also provided few recommendations to the governments, private enterprises and non-governmental organizations on the usage of different AI applications in their organizations.

Research limitations/implications – This study mostly deals with the legal, social and business-related issues arising due to the advancement of AI technology. The study does not penetrate the technological aspects and algorithms used in AI applications. Policymakers, government agencies and private entities, as well as practitioners could take the help of the recommendations provided in this study to formulate appropriate regulations to control the usage of AI technology and its applications.

Originality/value – This study provides a comprehensive view of the emergence of AI technology and its implication on human rights. There are only a few studies that examine AI and related human rights issues from social, legal and business perspectives. Thus, this study is claimed to be a unique study. Also, this study provides valuable inputs to the government agencies, policymakers and practitioners about the need to formulate a comprehensive regulation to control the usage of AI technology which is also another unique contribution of this study.

Keywords Governance, Government policy, Law and regulation, Legal aspects of computing, Legal fact, AI, Human rights, Law, Policy

Paper type Research paper

1. Introduction

The concept of artificial intelligence (AI) is not new. This concept was initially covered with the concept of science fiction. Gradually the issues of AI have become agendas for discussions in the highest circles of government bodies, industrial authorities and academic scholars. However, the experts have started only to study and analyse the several impacts and effects of AI on Human Rights. Interestingly, though the experts are discussing about the impacts of AI, they do not clearly till date know what the real meaning of AI is. Everyone in this field agrees that this cutting-edge technology can bring in revolutionary

International Journal of Law and Management
Vol. 64 No. 2, 2022
pp. 184-205

1754-243X
DOI 10.1108/IJLMA-06-2021-0156

changes in the global scenario covering almost all aspects. In the year 2018, at Toronto in the annual conference of Rights Con, the intersection of AI and Human Rights was the key topic. In that conference, a draft was published on "Toronto Declaration on protecting the rights in equality and non-discrimination in machine learning (ML) system [1]". Besides this, there was a workshop in New York on "Artificial Intelligence and Human Rights". It was hosted and arranged by Data and Society Research Institute. The target of the workshop was "to consider the value of Human Rights in the AI space, foster engagement and collaboration across sectors and develop ideas and outcomes to benefit stakeholders working on this issue moving forward [2]".

The report published in this workshop is considered as a preliminary discussion paper in matters concerned with the intersection of AI and Human Rights (Chatterjee and Sreenivasulu, 2019). However, studies of that report provide many important entangled issues and challenges how AI could help, as well as harm Human Rights (Bernaz, 2013). It is pertinent to mention here that there exist several definitions of AI and those are needed to be considered under different contexts. In this study, we will try to interpret different terms relevant with AI. They are, apart from AI, Big Data, Data Mining, ML, Deep Learning, Algorithm, Speech Recognition, Natural language processing (NPL), Machine Vision, Robot, Bots, Open Data and Bias. These terminologies are needed to be discussed in brief to realise how AI has an influence over Human Rights.

This will help to elucidate how AI acts as a helpful tool and harmful tool as well helping and jeopardising human rights (Bogoviz, 2020). This will be discussed subsequently. It is a fact that different experts used to have examined AI through different cases (Etuvoata, 2020). In the context of human rights issues intersecting through AI technology, the international human rights laws along with its developed institutions have been able to contribute and provide a universally accepted forum that could address power differentials (Felix, 2020). Basing on these, different countries are reported to have framed laws or contemplating to frame laws.

It is a fact that we do not practically know what the AI would mean for days to come in society, but it will be perhaps prudent to be cautions and we should right now try to develop apposite tools to protect people not to become victims of the most serious and dangerous applications of AI (Heins, 2008). It is a fact that several researchers have investigated the advantages of the usage of AI in different fields which could help society a lot. However, there is not a single comprehensive framework which could solve the entangled challenges apprehended to be augmented by the AI applications in the context of issues of human rights (Ibiricu and van der Made, 2020). So, there is a research gap. This has motivated the authors to present comprehensive, calibrated and implementable pragmatic recommendations which are expected to refrain AI applications to infringe human rights.

The remaining structure of the article is arranged as follows. Section 2 presents background studies and different AI definitions followed by mentioning AI-related technologies presented in Section 3. Thereafter, discussions are there covering AI and human rights in Section 4 with its seven subsections. Next, Section 5 presents discussions on helpful and harmful AI technology for society comprising of two Subsections 5.1 and 5.2. After that, Section 6 presents an analysis on artificial stupidity, human rights and company power. Section 6 contains one Subsection 6.1 on AI technology and inequality. Next, Section 7 presents actions to address AI-related human rights issues followed by two Subsections 7.1 and 7.2 containing discussions on the role of comprehensive data protection laws, as well as data protection rights and AI technology. Thereafter, Section 8 presents addressing AI-related human rights issues containing five subsections. After that, Section 9 presents the recommendations for private enterprises and non-governmental organizations on the usage

of AI containing eight subsections. The article is ended with a comprehensive conclusion in Section 10.

2. Background studies and different artificial intelligence definitions

In this section, we will try to explain through defining the AI with its different forms of applications and related literature reviews. Experts and researchers have given several definitions of AI. However, there is no all-accepted definition of AI. Marvin Minsky, one of the founders of AI scholars defined AI as "the science of making machines do things that would require intelligence if done by men[3]". Another famous scholar John McCarthy gave the definition of AI as "the science and engineering of making intelligent machines" (McCarthy, 2018). A report of Stanford University (US) published a definition of AI as "a science and a set of computational technologies that are inspired by – but typically operate quite differently from – the ways the people use their nervous systems and bodies to sense, learn, reason and take action[4]". A famous textbook on AI written by Stuart Russell and Peter Norving suggested that AI is required to be realised in four parts. They are systems that think and act like humans and can think with rationality, as well as such systems which can also act with rationality[5].

The concept of AI can be split up into many subfields. They are robotics, ML, vision, NPL and speech processing, etc. These are considered as main subfields of AI. Not this alone. AI can encroach other fields not related with computers or the internet (Ibiricu and van der Made, 2020). They are philosophy, neuroscience, psychology, logic, probability, linguistics, cognitive science, etc. Another terminology called "Narrow AI" is also now frequently used (Kaurin and Hart, 2020). This is construed as single task use and application of AI. This includes language translation, image recognition, autonomous vehicle, etc. It has been experienced that AI-based machines are able to perform the above-mentioned tasks in an accurate way and better than a human can do. Even researchers are optimistic to expect to achieve Artificial General Intelligence in the future. This feature is expected to exhibit intelligent behaviour covering a wide range of tasks that are done by humans not in an accurate way.

3. Artificial intelligence-related technologies

Complex and huge data sets are called Big Data. These are necessary for analysis with the help of appropriate data processing software. The gradual increasing availability of big data supported by the development of computing power has helped to ameliorate AI systems. The architecture of extracting relevant information from huge data sets goes usually by the name Data Mining. It is facilitated by the help of ML. ML is usually considered a sub-field of AI. A definition of ML given by Harry Surden reveals that ML is a "computer algorithm that has the ability to "learn" or improve in performance over time on some task" (Surden, 2014). Practically machines learn from data. This learning is augmented through "a statistical process that starts with a body of data and tries to derive a rule or procedure that explains the data and can predict future data [6]". Following this procedure what we get is called a model. This approach is completely different from the existing traditional approach concerning to AI. The traditional approach is associated with the attempts of the programmer to articulate software code in the same way that humans take decisions. The multi-farious activities of AI are associated now with ML. It appears that in matters concerned with the diagnosis of a certain disease, ML appears to be more accurate than humans[7]. ML functions are performed through a step-by-step procedure [8]. Vision technology is a special type of approach with the help of ML that is able to recognise images[9].

For tagging people in photographs, Facebook uses this mechanism. NPL technology is a special procedure with the help of ML. It supplements computers for interpreting, understanding and even manipulating human language (Krkač, 2019). This process includes splitting the languages into short pieces and this process takes an attempt to quest how these short pieces can be arranged to create meaning (Lobova *et al.*, 2020). NPL can use the services such as Chatbots and Google translate[10]. Speech Recognition allows computers towards translating spoken language in the form of text[11]. By the help of a smartphone (Losbichler and Lehner, 2021), it will allow one to use effectively talk-to-test. NLP has many applications in the business. The most powerful utilization of NLP is to improve self-awareness, expertise and skills for one's self-management, interpersonal dealings and communication. It is also helpful for improving one's emotional experience. NLP is deemed to have been based on five pillars such as outcome thinking, sensory acuity, rapport, flexibility and self-management (Yemm, 2008). robotics technology is also closely related to AI technology. Robots possess a body (physical) and mobility. By using AI, robots can perceive meaningful alteration in function and environment[12]. In the perspective of robots, AI is considered a growing area covering in-depth research and development (Losbichler and Lehner, 2021). However, till date, robots have yet not been able to ensure as universal compared to non-robot usage of ML (Bharadwaj, 2021).

4. Artificial intelligence and human rights

AI is associated with the daily life of the people of our society. It shows a general tendency to turn the advice, decisions, etc., into algorithms. By the word "intelligence", is concerned with the ability for prediction regarding the future and helps to give a concrete solution to an easy complex problem in an easier manner (Masakowski, 2020). AI technology exhibits its ability through different devices such as tablets, smartphones, drones, laptops, robots and even self-operating vehicles. These devices help people in many activities including daily household activities. Not only that. These devices are found helpful in police investigations and even in warfare (Mascarenhas, 2018). If it is possible to access needed data, algorithms can do anything which can be coded (Methven O'Brien and Dhanarajan, 2016). Then, it becomes possible to articulate a design structure and this structural frame is helpful for executing any task required to be performed. In this context, the progress is enormous (Miao, 2019). The algorithmic ability is increased out of proportion if the availability of data covering all possible human activities and several other processes can be ensured (Miller, 2014). This information is known as Big Data as already defined in the earlier section (Ryan and Stahl, 2021). With the help of AI technology in the form of ML, it is possible to come to an accurate inference as to what would happen in the future. This is practically done by the study of the pattern by ML.

There is no denying the fact that algorithms work in a more efficient way compared to humans. However, the algorithms are not free from biases. Human biases are found perpetuated in them. The systems which are designed by human beings contain human biases (Sarikakis *et al.*, 2018). In addition, algorithms are articulated based on these data as outcomes of human design. Naturally, biases may be there in algorithms unless appropriate preventive actions and measures are taken[13]. Now, it is relevant in this juncture to explain the meaning of "Bias". "Bias" may be defined from the statistical angle and from the societal angle in the perspective of AI (Shin *et al.*, 2019). The interpretation of Bias from the societal point of view considers bias as "an inclination or prejudice for or against a person or group, especially, in a way that is considered to be unfair[14]". In the context of statistical complexity, the bias may be investigated in a different way. Bias is considered as a difference concerning the prediction of a system or the value in this connection predicted

and the actual (true) value (Chatterjee and Sreenivasulu, 2021). It can be explained in another way. It is the difference between system prediction and actually happening[15]. It is noted in most of the cases that the statistical bias instrumental in each AI system results in something and that "something" brings in societal bias (Shook *et al.*, 2020). This bias in the functionalities of AI always brings in problems in Human Rights which include the issue of showing respect to human life. Bias refers to a person who prefers an idea and normally does not put an identical chance to a different idea. The number of factors impact bias. They include popularity, advantages, partiality, etc.

4.1 Issues of human rights

Human Rights are considered universal. These are found to have been codified in the recital of international laws. Human Rights are such rights as those are needed to be respected by all. Government, private bodies and companies are needed to sincerely respect Human Rights. Not only that, governments of all countries are but also needed to protect Human Rights. If it appears that Human Rights are abridged, the delinquent responsible for such infringement is needed to be appropriately castigated. Systems are there in the international, domestic as well regional levels to see that Human Rights are not abused by anyone (Zhai *et al.*, 2020). All the authorities are needed to develop an appropriate framework to provide the remedy to the victims in case their rights are infringed. The authorities are needed to articulate appropriately the proper application of Human Rights laws to provide remedies even such infringement takes place by the development of technology. Sometimes it may so happen that there is the inadequacy of existing domestic laws to combat Human Rights abuses.

In such a case, the morality supported by the sense of legitimacy in the perspective of Human Rights are found to carry normative power significantly[16]. There are different issues of Human Rights. They are provided in the below Table 1.

These are the salient Human Rights envisaged in different international laws such as the International Covenant on Civil and Political Rights (ICCPR), International Covenant on Economic, Social and Cultural Rights (ICESCR) and European Union Charter of Fundamental Rights (EUCFR). There are a lot of adverse impacts of AI on human rights issues. Some of the global conventions of human rights can be severely impacted due to the adverse effects of AI on human rights issues. Below Table 2 shows some of the adverse impacts of AI on human rights parameters.

4.2 Artificial intelligence-enabled robots and human rights issues

A small percentage of AI usage is covered by Robot technology. This technology has become gradually a growing field of researchers. Robots are expected to play an important role in our daily life in the very near future. However, it is a fact that in the perspective through which robots are being used may invite some entangled challenges that might affect Human Rights. In some Human Rights issues such as the right to life, right to privacy, right to work and right to education, this robot technology may pose some challenges (Lauren, 2021). In the health-care industry, the threat to human life may arise whilst robots will be used. In near future, robots will not only be used to assist surgery but also robots will be used for autonomous surgery. The slightest errors in programming may result in a fatal consequence.

4.3 Rights to life

Automated weapons based on robot technologies are being developed in many countries. Gradually the use of drones is increasing with a rapid pace. Not only that. Autonomous

ICCPR articles	Explanation
Articles 6, 9, 14 of ICCPR	Rights to liberty and security, right to life, fair trial and equality before the courts of law
Article 17 of ICCPR and Articles 7 and 8 of EUCFR	Rights to protection of Data and right to privacy. No one shall be subjected to arbitrary or unlawful interference with his privacy, family, home or correspondence, nor to unlawful attacks on his honor and reputation
Article 12 of ICCPR	Rights covering freedom of movement
Article 19, 21, 22 of ICCPR	Rights to freedom of association, thought, assembly, expression and religion
Articles 3, 26 and 27 of ICCPR	Rights to non-discrimination and equality
Article 25 of ICCPR	Rights to self-determination and political participation
Article 20 of ICCPR	Prohibition imposed on propaganda
Articles 6, 11 of ICCPR	Rights to enjoy adequate living standard and rights to work
Article 12 of ICESCR	Rights for the preservation of health
Article 13 of ICESCR	Educational rights
Article 15 of ICESCR	Rights for enjoying benefits in scientific progress and right to participate in cultural affairs
Article 24 of ICCPR	Rights to marry along with family rights and children's rights

Table 1.
ICCPR

weapons are found to be accessible to most of non-state actors. They are not tied with existing laws of armed conflicts. None can assert that these autonomous weapons might cause to occur some unexpected incidences due to a slight inability of AI technology basing on which the weapons are operated though robots. This might even cause the deaths of innocent civilians. This unfortunate incidence could have been avoided had it been operated by humans[17].

4.4 Robots in the health-care industry

With the recent development of robotics and AI, robots possess effective potentials for supporting the field of health care. Robots are found to have been used for the care of the elderly, persons with disability, children, in hospitals and in other health-care sectors (Rodriguez *et al.*, 2020). Non-surgical robots are there to support health-care workers such as therapist and nurses. Robots also help the elderly by monitoring their daily physical activities in the homes and take care of the health of the elderly. In this way, in many areas of the health-care industry, robots provide immense help (Čaić *et al.*, 2018). The threat to the right to life may also crop up in the issue of the use of robots in health-care industries. In the very near future, not only robots will be used to help surgery but also robots will be fully involved in autonomous surgery. For committing the slightest wrong in programming or otherwise, the result will be fatal[18].

4.5 Right to privacy

For a long time, drones are being used in the military sector, but now these surveillance drones based on AI technology with robots are being used by law enforcement authorities. These AI-powered robots are also used for facial recognition through an intimate process of surveillance. This surveillance helps to target a certain group of persons or a specific person. This is construed as violative of the "necessary and proportionate" principles required to adhere to state surveillance-governing principles. Thus, robots appear to have influenced to infringe the right to privacy.

Table 2.
AI Technology and human rights issues

AI technology	Human rights issues
Facial recognition technology	Due to error and overreach, the facial recognition technology (AI-oriented) whilst implementing laws is raising risk regarding arrest unlawfully. Innocent people are being arrested who appear identical with wanted criminals. Intentionally, these arrested are being actuated by the AI technology to the non-white facesa mostly. So, bias is there in the technology jeopardising Human Rights
Analysis of big data including personal data	AI can analyse a huge volume of data accurately without the interference of humans. The huge volume of data includes personal data. By such analysis of personal data by AI, there is a chance that the privacy of the personal data is infringed by its misuse. This will jeopardize the privacy of the individual whose data is infringed. This will cause harms to human rights
Surveillance Technology	Use of AI in matters related with surveillance will eventually inhibit the movement of people freely jeopardising Human Rights
Bot enabled online practices	Bot enabled online practices with the help of AI technology might pose a serious threat to the freedom of expression. This is accounted as online harassment that would have a chilling effect on the freedom of expression. It could cause an adverse effect on independent thinking to adopt. This would affect Human Rights adversely
AI-powered ML	Surveillance activities with the help of AI-powered machine can keep the people in check towards the participation of political activities. It also helps to identify the political affiliation of people interfering political liberty of people. It jeopardises Human Rights
Chatbots	In future, people might use chatbots to instigate ethnic and racial violence in the area which is already reportedly rife with huge tension. This might also help to publish false news covering even instigating armed conflicts
Automation by the help of AI	Automation by the help of AI is apprehended to severally affect the labour market towards curtailment of jobs affecting the income of people. It would also adversely affect the standard of living of people. This would hamper the right for getting work and it will affect the living standard of people
AI and health care	There is the possibility that health insurance providers using AI can profile individuals' history of health. This would help the providers to assess health insurance rates. Assessing one's food habits, the providers can charge an enhanced insurance premium. This unethical approach jeopardises the Human Rights of the affected persons
AI and education	Students' performance can be predicted by AI and this would help to limit the eligibility of some students towards studies of some particular subjects putting the right to education at stake. This also creates an impediment towards some backward students depriving to get the opportunity for more studies. In the way AI could cause harm on the concept of the right to education
AI and cultural issues	For fear of being identified by the process of surveillance, some people may avoid exhibiting their cultural expressions. This also affects Human Rights activities. Developed countries enjoy almost full benefits of AI, whereas other countries cannot enjoy the boon of AI to that extent. This creates a digital divide also
AI and reproductive screening	For reproductive screening, AI technology is used. Some people might have no likings to have children, this AI-screening could help them not to conceive. This also affects family life. In this way, the contribution of AI affects family life also

Note: [a]Ibid Note 109. Source: aLauren, G. (2021)

4.6 Right to work
Automation of jobs may be done by AI-powered robots. It would help for job curtailment. It influences adversely the right to work.

4.7 Right to education
The utilization of robot technology in the field of education is considered as an active area for research. However, this idea is still in the nascent stage. However, this application is violative of the principle of "equal access". In areas where this technology is in use, the students there might be taught by robots replacing teachers. Thus, students would get a separate type of education compared to the students who are taught by teachers. This might give rise to a violation covering "equal access".

5. Helpful and harmful artificial intelligence technology for society

Whenever a major technology arrives in society, its applications bring in advantages and harms to the society. The AI possesses the ability to process various types of data and can analyse these data to reach an accurate decision. It is a fact that AI can help to solve some important pressing societal problems. In the field of health-care industries towards treatments and diagnosis, in the field of activities concerning to transportation sector, even to manage climate change issues, this technology derives considerable help to the society. In this context, AI is construed to help society. However, there are other aspects and issues when AI can cause harm to society jeopardising even the Human Rights of the people. The issues of surveillance activities now being augmented was never experienced before. This excessive surveillance in multi-farious reasons is inviting harm to society jeopardising the privacy of people. It is a contribution towards automation responsible for job curtailment is inviting negative effect on the economy of the society. However, we have already discussed the adverse effect of AI on Human Rights.

5.1 Helpful artificial intelligence technology for society
In different areas AI technology can act as a helpful tool. The following Table 3 shows few of the areas where AI technology can be very helpful.

5.2 Harmful artificial intelligence technology for society
There are many instances where AI technology would cause harms to society. Below Table 4 shows some of the areas where AI technology can cause harm to society.

6. Artificial stupidity, human rights and company power

Due to the advancement of AI, society faces more immediate constraints compared to intelligent AI-oriented machines of the days to come in the future. With time, technology is advancing with a rapid pace. The compliance of Human Rights in the context of the Universal Declaration of Human Rights appears to be severely affected by such technological developments. Provisions of anti-discriminations are found to be threatened if those are monitored by the help of AI algorithms. In the western criminal justice system AI-software are used relating to parole decisions. However, the decisions emerging from the intelligent software are found biased because the decisions are racist or sexist, as that software learns from those inputs which are prejudiced with sexism and racism. Freedom of expression and speech of individuals are heavily prejudiced by the influx of fabricated news, as well as fake videos. These electronic media published false information including the incidence of terrorisms which did not actually take place or were committed through

Table 3.
Helpful AI and its explanation

Helpful AI technology	Explanation of the helpfulness
AI technology and visually impaired people	Visually impaired people feel problems in their movement. However, AI technology has provided tools for image recognition. AI-oriented image recognition tools have made the life of visually impaired people easier
AI technology and diagnosis of diseases	In the health-care system, AI has been able to contribute a lot. In the issue of diagnosis of diseases and for their prompt prevention, AI is now being used to access to health-care in these regions[a]. The possibility of outbreak of a disease can be kept in check with the help of AI-based software[b]
AI technology and agriculture	In the agricultural sector AI tool acts as helpful agent. AI can collect agronomic and weather data by the help of a global satellite imagery system. This helps the farmers towards improving crop yields. This also helps for treating the diseases of the crop
AI technology and fight against climate change	By the help of AI, it is being possible to predict extreme weather events and this technology is also helping to take arrangement well ahead against natural disasters as AI is being able to predict such unforeseen events. In this context also, AI is acting as a helpful technology
AI technology and public services	It is a common experience that public services in most of countries are gradually becoming inefficient due to slow disposal. Due to the development of "Smart Cities" quick and efficient services have become essential. AI is helping the process quicker and more transparent. AI is helping to flawlessly optimize budgeting allocation[c]

Notes: [a]available at: www.ibm.com/watson/health/ for more information. IBM's Watson is being used in hospitals around the world to help doctors diagnose and treat disease. Other examples are available at: http://ventureburn.com/2017/04/five-artificial-intelligence-startups-africa-look-2017/?platform=hootsuite (Accessed on 21 August 2019). [b]available at: www.cnn.com/2018/03/06/health/rainier-mallol-tomorrows-hero/index.html (Accessed on 12 January 2019). [c]available at: https://ash.harvard.edu/files/ash/files/artificial_intelligence_for_citizen_services.pdf (Accessed on 22 January 2020)

Table 4.
Harmful AI technology and its explanation

Harmful AI technology	Explanation of the harmfulness
AI technology and mass surveillance	In the context of mass surveillance activities by AI, facial recognition software deserves special mentioninga. This technology is still not so perfect, different governments use facial recognition mechanism for facilitating to profile a certain group. This software can locate and identify individuals. This brings in possibilities of infringement of privacy. This is inimical to the society
AI technology and spreading of wrong information	AI technology contributes towards the spreading of wrong information by the help of social media. This causes harm to the society
AI technology and bias	In the case of hiring people for job purposes, AI technology is being used. This is done for removing human bias. This is because in many cases AI takes the help of historical data of the past regarding successful employees. This process, as such, is associated with bias itself. In this context use of AI in the job market also causes harm
AI technology and wrong assessment of people	Algorithms based on AI technology is known to have been used for long days to create credit scores. With the help of ML, now the financial institutions used to have assessed the creditworthiness of the people. It also has been able to assess about the browsing habits of the people and different other data of people. This is perceived to help financial institutions to weigh if it is cogent to release a loan to a person. These are called credit scores. However, O'Neil, a famous data scientist opined that these scores are found very often discriminating and they might create the wrong feedbacks[b]. Thus, in this impact, the help of AI causes harm towards assessing people
AI technology and predictive policing	In the USA in criminal proceedings, two types of software based on AI technology are used. They are "risk scoring" and "predictive policing". The "risk scoring" software helps the judges to assess if the defendant will reoffend or if the defendant is released on bail. The "predictive policing" software helps the police people to provide information well ahead that helps to prevent crimes. However, very often it is seen that the recommendations of these software frequently exacerbate the very bias which are required to be mitigated. In this way, AI in these issues mislead the judges or the police officials causing harm to the society

Sources: [a]Available at: https://medium.com/cognitivebusiness/watson-assists-cities-with-311-3d7d6898d132 (Accessed on 18 January 2020). [b]China is aggressively pursuing an AI-based surveillance state. See Paul Mozur, "Inside China's Dystopian Dreams: AI, Shame and Lots of Cameras", The New York Times, 8 July 2018, available at: www.nytimes.com/2018/07/08/business/china-surveillance-technology.html (Accessed on 6 January 2020)

different people. Obviously, AI technology is involved in the creation of such false or fabricated news. AI technology is also accountable to disseminate such forged information prejudging peoples' minds. The political scenario is also highly influenced by the news spread through the grace of the internet or through social media. Technological advancement highly prejudices the political scenario. Sophisticated internet may help to create political disorder. As already stated even in the judiciary system, it appears that judicial rights would be severely threatened if the AI technology is used without proper protection and maintaining appropriate transparency (Nikolaos *et al.*, 2016). Wherever we find the use of AI, there exists also Artificial Stupidity. Through robot soldiers or drones, rights to privacy and security are found heavily affected. With the help of drones, it is now being possible to trace people, jeopardising their privacy. Once the biometric sensors start monitoring the health of people, the heath data about the people will be enhanced enormously. Such data would pose severe challenges towards political and civil rights, as those data might be privately owned.

In the olden days, the status of a society used to have been determined by ownership of land. However, after the Industrial Revolution, the status of society was determined by the ownership of factories. Unequal ownership of data leads to yield detrimental consequences to the people in a complex society. In the context of the assessment of the power of a company, it has been now a settled fact that such company is deemed to have possessed more power which uses and depends more on AI technology. Thus, we usually say the bad effects of AI applications as artificial stupidity and we ascribe that company to possess better power which takes more help of AI.

6.1 Artificial intelligence technology and inequality

There are innumerable instances where technology was able to create the potential for inequality in a society. This aspect is also connected with Human Rights. It is clear that capitalism is one of the root causes of economic inequality (Thomas, 2014). Thus, those will get more scope to use and apply AI and other advanced technology who possess more on social status. It is also experienced that those who know how to use the technology would demand higher wages. AI technology only catalysis this tendency. Thus, producers of AI are considered as more highly priced providers of technology. Apprehension is there that the arrival of this ground-breaking technology would severely and adversely affect job markets as already stated. However, it is experienced that each wave of innovation relating to technology creates more job opportunities than it destroyed. It is a fact that change in technology does not derive good for everybody, but it brings benefits to society and to humanity eventually. The arrival of this cutting-edge technology would create many new jobs covering people who would act as developers, who would act as designers, who would supervise, etc. This would ultimately outnumber those who would lose jobs due to the uses of AI. However, it will be operationalized if the existing education system is thoroughly changed to make the people knowledgeable and competitive.

At the initial stage, there will be the paucity of knowledgeable people to handle AI systems. Thus, there are enough reasons to be worried that AI would drive a widening technological wedge into the societies that would exclude a huge number of people making them redundant in this AI-market. This will indulge in inequality and will influence the difference in the economic standard. However, in the future, if the progress becomes steady, if the governments come forward to incentivise the people and train them properly to know what AI is, it is expected the gap of inequality, in the context of AI-arrival and its usage will be reduced to a great extent.

7. Actions to address artificial intelligence-related human rights issues

Harms caused by AI on Human Rights issues can be addressed by taking quick and appropriate actions. The field of applications of AI is vast. Any approach to address the harms caused by AI in society should be always sector specific. The following four broad approach towards the policy is supposed to combat risks covering Human Rights threatened by AI. They are as follows:

- Comprehensive and executable pragmatic data protection mechanism can easily anticipate and eventually mitigate most of the risk covering Human Rights threatened by AI. Hence, in a word, data protection architecture is to be articulated.
- A high standard is needed to be ensured whilst AI will be used by the government. These standards include Human Rights impact assessments, accountability procedures along with transparency.
- So far as private sectors are concerned, it will be their duties to respect Human Rights. Companies are expected, in this context, to establish internal ethics policies and develop transparency, as well as accountability architecture.
- For understanding the Human Rights harms by AI, more research works are needed to be undertaken. Appropriate funding is to be made for the creation of structures for responding to these entangled challenges.

7.1 Role of comprehensive data protection laws

Appropriate and implementable Data Protection Laws are expected to address many Human Rights risks posed and threatened by AI. These laws will have their appropriate applications in both the private and government sectors. Data is the central issue of AI. Naturally, any law for the protection of data will implicate AI systems. If we consider the impact of the European General Data Protection Regulation (GDPR), it is noted that this regulation provides a congenial framework for controlling and protecting personal data and this regulation provides appropriate information to the people to the effect as to how their data are being used. This GDPR provides a restrictive data processing mechanism and allows the use of data for specific, as well as permissible purposes with appropriate data protection mechanisms particularly for sensitive data. This regulation has provided provision to use data after obtaining the consent of data subjects. This helps to limit the use of personal data. GDPR provides provision for preventing unaccountable utilization of AI that influences the rights of individuals by way of protection of personal data. Some experts opine that the data protection laws are not befitting with AI. Attention is required to be given to widen the protection mechanisms so that the development and use of AI for beneficial purposes are not unreasonably impeded. If it is noted that AI is taking decisions on the basis of such logic that cannot be explained by the developers themselves, it is apprehended that such decisions might lead to negative consequences. Data protection rights provide mechanisms to ensure such an accountability structure that might mitigate harms. It also provides architecture so that use of data of a person does not cause any harm to others and to society. As, for example, India is a data dense country (Sahay and Tiwari, 2018). As such, in India there is a need to have appropriate and consistent data protection laws. For this, a committee was formed in India (Srikrishna committee) in 2018. This committee has proposed a "data protection bill, 2018" (Sumanjeet, 2010). On its transformation to act will help to protect the misuse of personal data jeopardizing one's privacy. Meanwhile, India has already framed the Information Technology Act (IT Act),

2000 which has provided some provisions to restrict misuse of data (Sharma and Kaushik, 2017).

7.2 Data protection rights and artificial intelligence technology

Right to information allows the data subjects to have the information what types of data are being gathered, how the data are being collected, in which purposes those data would be used and whether such collected data will be used for automated decision-making. All this helps to grow awareness among the people about the role of AI in society[19]. These information makes people realise the exact implication towards Human Rights abuses. Then, information also makes the people proactive to compel the agencies using personal data to be more transparent about the process and use of AI. Right to rectification included in the data protection rights helps the data subjects to get a scope to modify the information possessed by a third party if it is found not correct or inaccurate or incomplete. This right provides to mitigate the error-impact in the AI-systems. The right to restrict processing provides the data subjects a scope to request the agency (using their personal data) to limit or stop to user their personal information. Moreover, data protection rights provide another scope to the individuals. This is right to erasure. This right helps the data subjects to delete their supplied data if they find that those data are being misused or being used for purposes other than for which those were provided. This right also includes the liberty of the individuals to pressurize the agency using their personal data to use AI systems in a more responsible way.

The right to an explanation gives the data subjects to have an explanation from the agency (using their personal data) how the agency is arriving at a decision from the supplied data. This would enhance the transparency and would also make the data subjects aware regarding the AI-mechanisms regarding decision-making. The right to object (as envisaged in data protection rights) includes the data subjects to challenge the agencies using the personal data in case such data are used for marketing purposes directly or when the agency is taking help of AI for decision-making on those data or when the agency is seen to have used those data for the legitimate interest of the agency. In this way, the data protection rights in the shape of right to information, right to rectification, right to restrict processing, right to erasure, right to an explanation and right to object, help the data subjects to protect their data so that their human rights are not at stake.

8. Addressing artificial intelligence-related human rights issues

AI technology finds its applications in different fields. Its interference in issues relating with Human Rights depends on the type of data which are being used and the background in which implementation is taking place. Things will be clear if two examples are given. For control of water usage by an individual family, the urban governmental administration uses AI technology for optimizing water usage. Again, to combat crimes, police department uses AI-based criminal risk assessment tools. Hence, in two contexts, there is different types of AI technology usage. In this juncture, different AI-specific recommendations are given for the government as well for the private sector.

8.1 Recommendations for the government on the usage of artificial intelligence

It is a settled issue that governments are scheduled to respect Human Rights. Not only that. The government needs to protect the Human Rights of the citizens. The government has the duties, as well as responsibilities to protect, respect, promote and fulfil Human Rights focusing on international laws in force. Governments are supposed not to indulge in such practices that are found violative of Human Rights regardless of the process of designing or

implementing AI-systems. Providing protection to the citizens against Human Rights abuses is the duty of the government and the government should be vigilant to see that the citizens can enjoy their human rights without the slightest impediment[20]. The following charter highlights and recommends the type of framework the government of any country is needed to articulate for the overall protection of the Human Rights of the citizen.

8.2 Establish accountability and procedures for remedy

AI technology does a task which was previously augmented by humans. However, the process of doing a task does not change the standard requirements and accountability in the process of government decision-making. Besides, governments are scheduled to frame policies covering automated processes with a focus on Human Rights impacts. Governments are also required to be cautious to see that individuals get an opportunity in challenging the use of the AI system. To uphold accountability and remedy, the following issues to be focused specifically.

- Operators of the AI-systems must be adequately trained. The employees scheduled to operate and manage the AI system must be vigilant to understand how AI would work, what is the radius of circumference within which the use of AI would oscillate, what are the harms, the AI is likely to commit. By this way, humans must be in the loop in an appropriate and meaningful way that would help to spot any harmful outcome.
- Operators of AI must possess and realise their responsibilities towards the relevant results of the AI system. However, usually governments get all these AI-centric works done by the third party through outsourcing. However, the ultimate responsibilities and accountability lie on the states. Hence, the concerned government employees must possess adequate expertise to handle the system so that individuals must not be victims of Human Rights abuses whilst government would use AI.
- It is a fact that systems are implemented with transparency but still there might be the risk of Human Rights violation[21]. Thus, for addressing such violation, the affected individuals must have some scope to challenge this usage by AI for seeking an appropriate remedy.

8.3 Mandate human rights impact assessments

Before developing the AI systems, governments are to investigate thoroughly the AI systems for identifying Human Rights risks. There is a need for Human Rights impact assessment as a part of the algorithms impact process for assessment. This would identify risks that include threats that emerged from AI-based surveillance activities that affect adversely Human Rights[22]. The assessment process of AI must include the following:

- A third party using AI-system should be included in the assessment process.
- For a specific and special application of AI system, new legal protection may be needed.
- Special identification of AI-bias, especially, in criminal proceedings is to be achieved.
- Auditing and testing are to be done by impartial experts.
- Appropriate measures to be ensured for mitigating identified risks.

8.4 Follow open procurement standards

During the acquisition of AI systems by the governments, it is essential to procure the system with transparency and openness in terms of the open procurement standards. This

includes to publish the goal and other relevant parameter including other information of the system to be implemented for facilitating public realization, as well as assimilation.

8.5 Ensure transparency and clear explanation

The governments are needed to ensure enough transparency that includes transparent approach towards the purpose, towards the use-mechanism, etc. Moreover, the transparency and ability to explain would include the following:

- Notification is to be done when the AI-system used by the governments takes a decision that might affect Human Rights.
- Such AI-system should not be used which cannot be understood how it would work. "Black Box Systems" are to be avoided.
- How and when the governments are using AI systems are to be reported to ensure transparency.
- Independent audits of data and the system are to be done.
- The use of the open standard of data is to be maintained.

9. Recommendations for private enterprises and non-governmental organization on the usage of artificial intelligence

Actors of private sectors have enough responsibility for respecting Human Rights. They are supposed to take appropriate steps to watch their use of AI so that it must not contribute towards Human Rights abuses[23]. Like the government, the actors of private sectors are needed to take different measures. These include measures covering transparency, accountability and access to remedy, etc. These measures are helpful for companies in mitigating and preventing Human Rights abuses whilst using AI. In the context of the protection of Human Rights whilst using AI, the private sectors are to take some specific actions. They are as follows:

9.1 Establish appropriate mechanisms for accountability and remedy

For the functioning of the AI systems, the private-sector players are scheduled to adopt appropriate mechanisms regarding internet accountability. For seeking remedy by the affected individuals relating to Human Rights abuses, government authorities possess primary duties and responsibilities to provide the remedy to the affected individuals. However, the private players are also needed to take additional care for providing non-judicial redress and remedy[24]. These are shown below.

- There must be a provision for the creation of a transparent procedure through which individuals can submit complaints for availing appropriate remedy in time. Through the help of the external body[25], the matter could be executed and the findings should be incorporated to the private players for better policy development for mitigating harms.
- Internal responsibility must be tightened to develop harmless use of AI system.
- The developers of the AI system must be transparent in designing the AI systems for establishing accountability and responsibility between the vendor and the client.

9.2 Provide possible transparency

The private players are needed to be transparent. They must be sincere in providing effective information to the stakeholders about how the AI system would work. As the AI

system is associated with personal or public impact, maintenance of transparency is perceived to be highly essential. The private players in this context must be serious in following some calibrated procedures. They are as follows:

- The private players are needed to adhere to open data and open-source standard.
- The private players are to be sincere in keeping the stakeholders apprised by explaining how the AI system (they would use) would work. This will help the stakeholders to assess how such use of AI system might affect them.

9.3 Conduct human rights due diligence

Conduct Human Rights due diligence as per the UN Guiding Principles on Business and Human Rights. The following Table 5 shows the core steps.

9.4 Invest on research of future use of artificial intelligence

Attempts are taken by the governments and private-sector actors to mitigate Human Rights abuses whilst using AI. In doing so, protection of data, transparency and accountability architecture is being built. Many instances are there where AI technology can cause harms to the society. AI technology helps to disseminate wrong information with the help of social media. This invites harms to the society. There are other instances where AI can also cause harms to the society. These include help of AI in surveillance (human), in predicting policing, etc. Hence, the experts are worried how to control these risks to protect human rights. Economic opportunities and facilitating war are impacted by use of AI. For this, the governments and private-sector actors are needed to work together for identifying the risks that might come whilst using AI in different sectors including these sectors as mentioned above. In this identification processes, the academia and civil society organizations are also to be involved. Attempts are to be made to articulate congenial response mechanisms to combat anticipated threats that might crop up whilst using AI systems in different sectors.

9.5 Maintain transparency in artificial intelligence innovation

Against requirements for ensuring accountability and transparency in using two arguments are very often heard[26]. One argument advocate that by ensuring transparency in the use of AI, it would lead to damage innovation. The other argument states that it is not possible to explain everything. If it is mandated, the designers and the developers of the AI system will be compelled to sacrifice the system-complexity that would again adversely effect on that innovation. However, experts opine these arguments are not at all consistent with such rapid advancement of AI. How the arguments would be addressed are enumerated below.

9.6 Publish the code to third party experts to identify potential issues

Those who do not believe regarding the maintenance of transparency question, the necessity of publishing training data, as well as code relating to such system which is complex should be there. It is a fact that the issue of auditing the AI system poses a new technical challenge. The developers of AI should vet AI outputs and training data for identifying the sources of bias. They do this for testing the outcomes. Transparency ensures access for the essential AI outputs and training data for the experts towards the identification of the sources of bias. The experts identify if any problem has been overlooked by the developers. Thus, it can be said that this process is essential to enhance accountability and it would also help to enhance the trust level of the users[27].

Human rights due diligence	Important steps
Private sector actors are needed to identify the adverse results of Human Rights culminating by the use of AI	• The private players should consult with the stakeholders, especially, the affected groups, AI experts and different Human Rights Organizations • The system used by the private players using AI may also be used by the government sector. In such case, both of them (government and private sectors) are required to assess the extent of harms that might be caused to the individuals and arrange to find remedies • The private actors should assess direct and indirect harms that include non-financial, social, emotional and environmental harms
Effective and meaningful steps are required to be taken by the private-sector actors to mitigate Human Rights-oriented harms	• Systems are to be made flawless in designing the model • Expert opinion is to be taken for preventing bias in designing the system • The risks which might crop up in the use of AI-systems should be placed before third party for auditing • Steps to be taken to reduce Human Rights harms and evaluate the efficiency of the steps so taken • Use of AI system is to be stopped when by such use, violation relating Human Rights are not possible to reduce and the extent of violation is considerably high
In the matter relating to the identification of risks, the private players are to be transparenta	• Take action for publishing the anticipated Human Rights risks and all the shareholders are to be apprised how the system has been designed and how it would work • The technical details are to be made known to all concerned and all concerned are to be kept informed wherefrom the data have been collected

Table 5.
Steps for conducting human rights due diligence

Note: [a]UN Guiding Principles on Business and Human Rights, Principle 21

9.7 Maintain full transparency for high-risk cases

As ensuring transparency requirements might decrease incentives for investment in new AI systems as it allows replication, opponents of transparency argue against such maintenance of transparency. It is a fact that projects related with open source are very often found to achieve grand success and it helps to facilitate innovation. However, in some restricted circumstances, there might be an option when the private players ascertain that route to be

untenable. In these cases, it is natural that the private players could try to quicken access to the concerned code by the third parties towards testing and auditing. Of late, Facebook has allowed some researchers to access to data for studying election interference[28]. In the context of government use of AI systems, it is always necessary to ensure transparency. This is more essential in the perspective of the judicial system. Though the private players may not like to publish the code relating to their software, but for the sake of the interest of the private sectors, one cannot sacrifice his/her fundamental rights.

9.8 Observe meaningful explanation of artificial intelligence application innovation

Those who advocate against ensuring explanation argue that if the explanation is to be ensured, the system is to be made less complex and less complex system may not be accurate to the desired extent. It eventually would affect innovation adversely. However, the explanation is considered valuable.

Developers need to realize whether the AI system is solving the right problem. Examples are not rare where it is seen that some AI system failed to come to the desired result. Thus, there is an essentiality for ensuring explanation. If it is found that an AI system in high stakes fields eventually solve the problem in the wrong way, the outcomes would even threaten life. Besides, explanation helps to spur innovation. For technical and ethical reasons, the explanation is perceived to be essential. It is to be observed that some of the big enterprises are found to devote considerable efforts for explanation and by this, they have achieved meaningful progress. In health-care industries, AI derives several advantages. Whenever a system is involved in a diagnosis, if it can explain how it could diagnose to the physician, it helps to grow confidence in the minds of the physician. This transpires the essentiality of explainability[29].

10. Conclusion

Artificial Intelligence is associated with the daily life of modern people. The activities of the companies and government have been radically changed owing to the arrival of AI. This change instrumental for the entry of AI has brought in significant benefits but at the same time, it has brought in various entangled challenges jeopardising Human Rights. It is a fact that laws covering protection of data and safeguards relating to transparency, as well as accountability have been able to mitigate the Human Rights abuses considerably, but these have not been removed radically. With time, the AI system is becoming more sophisticated and it is widening its amplitude of applications opening thereby new areas of vulnerabilities towards abusing Human Rights by its (AI Technology) usage. To address the seething situation, more research is necessary to safeguard Human Rights. This article has listed out some recommendations for safeguarding Human Rights against the growing usage of AI technology. It is hoped that if governments and private sector actors follow these recommendations, it will not be impossible to use AI without causing Human Rights abuses.

Notes

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Dr Zahid Hussain joined the school full time in 2002 and has taught at all levels, as including executive education, MBA, DL, etc. He possesses a tremendous amount of academic and management experience and possesses many other suitable qualifications. He teaches with passion, rigour and meticulousness. He can undertake wider multi-disciplinary research within the university that has a better impact, hence meeting the university's pledge to making knowledge work. He is a member of humanitarian education accelerator (HEA) and several other professional bodies (Member of HEA, bachelor of computer science (BCS), bachelor of arts in management (BAM) and UK academy for information systems (UKAIS)). He has won several awards in distinguished teaching and is helping to deliver the faculty vision of enhancing levels of student satisfaction. This will help to achieve the faculty objective of excelling in teaching. He is an external examiner to the University of West London and Imperial College London and in the past was external to Aston, Open University and the University of East London. His research is usually applied and industry-based. Several of his recent articles have been "best read" and/or "nominated as best papers" by academics. However, Zahid has and continues to supervise world class research of the highest merit involving many well-known organizations, such as The North Atlantic Treaty Organization (NATO), SAP, Mercedes, Emirates Airline, British Telecom, Mauritius Government, Asda, PACE, BBC, Airbus UK, National health service (NHS) and many more including many SMEs. He is a permanent speaker/presenter on learning and improvement topics at the local community radio – make a change services (MACS).