

The ethical issues surrounding artificial intelligence

Omar Alsaifi¹, Abdulrahman Alfaleh², Mshary Altamimi³, Ahmed Alghamdi⁴, Abdullah Alhafi⁵, Abdelrahman Altigani^{6*}, Muawia A. Elsadig⁷, Sulieman Mohamed Ali Sulieman⁸, Yasir Abdelgadir Mohamed⁹

^{1,2,3,4,5,7}Imam Abdulrahman bin Faisal University, Saudi Arabia; 2210001980@iau.edu.sa (O.A.) 2210001977@iau.edu.sa (A.A.) 2210001975@iau.edu.sa (M.A.) 2210001995@iau.edu.sa (A.A.) 2210002133@iau.edu.sa (A.A.) makhlafalla@iau.edu.sa (M.A.E.).

⁶Higher Colleges of Technology, Computer Information Science, United Arab Emirates; aabdelgader@hct.ac.ae (A.A.).

⁸Sudan University of Science and Technology, College of Computer Science and Information Technology, Sudan; mrselly2011@gmail.com (S.M.A.S.).

⁹A'Sharqiyah University, College of Business Administration, Oman; yasir.abdelgadir@asu.edu.om (Y.A.M.).

Abstract: Ethical issues center themselves around Artificial Intelligence (AI) and the various opportunities and threats that it offers. The purpose of this research paper is to explain the positive side of AI, as well as the problems that require addressing. The actual study starts with the aims and objectives of the research and briefly highlights the importance of the research topic, the operational definitions of the terms under study, and the conceptual framework. It covers the history of AI, development in technology, and consequences on society. The benefits and the disadvantages of AI are included in the evaluation of its impact on specific sectors. Social consequences are considered, with an emphasis on how the application of AI will influence social structures and groups. The legal issues are considered, turning to the existing legislation and the possible legal repercussions. Ethical issues are considered with a focus on the proper use of artificial intelligence systems. Finally, the general ideas developed in the research are briefly highlighted, the thesis is repeated, and attention is drawn to the fact that further investigation and prevention efforts are required to tackle AI's ethical issues. The findings of the study are then followed by suggestions for future work in this area.

Keywords: Artificial intelligence, AI legal considerations, AI privacy concerns, AI ethical implications, AI social impact.

1. Introduction

1.1. Motivation

Artificial Intelligence (AI) has been a topic of theoretical discussion for decades. Nevertheless, it has become a trendy area in recent years that has gained significant attention and interest (1). AI can be defined as the ability of machines to simulate the human brain and intelligence (1). However, alongside the technological advancements in AI, numerous other issues require thorough investigation (2). One such critical area is the ethical concerns surrounding AI, which encompass a wide range of complexities, including biases, discrimination, privacy, and surveillance (2, 3).

The continuous development of AI has sparked concerns among many worldwide regarding its potential misuse and its ethical implications (4). Moreover, the question of what would happen if this powerful technology were to fall into the wrong hands raises legitimate concerns about AI's responsible and ethical use.

Privacy and surveillance represent significant aspects that have captured public attention. The extensive use of AI in collecting and analyzing user data has raised concerns among individuals about the potential misuse of their personal information. Using AI algorithms that collect and study user data to predict their interests and behaviors raises ethical challenges related to privacy and surveillance (5). Another critical aspect of ethical concerns in AI is the potential for biases and discrimination. The accuracy and fairness of AI systems heavily rely on the data used to train them (6). If the training data is

biased toward certain groups, it can lead to biased outcomes and discriminatory decisions (6). As AI systems continue to improve, the potential for these biases and discriminatory practices becomes a growing concern for society. For example, using AI systems to develop autonomous weapons capable of launching wars against other countries raises ethical dilemmas and the potential for tragic consequences (7).

Furthermore, there are increasing worries about the impact of AI on jobs and the economy. Businesses and organizations may replace human workers with AI systems due to their lower cost, greater efficiency, and lack of breaks (8). However, this raises ethical questions about the potential displacement of human workers and the socioeconomic consequences that arise. It is essential to consider the lack of transparency and accountability in AI systems, which can affect the responsibility of their decisions. While AI can assist managers in making decisions, what happens if an AI system's decision leads to a worse situation (6)? Proper implementation, transparency, and accountability are crucial to ensuring that AI systems benefit society without causing harm.

1.2. Organization

This research paper is organized as follows: The introduction establishes the significance of the subject matter, outlines the primary research question, and sets the framework for the study. Consequently, the methodology section explains the approach taken to investigate and assess the ethical concerns related to AI. Next, the background section introduces crucial terms and concepts, establishing the issue's historical context and current state. After that, the advantages section investigates the benefits and rewards offered by AI, emphasizing technological advancements and their positive societal impacts. In contrast, the challenges section thoroughly examines the challenges and drawbacks of AI, shedding light on the dilemmas and difficulties encountered across various domains. Furthermore, a section is dedicated to social issues, explores the broader societal implications of AI implementation, analyzing its influence on social dynamics and communities. Subsequently, the legal aspects section highlights the existing laws and regulations governing AI while also contemplating potential legal consequences stemming from its utilization. After that, the ethical issues section delves into AI's foundational ethical principles. This section is followed by a discussion section, and finally a conclusion section is provided to conclude the research paper and summarizes the key ideas expounded in the study, restating the thesis, and providing responses to the research question. It also emphasizes the necessity for further research and proactive measures to address the ethical quandaries posed by AI, offering recommendations for future initiatives in this domain.

2. Methodology

This review paper investigates and assesses the ethical concerns related to AI. The technique entailed a methodical and thorough evaluation of the available literature, which included academic papers, books, reports, and relevant web sources. In addition, the following actions were taken to guarantee a thorough and organized approach to the evaluation process:

1. Determining the Research Questions: The first stage involved choosing the main research topics that would guide the review which is: *identifying the primary ethical issues surrounding the creation and use of AI*
2. Search Strategy: The following academic databases: IEEE Xplore, ACM Digital Library, PubMed, and Google Scholar, were utilized, along with publications from organizations with expertise in AI ethics and websites of reputable research institutions. The following keywords have been used that is "AI ethics," "ethical implications of AI," "AI and privacy," "AI and human autonomy," and "ethical guidelines for AI".
3. Selection and Screening: Articles and resources were selected and screened based on their applicability to the study's questions. Initial screening was conducted using the title and abstract.
4. Data Extraction and Analysis: Key data relevant to the study topics were extracted after an in-depth examination of the chosen papers. The fundamental ethical difficulties were identified, the development of ethical issues in AI was examined, the possible effects on privacy, security, and human

autonomy were assessed, and the initiatives and strategies used by different stakeholders to solve these issues were understood. The retrieved data were categorized into themes to facilitate effective presentation and analysis.

5. Synthesis and Discussion: The literature review's synthesized findings were used to develop a thorough understanding of the ethical concerns relating to AI. The selected themes were studied and discussed to highlight major takeaways, debates, and emerging trends in AI ethics.

6. The scope and limits of the research were addressed to ensure a representative collection of pertinent material. At the same time, including every article or resource on AI ethics was not feasible. The study primarily focused on current papers and considered important works to comprehend the historical background of ethical issues in AI.

By following this methodology, the research paper aims to examine the ethical issues surrounding AI, analyze the evolving landscape of AI ethics, and discuss various perspectives and initiatives to address these concerns. Furthermore, the findings and discussions presented in this paper will contribute to the existing knowledge of AI ethics and serve as a foundation for further research and policy development in this critical domain.

3. Background

Cognitive, emotional, and social intelligence are just a few of the numerous categories of intelligence that AI may be categorized into (9). Furthermore, it may be categorized into three groups according to its place in the evolutionary process: Artificial Narrow, General, and Super Intelligence (9). The AI effect, a phenomenon that occurs when AI is extensively used, causes people to dismiss AI's activities and claim that it is not a kind of natural intelligence (3). Even experts have anticipated the emergence of artificial general intelligence, but AI has come a long way since its inception in the 1950s (3).

To better comprehend the accomplishments and obstacles of AI, we can examine it from past, present, and future viewpoints (3). Although its precise beginnings are unknown, AI is said to have started in the 1940s (3). Specifically, it is believed that the 1942 publication of "Runaround" by American Science Fiction author Isaac Asimov had a crucial effect on the advancement of AI (3). Furthermore, Asimov's "Three Laws of Robotics" outlined in his works influenced AI ethics (3).

Around the same time as Asimov's short fiction was published, English mathematician Alan Turing was engaged with practical issues (3). Turing developed The Bombe, an electro-mechanical computer, to help break the Enigma code used by the German army in World War II (3). The Bombe, the first operational computer, successfully deciphered the supposedly unbreakable code, challenging the notion of human mathematicians' superiority (3). Turing's achievements with The Bombe led him to ponder the intelligence of machines, and in his article "Computing Machinery and Intelligence," published in 1950, he outlined a method to create intelligent machines and test their intelligence (3).

4. Advantages of Addressing the Ethical Issues of Artificial Intelligence

The field of artificial intelligence as we know it is ever-growing, and the demand for its expansion is increasing daily. With that in mind, we must take care of the rising ethical issues with it. Addressing ethical issues related to artificial intelligence can positively impact society and individuals. The positive impacts are that such improved fairness and equity, addressing biases and discrimination in AI systems can lead to more equitable outcomes and reduce disparities in access to opportunities and resources. This can positively impact individuals and communities that have historically been marginalized or excluded (4).

To clarify, consider a recruitment system that utilizes AI to find the best candidate. The talent acquisition personnel might have clear instructions to ignore the Sex, name, marital status, age, ethnicity, applicant picture, and so forth. However, humans tend to be influenced by this irrelevant information which typically leads to some sort of discrimination. However, building a system that uses AI to filter-in the candidates can help with identifying skilled candidates based only on relevant merits. By addressing the ethical issues, we will achieve increased transparency and enhanced privacy.

Addressing ethical issues related to AI can lead to greater transparency and accountability in decision-making processes. It also can help protect the privacy and security of personal data. For

instance, companies like Google, sells customers data to companies. The companies pay Google in exchange of data for potential buyers. Google will determine whether a specific user is a potential buyer based on his information stored with Google. It may seem fair to use Google services free of charge in exchange for allowing Google to sell you information to companies. However, most user can feel uncomfortable knowing that their private data is being explored by someone. Therefore, if the AI is responsible for the exploration, it can help individuals feel more secure and confident in their use of technology.

Also, safety will be improved along with innovation and better decision-making because addressing ethical issues related to AI can help ensure that AI systems are safe and reliable and spur innovation and creativity as developers seek to find new ways to use AI in ethical and socially responsible ways. Even more so, AI can help build trust among users and stakeholders. This can lead to greater adoption and use of AI systems, leading to more data and better insights (5). These advantages will continue to grow with the ethical usage of AI systems in all fields; in doing so, we are ensuring that growth always continues at a certain level; it will never cease to do so. It will even help us in regulatory compliance and customer satisfaction.

Addressing ethical issues related to AI can help ensure compliance with laws and regulations related to privacy, discrimination, and other ethical concerns. It also can improve the customer experience by ensuring that AI systems are designed and used in ways that respect human dignity and autonomy. In addition, it will increase our efficiency of how much work is done in such a manner of time. For example, by reducing bias in hiring processes, AI can help organizations find the best candidates more quickly and effectively. Also, AI can encourage collaboration among stakeholders, including developers, policymakers, and members of the public. This can lead to more effective and socially responsible use of AI.

We now know that by covering the ethical issues, we will have these benefits on these sides and more; we will know even more about the disadvantages we will face if we don't cover them.

5. Challenges and Ethical Issues with the Artificial Intelligence

Various ethical issues and problems are being raised by the expanding usage of artificial intelligence (AI) across several businesses and sectors. These problems go beyond merely technological ones and have societal and economic implications (10). Privacy is one of the main issues surrounding AI. The privacy and autonomy of people may be compromised by AI systems' gathering and use of vast amounts of personal data (1). Furthermore, using AI in decision-making might provide unfair or biased results, especially for historically excluded populations. For example, algorithms developed with partial data may have discriminatory outcomes, such as denying certain groups of individuals access to credit or employment chances (1). In addition, face-recognition technology raises privacy and surveillance concerns since it may be used to track and identify people without their knowledge or consent (11).

The lack of transparency in decision-making is another ethical issue with AI. It could be challenging to understand how decisions are made and what criteria are considered when sophisticated algorithms and machine learning models are employed. Furthermore, due to the lack of openness, it is difficult to identify and correct any defects or biases that may be present (10).

Another area for improvement with AI systems is their accountability. Who should be held accountable if an AI system harms someone or has unexpected repercussions is a contentious issue? As AI systems become more independent and autonomous, it gets harder to pinpoint faults in the case of an error or failure. This lack of responsibility complicates addressing and resolving ethical issues with AI (10).

One of the main ethical concerns with AI is the potential for disastrous usage. For instance, the development of autonomous weaponry raises moral concerns regarding the use of fatal force and the place of individuals in decision-making (7). The production of fake audio or video material using AI technology also raises concerns about trust and the transmission of false information (7). The ethical ramifications of losing one's employment due to AI use in the workplace also generate moral concerns about the influence on people's lives. AI can worsen inequality and destroy employment, even if it may boost production and efficiency (12). Additionally, concerns regarding these systems' security,

dependability, and accountability are raised by the application of AI in healthcare and other significant fields (13).

The ethical issues and challenges posed by AI have the potential to be harmful to both society and the individual. These issues must be considered appropriately and resolved if ethical AI research and use are to be ensured (10). This entails guaranteeing responsibility for using AI, addressing concerns of prejudice and discrimination, and providing openness in decision-making processes (10). To create frameworks for responsible and ethical AI research and deployment, stakeholders from diverse industries and sectors must work together to build a shared understanding of the ethical implications of AI (14).

6. Social Considerations

Integrating something or someone in our lives means accepting that some data or information that may be general or private might be shared and known. However, its use of that information is what matters. In other words, is it for the greater good, or is it unnecessary and may cause harm? The ethical issues surrounding artificial intelligence (AI) can significantly impact society and social dynamics, such as trust. If AI systems are not designed and used in ethical and socially responsible ways, people may lose trust in AI and the organizations that use it (2).

Moreover, Inequality, If AI systems perpetuate or amplify biases and discrimination, they can exacerbate societal inequalities. This can have negative downsides on both social and economic sides. Furthermore, AI systems and applications may pose privacy threats. AI systems often require large amounts of personal data to operate effectively. This data can be sensitive and private, and there is a risk that it could be stolen or misused.

There is also a risk of surveillance and loss of privacy when AI is used for surveillance or monitoring purposes. These are just a few examples of how the ethical issues surrounding AI can impact society and social dynamics. It is essential to address these issues thoughtfully and responsibly to ensure that AI is used in ways that are ethical and beneficial for all. We can derive from it the social implications that occur within people and what are the implications that people take good care of, and those are as follows:

The ethical issues surrounding artificial intelligence (AI) have significant social implications, such as employment issues, because as AI becomes more advanced, it has the potential to automate many jobs, which could lead to job displacement and unemployment for many workers. Moreover, it could increase autonomy and agency by giving them decision-making power over essential fields of our lives.

Moreover, when AI systems grow even more autonomous, it becomes a heavy challenge to determine who is blamed for their actions. It is essential to establish clear lines of accountability for the actions of AI systems and machines.

Also, culturally-wise, AI will be more integrated into our daily lives, raising questions about how it will impact cultural values. It is important to remember that the ethical implications of AI systems on cultural and social values must be in line to work and ensure that AI is used in ways that respect and uphold these values.

7. Legal Considerations

Artificial intelligence (AI) in various industries, including healthcare, poses significant ethical challenges. Legal considerations come into play when examining the use of AI and its impact on developing and marketing AI-based medical solutions. Patient autonomy, data security, privacy, and ethical implications must be carefully evaluated (13).

One particular issue concerning the legal implications of AI in healthcare is the need for *explainability*. There is a debate about whether explainability is legally required and to what extent. Stakeholders, including medical professionals and patients, may desire information about the outcomes provided by AI-driven tools and solutions and details about the underlying characteristics and assumptions behind those outcomes. Transparency and comprehensibility of algorithms and models may be crucial for the meaningful involvement of various stakeholders (6).

Explainability in AI has three primary focus areas from a Western legal perspective: informed consent, certification and licensing as medical devices, and responsibility. Informed consent is crucial when handling personal health information, and it is currently the norm for AI applications that utilize patient data in the absence of general legislation allowing the use of personal data and information (11). However, obtaining explicit consent for diagnostic tests or procedures involving AI can be challenging, as it requires clearly stating the project's purpose and goals, potentially limiting AI's ability to discover new patterns or biomarkers. The underlying procedures and algorithms of AI-based decision assistance must be explained to each patient, even if not in great depth, to ensure transparency (6).

Regulatory agencies have been gradually introducing rules and guidelines regarding explainable AI and its impact on developing and approving medical devices. For example, the Food and Drug Administration (FDA) acknowledges the need for appropriate transparency in AI algorithms, although explainability is not explicitly addressed (13). Similarly, the Medical Device Regulation (MDR) does not explicitly mention the demand for explainability in medical devices using AI, but it establishes standards for accountability and transparency that may evolve as the field of explainable AI advances (13).

In conclusion, the application of AI in healthcare raises various legal and ethical issues. Compliance with existing laws and regulations is crucial, as is careful consideration of data privacy, security, patient consent, and autonomy. In addition, the level of explainability required for AI-driven solutions and tools is a topic of ongoing debate that will require further research and legislative attention. Striking a balance between the benefits of AI in improving patient outcomes and the need to address its ethical and legal implications is essential.

8. Ethical Consideration

AI surveillance raises ethical concerns beyond collecting data and directing attention. The use of information to manipulate online and offline behavior is a significant concern, undermining the ability to make autonomous rational choices (11). Although manipulating behavior is not new, AI systems may intensify this issue (11). With users' extensive interaction with data systems, they are at risk of being manipulated and deceived (11). When using algorithms and preliminary data, targeting specific individuals or small groups with input likely to influence them is possible (15). A particular concern is that AI's machine learning methods depend on extensive data training. The Stanford Encyclopedia of Philosophy states, "There will often be a trade-off between privacy and rights to data vs. technical quality of the product influencing the consequentialist evaluation of privacy-violating practices" (16).

Privacy protections usually focus on regulating access to individuals or their personal information. Such access may affect the person's right to bodily privacy, property, place of habitation, or control over their name, image, or likeness (17). Measures to protect informational privacy include data security protocols that ensure unauthorized individuals or entities do not access protected health information (13). In AI applications, clinical and business entities must safeguard such data from hackers and avoid storing data on insecure or vulnerable servers (13).

The ethical guidelines and moral principles vary across different regions, ethnic groups, and nations, each with norms. Nevertheless, some fundamental values like honesty, transparency, truthfulness, benevolence, non-malevolence, and respect for autonomy are universally accepted (10). Various medical ethics theories meant for humans, such as consequentialist, deontological, and virtue, are being analyzed to determine how to incorporate human values into machines (18). This assessment will help determine the most effective way to describe and adapt human values to machines (18). According to "Medical ethics considerations on artificial intelligence," the development of machines capable of thinking brings up many ethical concerns: "Currently, we lack relevant policies and suggestions to deal with such issues that may come up in research being carried out" (18).

9. Discussion

AI has made enormous advances and finds application in various fields, including transportation, robotics, healthcare, education, communication, public safety, security, entertainment, and employment (1). AI has significantly improved society by enhancing fairness and equity in systems, enabling employment based on skills and expertise without biases, increasing transparency and accountability in

decision-making processes, and enhancing privacy and security (2) (5). With the help of AI, people feel more secure about their data and trust AI systems to protect them from malicious programs and cyber-attacks (5). Moreover, AI has facilitated the development of innovative ideas through AI programs and chatbots (5). In the corporate world, AI has played a crucial role in improving customer service and decision-making processes (19). Companies utilize AI technologies to provide chat support and assist customers in accessing desired services, improving customer experiences (13). Furthermore, AI's ability to assist in decision-making enhances accuracy and positively impacts organizations (13).

Additionally, AI has enhanced innovation as developers employ AI to improve services, products, and organizational performance (13). However, despite the benefits, some concerns arise regarding the reliance on AI. One major issue is the potential for errors or bugs leading to AI failures, especially in critical tasks such as necessary surgeries (6). The fear of job loss due to automation is another concern associated with AI, as companies replace workers with machines and AI programs, impacting people's livelihoods (19). Privacy is also a significant concern, as advanced hacking techniques and cyber-attacks can exploit weak AI models, potentially endangering innocent individuals by unauthorized data collection (20).

Moreover, the lack of transparency in AI decision-making processes can pose challenges, as organizations may need help understanding the basis of AI decisions (14). Acknowledging the potential risks and challenges, it is essential to ensure the AI's ethical implementation (10). AI can improve and disrupt society, and its impact depends on how it is utilized (10). Society is responsible for ensuring that AI is used for the greater good and that appropriate measures are taken to address ethical and legal implications (21) (17). By embracing AI's potential while addressing its challenges, society can harness the benefits and mitigate the risks of this transformative technology.

10. Conclusions

There are four main strategies for the use of ethical concerns mainly concerning the impact of AI, its potential misuse, and privacy issues that are regulation and policy development, ethical AI design and development, public awareness and education, and collaborative governance and standards (10). Emerging issues in AI development include the loss of employment, social injustice, and the ethics of self-governance (7). Critics also worry that AI may be weaponized by those hackers or oppressive governments (20), and also in surveillance, facial recognition, and predictive policing, which undermines individual rights (5). The public discussion about AI is binary, its advocates promote the augmentation of effectiveness, output, and creativity (4), while critics concern themselves with privacy violations and disturbances in the course of everyday life (12).

To address these issues, it is necessary to work on creating a code of ethics for using AI in scientific and practical activities (19), increasing awareness and accountability of companies using AI in decision-making processes (21); and promoting public debate about the social impact of AI (17). It is important to investigate the social, legal, and ethical implications of Artificial Intelligence. Moreover, (13) responsible use standards should be developed by adhering to fundamental ethical principles, followed by constant discussions and research exercises (14).

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