

Artificial Intelligence and Ethics: Building an Artificial Intelligence System that Ensures Privacy and Social Justice

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Abstract

The term "artificial intelligence" (AI) refers to technology becoming increasingly prevalent in many facets of human life. Nevertheless, significant concerns regarding social justice and privacy in the application of AI are also being noticed. This article explores the significance of ethics in developing artificial intelligence systems that can protect individuals' privacy and promote social justice. A qualitative methodology was used for this study, which consists of a review of previous research. As a result of this research, we describe what is artificial intelligence with examples of its use, ethics with its functions, how to embed ethics into artificial intelligence technologies, including robot and machine ethics. The following is an examination of AI and ethics from the point of view of privacy and social justice. In the context of the use of AI, offer some suggestions about constructing a more moral and accountable AI system.

Keywords: *Artificial Intelligence, Ethics, Privacy, Social Justice.*

A. INTRODUCTION

Technological advances that have taken place in recent decades, especially in the practical application of knowledge, have significantly impacted our daily lives. The creation of Internet of Things (IoT)-connected micro-computer chips has allowed us to connect to various devices and systems, from computers and smartphones to automated vehicles and smart home technologies. This changes how we think, act, learn and carry out our daily activities (Cook et al., 2009).

However, one of the biggest disruptions resulting from this technological development is the advancement of Artificial Intelligence (AI). AI is a simulation of human intelligence and thinking processes by machines connected to data and information. As a result, these machines can solve tasks requiring human intelligence, such as facial recognition, natural language processing, and even driving a car (How et al., 2020).

AI's progress has been visible in many aspects of our lives. This technology is used in various applications, from automated machines and robots in companies to surveillance cameras equipped with facial recognition on street corners. Moreover, smart assistants such as Alexa, Siri, Cortana, and Google Assistant have become a

new-family members in our homes, helping us manage schedules, find information, and even control smart home systems (Tulshan & Dhage, 2019).

However, the development of AI also raises several concerns and challenges that need to be addressed. For example, many people worry that advances in AI will displace human jobs and increase socio-economic inequality. In addition, data security and privacy issues are also a major concern, especially with the increasing use of AI technology in facial recognition and surveillance applications (Arakpogun et al., 2021)

The facts above show that advances in AI technology can assist society in overcoming various challenges, but collecting, processing and sharing data must be carried out extensively and massively to achieve this potential. The increasingly widespread use of AI technology also raises privacy and social justice issues. These concerns are related to the fact that AI technology can be used to commit privacy violations and deepen injustice in society (Sun & Ye, 2022)

For example, when large companies use personal data to develop AI systems, there is a risk of it being leaked and misused. This can have an impact on individual privacy vulnerabilities and can even exacerbate injustice in society. In addition, concerns related to social injustice arise because AI technology can deepen the gap between people who have access to technology and those who do not, which can exacerbate inequality problems.

In the face of privacy and social justice concerns raised by the widespread use of AI technologies, ethics is critical in ensuring these technologies are used responsibly and fairly. Ethics help define standards of conduct and principles that companies and developers of AI technologies should follow in their use. This includes principles such as privacy, fairness, transparency, accountability, and others. For example, in terms of privacy, companies must ensure that personal data collected for the development of AI systems is treated securely and protected from unauthorized access (Mittelstadt, 2019).

In addition, ethics can also help determine how AI technology should be used to minimize the negative impacts that may arise. This includes ensuring that AI technology is not used to widen the gap between people who have access to technology and those who do not, as well as minimizing other negative impacts, such as job loss due to automation. (Lu et al., 2018).

In this context, ethicists also need to be involved in developing and implementing AI technologies. They can help ensure that AI technology is developed and used ethically, as well as ensure that ethical aspects are not overlooked in decisions regarding the use of AI technology (Cutler et al., 2019).

To address these concerns, there needs to be activated to ensure that AI technology is used responsibly and fairly. This can be done by strengthening privacy and personal data protection, ensuring transparency in the use of AI technology, and ensuring that this technology is not used to deepen injustice in society. By doing this, we can maximize the potential of AI technology in helping society while minimizing the negative impact that may arise.

B. LITERATURE REVIEW

1. Artificial Intelligence (AI)

Intelligence artificielle, or the word intelligence artificielle, must be understood to be extensively dispersed and utilized in numerous sectors. Allows machines to learn from experience, adapt to new inputs, and perform tasks as if they were human. Examples include chess-playing computers, self-driving vehicles, and chatbot software (Arrietta et al., 2020)

AI is present in daily life, with Google's virtual assistant and Siri serving as examples. Although artificial intelligence is nothing new, its growth has always been fascinating to see. In its development, AI also benefits from the availability of numerous science fiction works. Almost all computing gadgets and modern technology currently incorporate a significant amount of artificial intelligence. As applied through Google's virtual assistant or Siri in smartphone use. Predictions indicate that AI will continue to evolve and become much smarter; hence, this circumstance can no longer be avoided.

Artificial Intelligence is the science and engineering of creating intelligent devices with computer-based task-executing processes. You may argue that artificial intelligence (AI) is a technology that enables computer systems, software, programs, and robots to think intelligently like humans. Artificial intelligence is a simulation of human intelligence that is modeled after computers and trained to think like humans. In other terms, AI is a computer system that can perform tasks that ordinarily require human strength or intelligence (McCarthy, 2007).

What is artificial intelligence? It is technology that, like humans, requires data to acquire knowledge. Important aspects of the AI process include learning, reasoning, and self-correction. Intelligence requires experience and data in order to be improved. AI must acquire information through the process of learning, which is based on experience.

By combining enormous amounts of data with rapid, repeated processing and sophisticated algorithms, artificial intelligence enables software to learn automatically from patterns or characteristics in the data. AI is a vast field of study that encompasses numerous theories, methodologies, and technologies, in addition to the following primary subfields (Hashimoto et al., 2018):

- a. With machine learning, analytical models are constructed automatically. AI uses neural network techniques, statistics, operations research, and physics to uncover hidden insights in data without being explicitly instructed where to seek or what to infer.
- b. A neural network is a type of machine learning composed of units that process information cooperatively in response to external input and transmit information across each unit. This type of procedure necessitates several data feeds in order to discover linkages and infer meaning from undefined data.
- c. Deep learning employs vast neural networks with many layers of processing units, takes advantage of developments in computer power, and enhances

training processes in order to discover complicated patterns in massive volumes of data. Image and speech recognition are two typical uses.

- d. Cognitive computing is a subfield of artificial intelligence consisting on human-like interactions with machines. The ultimate goal of artificial intelligence or AI and cognitive computing is for machines to replicate human processes by interpreting visuals and voice and responding rationally.
- e. To recognize what is in a photograph or video, computer vision employs pattern recognition and deep learning. If a machine is able to process, analyze, and comprehend images, it will be able to take photographs or movies in real time and interpret its surroundings.
- f. Natural language processing (NLP) is the capacity of computers to comprehend, analyze, and produce human language, including speech. The subsequent level of NLP is the interaction of natural language, which enables humans to complete tasks by communicating with computers using normal, everyday language.

Not only that, several technologies are also possible in supporting artificial intelligence or AI:

- a. The graphics processing unit is essential for artificial intelligence because it performs the intensive calculations required for iterative processing. Training a neural network necessitates vast quantities of data and processing power.
- b. The internet of things generates vast quantities of data from linked devices, the vast majority of which is not evaluated. By automating models using AI, we will be able to extract more value from AI.
- c. To evaluate more data more quickly and on multiple levels, new algorithms are being developed and coupled in innovative ways. These intelligent processes are essential for discovering and forecasting uncommon occurrences, comprehending complicated systems, and maximizing one-of-a-kind situations.
- d. APIs, or application processing interfaces, are portable code packages that allow AI capabilities to be added to current goods and services. The aforementioned can be used to augment home security systems with picture recognition and question-and-answer capabilities that characterize data, provide captions and titles, and identify trends and insights in data.

Here are some of the goals of creating artificial intelligence or AI, namely:

- a. AI automates data-driven learning and iterative discovery. AI differs from hardware-driven robotic automation, though. AI conducts regular, high-volume, computerized activities reliably and without weariness, as opposed to automating manual tasks. With this form of automation, human inquiry is required to configure the system and ask the appropriate questions.
- b. AI adds intelligence to already intelligent items. AI is typically not sold as a standalone application. Existing items, however, will be improved with AI capabilities, similar to how Siri was added to a new generation of Apple products. Massive volumes of data can be integrated with automation,

conversational platforms, bots, and intelligent machines to improve numerous technologies, from security intelligence to financial research.

- c. With adaptive learning algorithms, AI enables data to perform programming. AI discovers structure and regularity in data, enabling algorithmic learning.
- d. The algorithm transforms into a classifier or a predictor. Similarly, to how an algorithm may teach itself how to play chess, artificial intelligence can train itself what product to propose online next. And models adapt when new data are provided. Back propagation is an artificial intelligence technique that enables a model to adjust through training and more data when the first result is incorrect.
- e. Using neural networks with numerous hidden layers, AI analyzes more and deeper data. A few years ago, constructing a fraud detection system with five hidden levels was nearly impossible. With the enormous power of computers and big data, everything is changing. Training deep learning models requires a large amount of data because the models learn directly from the data. The model will be more accurate the more information you supply it.
- f. Deep neural networks enable AI to achieve previously unattainable levels of accuracy. Your interactions with Alexa, Google Search, and Google Photos, for instance, are all based on deep learning and continue to get more accurate as we use them more.

Artificial intelligence has two categories namely Weak AI and Strong AI, the weak category is designed to perform certain tasks such as answering questions based on user input. While strong AI is designed with systems that are cognitive, like humans, this system will provide good solutions without the role of humans, here are some examples.

- a. Streaming Video or Music

Streaming has become one of the world's favorite entertainment this program can access all videos or music easily and quickly. When streaming is running, the program will display the quality according to the signal capability. When the streaming program is opened, it will automatically display various content (Arzt et al., 2015)

- b. Search Engines

Artificial intelligence means the ease of learning and the web is known for its ability to know everything, but this web intelligence is the result of contributions from the world's people who share knowledge with each other through writing or articles. The majority of search engines are always competing to provide high access so that users are comfortable on the internet (Gu et al., 2018)

- c. Global Positioning System (GPS)

The Global Positioning System (GPS) is a relatively complex technology, which is why it is called smart technology. Using big data in the manufacturing process, to record all world trips in detail can be accessed using GPS. This

technology can be used to detect streets with various route options (Srinivasan et al., 2003).

2. Ethics

The field of study known as ethics examines not only right and wrong but also the duties, privileges, and duties that come with being a member of society on a moral level for every individual in his or her social existence. Or, one could also say that ethics incorporates principles that are tied to an individual's morality of what constitutes good and evil. There are many different kinds of ethics that we might discover in the world around us, such as the ethics of friendship, the ethics of work or professional life, the ethics of running a household or a business, and many more.

Kattsoff (1965) asserts that the fundamental rules of justification in human behavior connections are more closely associated with ethics than the other way around. According to Bartens (1993), ethics are moral principles and standards that serve as guidelines, both for an individual and for a group, in regulating actions or behavior. These guidelines might apply to controlling actions or conduct. To put it another way, this comprehension is sometimes referred to as a value system in human life, both on an individual level and on a societal level.

Poerwadarminta (1985), explained that ethics is a science related to human actions and behavior seen from the good and bad sides which are determined by humans as well. The notion of ethics is the science that examines a behavior or human actions in terms of good and bad by paying attention to human behavior as far as is known by the human mind.

There are two distinct varieties of ethics, one normative and one descriptive, that can be distinguished by their focus. Below is a synopsis:

a. Normative Ethics

Normative ethics is a type of ethics that seeks to determine and determine various ideal behaviors, actions, attitudes that each individual should have in this life.

b. Descriptive Ethics

Descriptive ethics is a type of ethics that seeks to look at individual behavior and attitudes, as well as what the individual is pursuing in this life on matters of value.

According to its scope, there are two types of ethics, namely special ethics and general ethics. The following is a brief description:

a. Special Ethics

Special ethics is a type of ethics that becomes an implementation of moral principles or principles in the life of individuals specifically.

b. General Ethics

General ethics is a type of ethics related to basic situations and conditions regarding individual behavior and actions ethically.

There are two sorts of ethics based on the environment: individual ethics and social ethics. The following is a concise explanation:

a. Personal Ethics

Individual ethics pertains to the attitudes and responsibilities of individuals toward oneself.

b. Societal Ethics

Social ethics is a sort of ethics concerned with an individual's obligations, attitudes, and actions as a human being.

Ethics as something that is inherent in human beings, of course, has several functions in social and social life, the functions of ethics include:

- a. As a place to get critical views or perspectives that deal directly with various confusing morals.
- b. For this view or ethical orientation, it is necessary to take a reasonable attitude in the situations and conditions of a pluralistic society (pluralism).
- c. In order to demonstrate a clear-thinking skill, namely an ability to argue critically and rationally.
- d. Serves as a differentiator which may be changed and which cannot be changed.
- e. Serves to investigate a conflict or problem down to its roots.
- f. Serves to help a consistency.
- g. Serves to resolve conflicts, both morality conflicts and other social conflicts, with systematic and critical forms of ideas.

Over time, a person's internalized morals will lead him or her to get a thorough familiarity with the world and all its inhabitants. The aforementioned comprehension might be seen as both beneficial and harmful. When people can tell the difference between right and wrong and act in accordance with universally accepted standards, ethics can serve as a framework within which they can make moral decisions.

Ethical behavior will prompt people to treat others with respect. In other words, the person will receive a punishment that is appropriate for his level of guilt. Any minor infractions would result in minimal repercussions. On the other hand, if he makes a serious or even deadly error, the consequences are usually severe. Therefore, it is important to be able to adapt to the existing environment. One example, to create a harmonious living environment, we must be able to socialize with neighbors.

In a discussion forum, of course there is ethics in expressing ideas or opinions. That way, individuals have agreed to respect anyone who wants to express their opinion. However, the determination of the agreement must be based on shared provisions. If the opinion, argument, or suggestion cannot be accepted by the audience in the forum, the individual making the suggestion must be tolerant.

C. METHODS

In this article, we analyze the literature on ethical views in developing AI systems that can guarantee the privacy and social justice. The data used in this paper comes from journals, books and articles related to ethics, artificial intelligence, privacy and social justice, with a focus on publications of the last fifteen years. We use a

qualitative approach in analyzing and summarizing views from an ethical perspective (Moleong, 2011).

D. RESULTS AND DISCUSSION

1. Building Ethics in AI Technology

Artificial intelligence (AI) ethics is a fast-evolving field in the tech world. As the use of AI in various sectors increases, there are concerns about its impact on human life, ethics, and morality. The ethics of artificial intelligence can be seen from two perspectives: attention to human moral behaviour when designing, manufacturing, using and treating artificial intelligence systems and attention to machine behaviour in ethics (Baker-Brunnbauer, 2021).

In the first perspective, the ethics of artificial intelligence addresses the ethical issues that arise when humans design, build, use, and treat artificial intelligence systems (robot ethics). For example, there are issues addressing privacy concerns and the proper use of data in artificial intelligence systems. In addition, there are also issues regarding the responsibility of users of artificial intelligence systems for errors made by the system, as well as other problems related to the use of artificial intelligence systems (Boddington, 2017)

In the second perspective, the ethics of artificial intelligence addresses ethical issues related to machine behaviour. For example, there is the issue of ensuring that artificial intelligence systems do not lead to racial or gender discrimination. There is also the issue of ensuring that artificial intelligence systems do not negatively impact the environment or society as a whole. Apart from that, the ethical issue of artificial intelligence also includes the problem of possible singularities, namely events where artificial intelligence reaches a level far beyond human intelligence and affects human survival (Nath & Sahu, 2020).

In order to develop the ethics of artificial intelligence, it is necessary to cooperate between ethicists and technology experts. Artificial intelligence ethics must also be applied at every stage of the manufacture and use of artificial intelligence systems to minimize the risk of negative impacts on humans and the environment. Thus, the ethics of artificial intelligence is an important part of AI technology's responsible and sustainable development.

There are two approaches in the field of artificial intelligence (AI) ethics: robot and machine ethics. Although both have the same goal: to regulate AI behaviour to comply with human ethical and moral standards, the two approaches have different focuses.

Robot ethics is an approach to artificial intelligence (AI) ethics that focuses more on the ethics and morality of robot behaviour in human interactions (Lin et al., 2017). Robot ethics considers several moral and ethical issues related to the use of robots, including:

- a. Robot rights: Robot ethics considers whether robots can be considered moral entities and whether they have rights that should be protected, such as the right not to be abused or harmed by humans.

- b. Human responsibility towards robots: In some cases, robots may make decisions that can affect human welfare; therefore, robot ethics considers whether humans should be responsible for robot decisions.
- c. Safety in the use of robots: Robot ethics considers ways to ensure that robots are safe for human use and cannot be used for purposes that are harmful or endanger human life.
- d. Openness in the use of robots: Robot ethics also considers the importance of transparency and openness in using robots, including how robots are managed, what they can do, and how they can interact with humans.
- e. Discrimination: Robot ethics also considers the discrimination that may occur when robots are presented with situations requiring a decision, such as in the recruitment or selection process.

In the development of responsible robots, robot ethics must be taken seriously to ensure that robot behaviour always meets the ethical and moral standards expected by humans. Therefore, robot developers need to integrate ethical and moral values in the design, development and use of robots to ensure that robots do not harm humans or the environment.

Meanwhile, machine ethics is another approach to artificial intelligence (AI) ethics that focuses on the ethics and morality of machine or AI behaviour in various applications and contexts (Anderson & Anderson, 2011). Machine ethics considers several ethical and moral issues related to the use of machines or AI, including:

- a. Fairness: Machine ethics considers how machines or AI should be programmed and used to be fair to all people and groups, without discrimination based on race, gender, or other factors.
- b. Transparency: Machine ethics considers the importance of transparency in using machines or AI, including how decisions are made and what data is used.
- c. Privacy: Machine ethics considers the privacy and data security interests in machines or AI, including how data is collected, used, and stored and ways to prevent misuse or data theft.
- d. Security: Machine ethics considers how to ensure human safety and security in using machines or AI, including how to avoid potential harm and harm from the uncontrolled use of machines or AI.
- e. Accountability: Machine ethics considers how to ensure accountability and responsibility in using machines or AI, including identifying who is responsible in the event of an error or loss.

In the responsible development of AI, machine ethics must be taken seriously to ensure that the behaviour of machines or AI always meets the ethical and moral standards expected by humans. AI developers must integrate ethical and moral values into the design, development, and use of AI to ensure that AI does not harm humans or the environment. Machine ethics should also be considered in developing regulations and policies regarding the use of AI to ensure that the use of AI can contribute positively to society and does not cause significant ethical and moral issues.

Both are important areas in the development of AI technology because they ensure that it aims to increase performance and efficiency and pay attention to the ethical and moral values needed in human life. Therefore, responsible AI development must consider both approaches to ensure that AI is carried out ethically and does not harm humans or the environment.

2. Artificial Intelligence and Ethics: Building an Artificial Intelligence System that Ensures Privacy and Social Justice

Artificial intelligence (AI) is a technology used to enable machines or computers to perform tasks previously only able to be performed by humans, such as decision making, natural language processing, speech and image recognition, and so on. AI implementation can take many forms, such as:

- a. Machine Learning: an AI technique that enables machines to learn from data and generate predictive models. This model can then be used to predict outcomes from the new data.
- b. Natural Language Processing (NLP): AI techniques that enable machines to understand and process natural language like humans.
- c. Computer Vision: AI techniques that enable machines to process images and videos and recognize objects, faces and activities in them.

In implementing AI, there are several ethical issues that need attention, especially in terms of privacy. Some examples of such ethical issues include:

- a. Collection and use of personal data: AI needs data to learn and make predictions. However, if personal data is used without permission or without the consent of the owner, this can violate individual privacy.
- b. Bias: AI can be programmed to amplify existing biases in data. If the data used tends to be discriminatory towards certain groups, AI will also produce discriminatory output.
- c. Security: AI can be used to exploit security holes in a system and leak sensitive data.

The use of AI in various aspects of life does provide many benefits to society, but keep in mind that the data collected and used by AI systems can potentially cause privacy issues for users. Privacy breaches can occur when personal data is used without permission or data collection is non-transparent. Therefore, it is necessary to undergo a rigorous testing process before the AI system is released to the public to ensure that user data will be collected and used ethically and transparently. This testing process must include security testing and data leakage to ensure that the system is not easily hacked or accessed by unauthorized parties (Marzurek & Malagocka, 2019)

In addition, AI development companies must also observe strict privacy and security standards. They must adopt best practices in data protection, such as data encryption, limited access, and strict regulations about who can access data. In addition, companies must pay attention to data collection and use transparency, providing clear information about the type of data collected and how it will be used.

By paying attention to user privacy and implementing strict privacy and security standards, AI can benefit society and minimize the risk of privacy violations that harm users. Therefore, there needs to be ethical awareness and responsibility in the development and use of AI technology in order to create a reliable and ethical AI system (Li & Zhang, 2017).

To address the issue of privacy ethics in implementing AI, several things can be done, including:

- a. Ensure that personal data is only collected and used if the data owner gives consent.
- b. Develop an AI model that takes into account factors that influence bias and seeks ways to eliminate this bias.
- c. Use security technology to protect data and reduce the risk of data leakage.
- d. Conduct regular ethical evaluations and ensure that the implemented AI meets accepted ethical standards.

AI systems are highly sophisticated technologies and can collect, analyze and process vast amounts of data. Therefore, these systems must comply with privacy laws set by the government, which govern the collection, use, and storage of data.

This is very important to protect individual privacy and ensure that personal information collected by AI systems is only used following privacy standards and is not misused or stolen by unauthorized parties. In addition, AI systems must be protected against cyber-attacks and data theft attempts to ensure that the data collected and used by AI systems remain safe and secure.

AI system developers must comply with privacy laws and ensure that the AI systems they develop meet strict privacy and security standards. In addition, developers must also ensure that the use of AI systems does not harm certain individuals or groups and does not deepen existing social or economic inequalities.

In this regard, the government's role is also very important to ensure that applicable privacy laws are properly enforced and strictly monitored so that AI systems are responsible and fair. In addition, AI system users must also understand and pay attention to their privacy rights and ensure that their personal information is not misused or stolen by unauthorized parties. Compliance with privacy laws is very important in developing and using AI systems to protect individual privacy, ensure data security, and prevent negative impacts that may result from the irresponsible use of AI systems.

The development of artificial intelligence (AI) systems must pay attention to the principles of social justice because the use of AI can impact society's injustice, especially related to racial or gender discrimination. Therefore, efforts are needed to ensure social justice in the development and use of AI systems (Sloam & Warner, 2020).

One way to ensure social justice in the development of AI systems is through comprehensive testing and considering the diversity in the data used. This test must be carried out to ensure that the AI system does not produce discriminatory results or reinforce existing social injustices. This refers to the right of every individual in society

to utilize AI technology without hindrance and discrimination. Therefore, AI system developers must ensure that the system is easily accessible and usable by everyone without exception. In addition, the participation of all community members must also be considered in the development of AI systems, especially from minority or marginalized groups and AI developers must also pay attention to the diversity in data and look for ways to reduce bias or errors in AI systems (Morley et al., 2020)

AI system development must also pay attention to fairness in the distribution of benefits from this technology. An evolving AI system must benefit the whole of society without discrimination. In addition, it is necessary to consider how AI systems can help solve social problems such as poverty, injustice or economic inequality. In this case, AI system developers need to pay attention to diverse perspectives and incorporate the perspectives of minority or marginalized groups in developing AI systems. This can be done by considering the participation of these groups in the development process, listening to their complaints, and paying attention to their perspectives in developing AI systems.

In practice, developing an AI system that pays attention to the principles of social justice requires collaboration and participation from all parties, including the government, developers and the community. In addition, there is a need for a regulatory framework that ensures that the AI system developed follows the principles of social justice and does not have a detrimental impact on society (Catch, 2018).

Based on this, several forms of artificial intelligence ethics towards social justice need attention. By paying attention to these ethical aspects, AI system development can be carried out responsibly and ensures that the technology used does not cause harm or injustice to society. These aspects include:

- a. **Algorithmic Bias:** AI systems can be programmed with certain biases that can influence decisions and actions taken. This can lead to discrimination and injustice in society, such as in decision-making in hiring or the criminal justice system. Therefore, it is important to ensure that the algorithms used are not programmed with biases that could affect the decisions and actions taken.
- b. **Transparency:** AI systems must be transparent in the decisions they make and the actions they take. Users and parties affected by these decisions and actions must be provided with clear and easy-to-understand information about how AI systems work and how those decisions and actions are generated.
- c. **Accountability:** Developers and users of AI systems must be held accountable for the actions and decisions are taken by AI systems. This includes admitting mistakes and making corrections if errors or discrimination occur.
- d. **Equality:** AI systems must treat everyone fairly and equally. There should be no discrimination based on sex, race, religion or sexual orientation.

To address ethical issues in implementing AI for social justice, several things can be done, including:

- a. Take into account the factors that influence bias and look for ways to eliminate this bias.

- b. Ensure that personal data is only collected and used if the data owner gives consent.
- c. Conduct regular ethical evaluations and ensure that the implemented AI meets accepted ethical standards.
- d. Provide equal opportunity for all groups in the decision-making process.

By considering the ethical principles of social justice in using AI technology, AI technology can provide equal benefits for all people without discrimination and help solve existing social problems. It can also help build responsible and reliable AI systems in support of societal progress and prosperity.

F. CONCLUSION

In the development of responsible AI systems, ethical aspects must be a top priority. This is because AI technology can affect people's lives and raise privacy and social justice issues. Therefore, AI system developers must consider ethical aspects, including robot and machine ethics, in every stage of AI system development. In addition to considering ethical aspects, AI system developers must also conduct rigorous testing to ensure privacy and social justice. Such testing should consider the diversity within society, including race, gender, and social background. In this way, AI systems can produce fair results and minimize societal injustice. Public education is also important in ensuring privacy and social justice using AI technology. People need to understand the impact of AI technologies on their lives and the importance of privacy and social justice in their use. AI system developers, regulators, and users also need to have the same understanding of ethics in the use of AI technology.

REFERENCES

1. Anderson, M., & Anderson, S. L. (Eds.). (2011). *Machine ethics*. Cambridge University Press.
2. Arakpogun, E. O., Elshah, Z., Olan, F., & Elshah, F. (2021). Artificial intelligence in Africa: Challenges and opportunities. *The fourth industrial revolution: Implementation of artificial intelligence for growing business success*, 375-388.
3. Arrieta, A. B., Díaz-Rodríguez, N., Del Ser, J., Bennetot, A., Tabik, S., Barbado, A., ... & Herrera, F. (2020). Explainable Artificial Intelligence (XAI): Concepts, taxonomies, opportunities and challenges toward responsible AI. *Information fusion*, 58, 82-115.
4. Arzt, A., Frostel, H., Gadermaier, T., Gasser, M., Grachten, M., & Widmer, G. (2015, June). Artificial intelligence in the concertgebouw. In *Twenty-Fourth International Joint Conference on Artificial Intelligence*.
5. Baker-Brunnbauer, J. (2021). Management perspective of ethics in artificial intelligence. *AI and Ethics*, 1(2), 173-181.
6. Bertens, K. (1993). *Etika K. Bertens* (Vol. 21). Gramedia Pustaka Utama.
7. Boddington, P. (2017). *Towards a code of ethics for artificial intelligence* (pp. 27–37). Cham: Springer.

8. Cath, C. (2018). Governing artificial intelligence: ethical, legal and technical opportunities and challenges. *Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences*, 376(2133), 20180080.
9. Cook, D. J., Augusto, J. C., & Jakkula, V. R. (2009). Ambient intelligence: Technologies, applications, and opportunities. *Pervasive and mobile computing*, 5(4), 277-298.
10. Cutler, A., Pribić, M., & Humphrey, L. (2019). Everyday ethics for artificial intelligence. *PDF, IBM Corporation*.
11. Gu, J., Wang, Y., Cho, K., & Li, V. O. (2018, April). Search engine guided neural machine translation. In *Proceedings of the AAAI Conference on Artificial Intelligence* (Vol. 32, No. 1).
12. Hashimoto, D. A., Rosman, G., Rus, D., & Meireles, O. R. (2018). Artificial intelligence in surgery: promises and perils. *Annals of surgery*, 268(1), 70-76.
13. How, M. L., Cheah, S. M., Chan, Y. J., Khor, A. C., & Say, E. M. P. (2020). Artificial intelligence-enhanced decision support for informing global sustainable development: A human-centric AI-thinking approach. *Information*, 11(1), 39.
14. Kattsoff, L. O. (1965). Morals and Ethics. *Making Moral Decisions: An Existential Analysis*, 1-10.
15. Li, X., & Zhang, T. (2017, April). An exploration on artificial intelligence application: From security, privacy and ethic perspective. In *2017 IEEE 2nd International Conference on Cloud Computing and Big Data Analysis (ICCCBDA)* (pp. 416–420). IEEE.
16. Lin, P., Abney, K., & Jenkins, R. (Eds.). (2017). *Robot ethics 2.0: From autonomous cars to artificial intelligence*. Oxford University Press.
17. Lu, H., Li, Y., Chen, M., Kim, H., & Serikawa, S. (2018). Brain Intelligence: goes beyond artificial intelligence. *Mobile Networks and Applications*, 23, 368-375.
18. Mazurek, G., & Małagocka, K. (2019). Perception of privacy and data protection in the context of the development of artificial intelligence. *Journal of Management Analytics*, 6(4), 344-364.
19. McCarthy, J. (2007). What is artificial intelligence.
20. Mittelstadt, B. (2019). Principles alone cannot guarantee ethical AI. *Nature machine intelligence*, 1(11), 501-507.
21. Moleong, L. J. (2011). *Qualitative Research Methodology*. Bandung: Remaja Rosdakarya.
22. Morley, J., Floridi, L., Kinsey, L., & Elhalal, A. (2020). From what to how: an initial review of publicly available AI ethics tools, methods and research to translate principles into practices. *Science and engineering ethics*, 26(4), 2141–2168.
23. Nath, R., & Sahu, V. (2020). The problem of machine ethics in artificial intelligence. *AI & society*, 35, 103-111.
24. Poerwadarminta. (1985). *Kamus Besar Bahasa Indonesia*. Jakarta.
25. Sloan, R. H., & Warner, R. (2020). Beyond bias: Artificial intelligence and social justice. *Va. JL & Tech.*, 24, 1.

26. Srinivasan, D., Cheu, R. L., & Tan, C. W. (2003, October). Development of an improved ERP system using GPS and AI techniques. In *Proceedings of the 2003 IEEE International Conference on Intelligent Transportation Systems* (Vol. 1, pp. 554-559). IEEE.
27. Sun, X. Y., & Ye, B. (2022). Privacy-preserving or trapping? *AI & SOCIETY*, pp. 1–11.
28. Tulshan, A. S., & Dhage, S. N. (2019). Survey on virtual assistant: Google assistant, siri, Cortana, Alexa. In *Advances in Signal Processing and Intelligent Recognition Systems: 4th International Symposium SIRS 2018, Bangalore, India, September 19–22, 2018, Revised Selected Papers 4* (pp. 190-201). Springer Singapore.