Ethical Considerations in the Development and Deployment of AI Systems with Human-like Cognitive Abilities

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KEYWORDS	ABSTRACT
Development, Cognitive Abilities, Ethical Dilemmas, AI Systems, AI Technology	The development of AI that would have cognitive abilities similar to those of humans becomes a matter of profound ethical questions as AI systems are progressing. This study examines ethical issues associated with the development and usage of AI systems possessing human-like cognitive abilities. In this context, the study will explore the convergence of AI, ethics, and cognitive science to detect and critically examine ethical dilemmas that these advanced AI systems create. Key concerns include moral agency, responsibility, accountability, and the potential human societal consequences. Utilizing the relevant knowledge from philosophy, psychology, and computer science, this study provides a thorough analysis of the ethical aspects of AI possessing human-like cognitive capacities. Moreover, the research examines approaches for ethically managing, regulating, and controlling such AI systems so as to maintain their compliance with social values and norms. In addressing these ethical issues, there is a critical requirement to advocate for the ethical development and deployment of AI technology that improves human welfare and at the same time, mitigates potential risks and harms.
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1.0 Introduction

Most commonly, artificial intelligence (AI) is understood to refer to machines that respond to stimulation consistent with traditional responses from humans, given the human capacity for contemplation, judgment, and intention, although there is no universally accepted definition of the term(Jobin et al., 2019). These software programs, according to academics Shubhendu and Vijay, "make decisions that normally require a human level of expertise" and assist humans in foreseeing challenges or resolving them as they arise. They therefore behave in a purposeful, perceptive, and flexible way. Artificial intelligence algorithms are made to make decisions, frequently utilizing real-time data. They are not like passive machines, which can only react mechanically or in a predetermined way (Hagendorff, 2020). They gather data from several sources, analyze it instantaneously, and take action based on the insights they gain by using sensors, digital data, or remote inputs. Their ability to perform extremely sophisticated analysis and decision-making has increased significantly because of significant advancements in storage systems, processing rates, and analytical techniques(Kazim & Koshiyama, 2021).

Artificial intelligence (AI) is not only a concept of the future but rather a tangible reality that is now being incorporated and used across many industries. The aforementioned domains include banking, national security, healthcare, criminal justice, transportation, and artificial intelligence in urban areas. AI is already having a huge influence on the world and enhancing human skills in many ways. According to research conducted by the McKinsey Global Institute, the implementation of AI-led automation in China has the potential to significantly boost productivity. This may result in an annual increase of 0.8 to 1.4 percentage points in GDP growth, depending on the rate at which it is adopted. Despite China's current lower AI deployment compared to the United States and the United Kingdom, the vast scale of its AI industry presents significant prospects for pilot testing and future advancement (Ayling & Chapman, 2022).

AI ethics include a collection of fundamental concepts that are used by many stakeholders, ranging from engineers to government officials, in order to guarantee the responsible development and utilization of artificial intelligence technology (Schiff et al., 2020). This entails adopting a cautious, protected, compassionate, and ecologically conscious approach to AI. An effective AI code of ethics includes the avoidance of prejudice, the safeguarding of user privacy and data, and the mitigation of environmental dangers. AI ethics may be applied via two primary means: company codes of ethics and government-led regulatory frameworks. Both methods contribute to the regulation of AI technology by addressing global and national ethical AI concerns and establishing the necessary regulatory framework for ethical AI implementation in enterprises. In a broader context, the conversation around AI ethics has evolved beyond its initial focus on academic research and non-profit organizations. Presently, prominent technology corporations such as IBM, Google, and Meta

have formed teams to address ethical dilemmas that emerge from the accumulation of vast quantities of data (Morley et al., 2021).

The AI lifecycle is a methodical strategy that assists enterprises in managing artificial intelligence software from the first idea to its finalization. As a result, the whole team, which includes project managers, stakeholders, developers, and designers, works and interacts with each other throughout the entirety of the AI development lifecycle. This guarantees that the delivery of high-quality AI software goes off without a hitch. This contributes to the overall success of the project by assisting in the efficient organization and simplification of the AI software development process. Simultaneously, governmental and intergovernmental organs have initiated the development of rules and ethical policies based on scholarly study (Heilinger, 2022).

The research framework available focuses on the application and development of artificial intelligence in various fields of life. However, its careful utilization and cautious use have been overlooked. This research study would analyze the ethical considerations that are necessary to be taken into account for effective utilization of artificial intelligence. Furthermore, the issues of bias, discrimination, and transparency have also been discussed in detail, which illustrates the mechanism of an ethical code of conduct for AI developers and for deployment in institutions to be considered for smooth utilization and implementation of artificial intelligence applications in human life (Munn, 2023).

Aims and objectives

- ✓ To investigate the ethical implications of endowing AI systems with advanced cognitive abilities.
- ✓ To examine the societal impact of AI systems with human-like cognitive functions.
- ✓ To identify strategies for ensuring accountability and transparency in the development and deployment of highly sophisticated AI.
- ✓ To explore the implications of moral agency in advanced AI systems.
- ✓ To propose guidelines for the responsible design and governance of AI systems with human-level intelligence

2.0 Literature Review

2.1 Cognitive AI Development

Cognitive AI is the name given to a highly complex AI that imitates the cognitive activities of people and learns through them. It collects and examines data from a number of sources and is capable of thinking, understanding, comprehending, and talking just like a human does. Cognitive AI outperforms conventional decision-making as well as statistical AI systems through their ability to learn dynamically and to understand context (Siau & Wang, 2020). Intelligent computer technology with cognitive abilities that imitate human cognitive capacities is an outcome of integrating cognitive science with artificial intelligence technology.

Cognitive AI systems are programmed with human thought, learning, and decision-making capabilities, hence offering consumers and companies a platform for handling complex problems and finding the best solutions (Etzioni & Etzioni, 2016).

2.2 Emerging AI Development Trends

For the past year, in particular, a certain kind of artificial intelligence—called generative AI—has become a more familiar topic. The area of generative AI is based on deep learning approaches to explore available datasets, which lead to the generation of all new outputs. AI based on generative AI had thinking skills that made them different from their predecessors. ChatGPT and DALL-E are just two popular examples of generative AI capable of creating human-like replies to questions in text as well as imagining and making visuals and artworks based on text inputs (Morley et al., 2020).

The growth of generative AI has gone in parallel with the development of computers, but it is pristine in terms of its speed. The move from being owned by a limited number of organisations and institutions to smaller, more efficient units that can be used by corporations and research organisations has been completed. The development of the microprocessor by Intel in 1971 was the first milestone of what was to become the personal computer revolution. The second big breakthrough came with the development of the home computer—the one that amateurs could use. At the beginning, it was only large computer systems that were designed for data scientists who could work with various types of data. However, over time, there was a widespread adoption of powerful personal computers with no-code interfaces, which made the process of data analysis easier for everyone (Hauer, 2022).

2.3 Deployment Aptitude of Artificial Intelligence

The powerful nascent trends of artificial intelligence have the potential to transform sectors, drive innovation, and tackle ultra-complex problems. Artificial intelligence (AI) can be a game changer in an organizational context, affecting both the internal processes and the way it communicates with customers. Thanks to AI, organizations can become more efficient, the customer experience can be tailored, and data analysis can be an important tool for making decisions. AI businesses need to focus on recognition and validation, as AI has a great impact on our future. This is because this can help them prove their success and also make them different from other companies in such a competitive environment. By participating in well-known award programmes like the Globee Awards, AI companies can get the recognition and prestige they need, which in turn can draw investors, potential customers, and partners their way. AI start-ups can seize this chance given by the Globee Awards to showcase their leadership in the industry, which gives them the opportunity to enhance their brand standing and avail themselves of new opportunities in the dynamic and rapidly changing artificial intelligence sphere (Hallamaa & Kalliokoski, 2022).

The year 2022 saw AI applications gain huge popularity among the masses, while the corporate world started accepting them. Your task is to humanise the given sentence. In 2024,

it is expected to be the pivotal year for AI research as scientists and corporations undertake the mission of finding the most appropriate way to add this great technological innovation into our everyday lives. The introduction of this enhancement has led to a remarkable increase in the efficiency and accuracy of a lot of computing functions, thereby broadening the applicability of the technology across many fields such as healthcare, finance, marketing, and many others (Garrett et al., 2020).

Table 1 AI Deployment Models

Natural Language Processing (NLP)	Natural Language Processing (NLP) is a field that aims to aid computers in comprehending and manipulating human language. This has resulted in significant progress in voice assistants, sentiment analysis, chat bots, and language translation solutions.
AI-powered robots	The use of AI-powered robots in several sectors, including healthcare, manufacturing, and logistics, has resulted in significant transformations in processes, enhanced efficiency, and the ability to execute tasks with a high degree of accuracy.
Deep Learning:	Brain-inspired deep learning models can absorb massive quantities of data and understand complex patterns, allowing advancements in image recognition, voice synthesis, and autonomous decision-making.
Edge AI	Deploying AI models on edge devices like smartphones, wearable's, and IoT devices allows real-time processing and reduces cloud computing for quicker and more efficient inference.
AI Ethics and Responsible AI	As AI enters society, issues about ethics, fairness, bias, and responsible AI practices are growing, ensuring that AI technologies are created and implemented ethically

2.4 Concept of AI Ethics

AI ethics is a set of moral guidelines for developing and responsibly using AI technology. As AI becomes more integrated into goods and services, companies are creating AI ethical codes. An AI code of ethics, also known as an AI value platform, is a policy declaration that outlines artificial intelligence's role in human progress and well-being (Konda, 2022). An AI code of ethics guides stakeholders in ethical AI decisions. Isaac Asimov, a science fiction writer, wrote The Three Laws of Robotics to mitigate the hazards of autonomous AI agents before their creation. The first rule of Asimov's code of ethics prohibits robots from deliberately injuring people or tolerating damage by inaction. The second rule requires robots to follow humans

unless they violate the first. The third law requires robots to defend themselves in line with the previous   two.

Over the last five to 10 years, AI has advanced rapidly, prompting specialists to build safeguards to protect people. One is the nonprofit institution formed by MIT cosmologist Max Tegmark, Skype co-founder Jaan Tallinn, and Deep Mind researcher Victoria Krakovna. The 23 Asilomar AI Principles were developed by the institution with AI researchers, developers, and professors from numerous fields (Radanliev et al., 2024).

2.5 Need of AI Ethical Code of Conduct in Robust Development and Deployment

The significance of AI ethics lies in the fact that AI technology is intended to enhance or substitute human intellect. However, when technology is created to mimic human existence, the same problems that might impair human judgment can infiltrate the technology. AI projects constructed with partial or erroneous data might have detrimental outcomes, especially for underrepresented or marginalized communities and people (Nakatumba-Nabende et al., 2023). Moreover, in the event that AI algorithms and machine learning models are constructed with excessive haste, the task of rectifying acquired biases may become overwhelming for engineers and product managers. Integrating a code of ethics into the development process is a more convenient approach to minimizing any dangers in the future. Illustrating the ethics of artificial intelligence using real-life examples may be the most straightforward approach. In December 2022, the application Lensa AI used artificial intelligence techniques to produce visually appealing profile photographs resembling cartoons using individuals' standard images. From an ethical perspective, several individuals expressed disapproval of the application for its failure to acknowledge or compensate the artists responsible for the original digital artwork that the AI was trained on. The Washington Post reported that Lensa was being trained on an extensive collection of pictures obtained from the internet without obtaining proper authorization (Ejaz & Godwin).

2.6 Significance of AI Ethics

The expeditious proliferation of artificial intelligence (AI) implementation across many industries has aligned with, and in several instances, contributed to, two prominent patterns: the ascent of customer-centricity and the surge in social activism (Ayling & Chapman, 2022). According to Sudhir Jha, the CEO and executive vice president of the Bridgerton unit at MasterCard, businesses are incentivized not just for offering customized goods and services but also for adhering to consumer values and contributing positively to the communities in which they operate. Artificial intelligence significantly influences the way people engage with and perceive a brand. Prudent use is necessary to guarantee a favorable influence. Aside from customers, workers also like to have positive sentiments towards the companies they are employed by. "The implementation of responsible AI can significantly contribute to the retention of skilled individuals and the efficient functioning of a company's operations," Jha said (Okolo, 2020)

3.0 Methodology

This study adopted a descriptive research design to investigate the need for an ethical code of conduct and principles of AI development throughout the world. This descriptive approach allowed for the systematic examination and description of existing literature, providing insights into the subject matter without altering the existing patterns. The research philosophy of this article embodies a combination of critical realism and pragmatism, aiming to understand the underlying ethical issues of AI development while also focusing on practical implications and solutions. This study strives to reveal irrefutable facts about ethical AI paradigms, provided that practical application along with addressing real-life issues of AI models, AI investigation, and AI development in the world is a priority. Figures for this study were taken from different resources, such as reports, books, scholarly articles, available datasets, and indexes connected to AI models, AI investigation, and AI development in the world. A great number of international agencies, national institutions, governmental boards, and multinational databases that work towards creating and fine-tuning the ethical guidelines for AI deployment and implementation in different institutions have been involved. A statistical examination of the datasets and indexes available was conducted to identify any trends and patterns. Through analyzing the context of news, academic papers, and case studies, the subheading aims to enrich the comprehension of problems and sector-specific implementation strategies. The ethical element stayed in the foreground throughout the research process. I gave them a guarantee that respect for intellectual property rights and ensuring compliance with data protection regulations were part of the process of data collection. The confidentiality and anonymity of the participants were observed. Additionally, we made sure that citations of sources were properly included to comply with academic integrity. Besides, ethical issues of the study findings were concerned, to be accordingly conveyed to the transparency and accountability in digital governance.

4.0 Findings and Results

The advancement of artificial intelligence is the fuel for the revolution that is dramatically changing people's lives. AI, robotics, algorithms, and self-driving cars, which are key technologies used for productive duties and the provision of advanced services targeted at improving society's well-being, are examples of advancements in the technology field. The main goal is to ease the tasks, bring joy to people's lives, promote health and well-being, and prevent or nullify any kind of damage. Furthermore, this equality is not simple enough, and challenges arise from the vagueness about the conception of artificial intelligence and its actual implementation. The fact that AI has a complex nature for designers is suggested by this statement, because no one can say what benefits, opportunities, and dangers it will bring now.

4.1 Ethical Concerns over Development and Deployment of AI Systems with Human-like Cognitive Abilities

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AI-intelligent technology development is an ethical issue in relation to the use, owning, responsibility, and consequences as far as humans are concerned. The future of artificial intelligence (AI) as engineers, ethicists and lawmaker's debate about the control, power dynamics and potential AI superiority over the human capability is certainly a subject of ongoing discussions. These debates highlight the urgency to find sustainability solutions that are ethically acceptable in the modern context. Presumably, the White House has taken various steps towards understanding and tackling the associated issues of AI to fully harness the power of machine learning and deep learning techniques as the most important outcome of the budget provision of $ 140 million for this purpose.
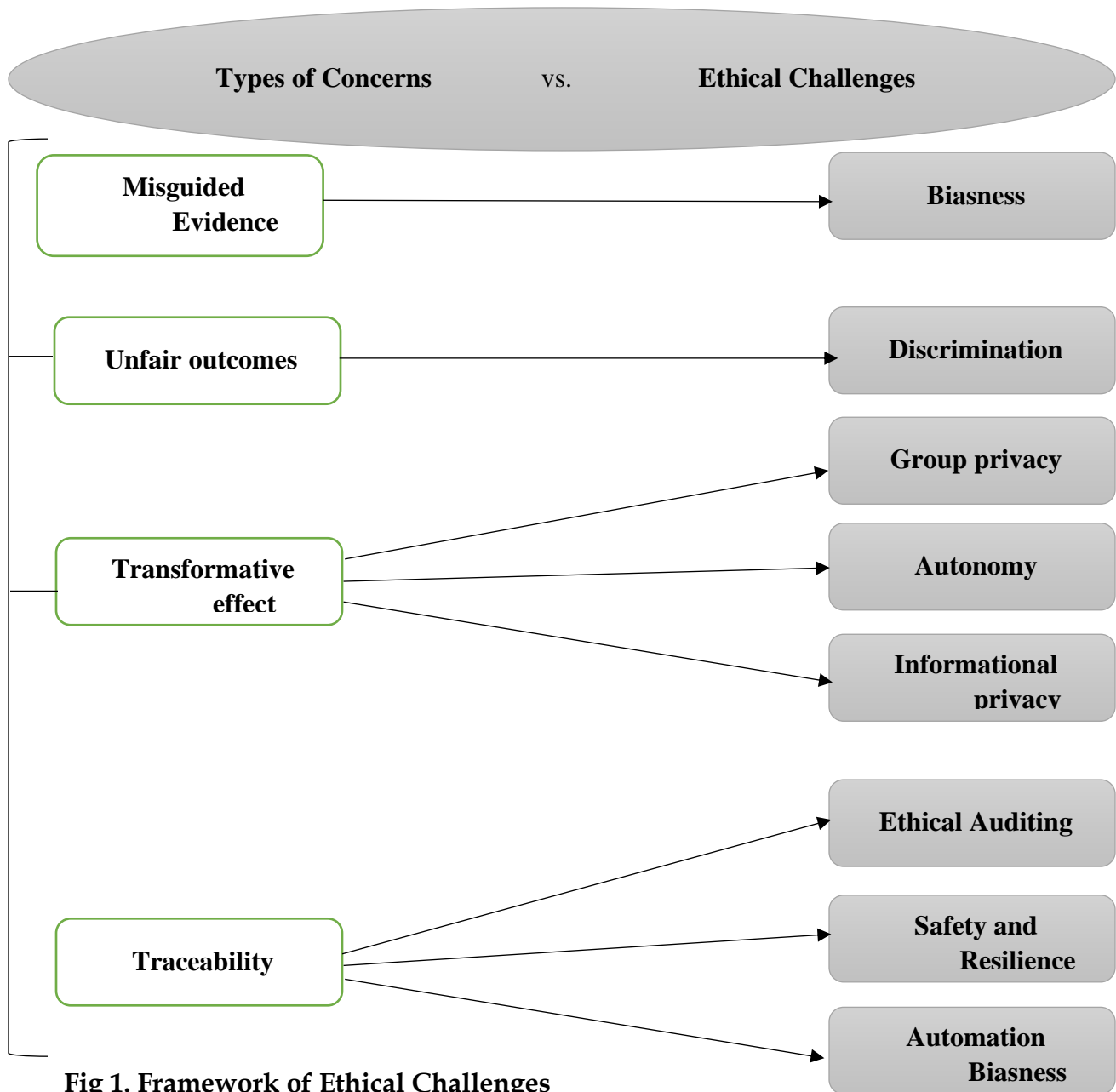

Fig 1. Framework of Ethical Challenges

4.2 Stakeholders in AI ethics

Assembling such collaboration among all industry stakeholders is required at the early stage of AI development to create ethical documents which will guide the implementation of AI and its advancement. The stakeholders are advised to assess the connectedness of social, economic, and political factors with AI and determine the ways in which robots and humans can occupy the universe in a smooth effort. In each of these groups, we have a player that is a vital one in countering the prejudice that technology may be causing and is also minimizing the risks.

Table 2. Stakeholders in AI ethics

Academics	The responsibility of creating theory-based statistics, research, and ideas that may provide help to governments, companies, and non-profit organizations lies with academics, namely researchers and professors.
Government	Government agencies and committees may play a crucial role in promoting AI ethics inside a society. An exemplary illustration of this phenomenon may be seen in the Preparing for the Future of Artificial Intelligence study, formulated by the National Science and Technology Council (NSTC) in 2016. This report delineates the intricate interplay between artificial intelligence (AI) and several domains, including public outreach, regulation, governance, economics, and security.
Intergovernmental organization	United Nations and the World Bank, have the responsibility of promoting global understanding and formulating agreements pertaining to the ethical considerations surrounding artificial intelligence. As an example, in November 2021, UNESCO's 193 member nations officially embraced the first worldwide accord on the Ethics of AI, with the aim of advancing human rights and dignity.
Non-profit organizations	Black in AI and Queer in AI, play a crucial role in facilitating the inclusion of various groups in the field of AI technology. The Asilomar AI Principles, formulated by the Future of Life Institute, consist of 23 criteria that delineate distinct risks, problems, and results associated with AI technology. Executives at prominent private corporations like as Google,

	Meta, and other technological firms, as well as organizations in the banking, consulting, health care, and other sectors that use AI technology, have the responsibility of establishing ethical teams and standards of conduct. This often establishes a benchmark for organizations to emulate.

4.3 Principles of AI Ethics

The objective of the Ethical Principles of Artificial Intelligence for the Intelligence Services is to give professionals a reference for the development and use of AI, meaning machine learning, in order to help the Intelligence Service fulfill its mission. Besides facilitating the use of these Principles, the IC has gone a step further to develop an AI Ethics Framework which is a guide for them making decisions regarding the acquisition, design, and construction, among others, of sophisticated technologies.

4.3.1. Transparency

AI is an indispensable factor in human safety and welfare. It is deployed in employment processes, human-robot interaction, and autonomous vehicles among other areas. As a result, the AI systems need to be up to par in the domain of transparency. Understanding how algorithms work, why AI needs to make a decision, and why consumers and the general public should comprehend the process is critical for businesses, consumers, and general public. For example, the bank authority may turn down an online loan application from a customer. Such consumer probably might ask for the explanation about the reason why the AI performed such rejection of his/her application. The capability of individuals to play this trick is a way of improving their chances of being granted home in future endeavors. The Netherlands government is in progress of issuing regulations that would require all the governmental services around the country to publish their artificial intelligence (AI) algorithms on the internet. However, there are still people who believe that this approach is in vain as far as its function of increasing transparency is concerned. Why? The majority of individuals will lack the ability to comprehend the facts. In order for an AI system to exhibit transparency, developers must possess a thorough understanding of the decision-making process used by their AI. Simultaneously, there is a need to enhance the general comprehension of artificial intelligence.

4.3.2. Impartiality

Impartiality is a fundamental concept in the realm of AI ethics. AI should provide equitable treatment for all individuals. This entails the eradication of bias and prejudice inside artificial intelligence systems. Utilizing data of superior quality. Several data sets are not designated for the purpose of training artificial intelligence. When used for this objective, they have the potential to transmit idiosyncrasies and prejudices arising from the process of data collecting. The ability of artificial intelligence to detect biases present in its data is limited. Failure to solve this issue may result in AI systems replicating these biases and executing them

autonomously. AI bias has often reinforced institutional forms of prejudice against marginalized populations. Hence, it is essential for researchers to use impartial, superior data and evaluate models to ascertain the presence of biased conduct.

4.3.3. Accountability

The facet of accountability is one of the most important element in AI ethics. Artificial intelligence executes algorithms. Who will be accountable and who will be blamed if an error occurs? Those persons or entities that are responsible for the implementation of AI-linked systems as a whole is held accountable for each stage of the process and not just after an AI has already been put into use. The prevention and treatment measures of AI responsibility need to be the area of focus. It is critical for teams to have wide knowledge of the system of the functioning, monitoring the algorithm development, and handpicking the quality data for the system's input. There is a lot of reasons why organization need to get directions from diversity specialist along with the other who are using the AI system. Additionally, AI also needs external keeping an eye on when it is used for very important issues like public services, to make sure accountability.

4.3.4 Reliability

The trustworthiness of AI systems is an important issue. In this way, it allows the establishment of a standard or a guaranteed outcome. This is of paramount importance, especially when artificial intelligence (AI) is used in crucial areas, such as healthcare, or financial sector. Surveillance of AI systems which is very important is needed to make sure that their reliability is guaranteed. It is achieved in this way, and all actions are addressed immediately, putting any risks to a minimum.

4.3.5. Security and Privacy

It should be noted that security should be the top priority for your system which should be guaranteed by strict security protocols that guarantee the safe storage and use of sensitive data. The aforementioned means, which includes data encryption, identification of system vulnerabilities, and mitigation of malicious attacks, are the methods used to protect systems. It is essential to develop a data collection structure with a strict data governance system. Forbes says a great challenge which exists in this area is the fragmented nature of AI, which is created by a wide range of producers in the market. The means of authority, reliability, and trustworthiness set a bar that is difficult to achieve from ethical artificial intelligence. To have the most secure AI system, one should pay attention to the strategy of security through the complete process from the introduction of AI system to the elimination of it.

Table 3 ethical consideration of AI

DO	DON'T
Consider the risk environment	Treat every situation involving AI the same way
Tell people when you use AI to create or supplement work	Assume the accuracy from AI-Generated content and images
Consider copyright implications of AI	Ignore Biasness in AI-Generated content and images
Have Human review of all AI-Generative work	Prompt AI to say or do harmful things

5.0 Recommendations and conclusion

During its 41st meeting, UNESCO formulated a set of values and principles aimed at fostering the responsible development of artificial intelligence (AI).

The notion of proportionality, as stated by UNESCO, emphasizes the need to ensure that artificial intelligence (AI) is produced and used in a manner that aligns with its intended goal while simultaneously avoiding any superfluous extravagances or hazards. Fundamentally, this suggests that the utilization of artificial intelligence (AI) should be limited in order to accomplish the specified goal without engaging in excessive or unneeded utilization that exceeds the stated target. For instance, when using AI for crime detection and prevention, it is crucial to ensure that the actions performed are commensurate with the likelihood of committing the crime and do not exceed the predefined limits of force or resources on a target. Hence, it is essential to implement the evaluation of risks and the corresponding outcomes (Board, 2019). It is essential for UNESCO Member States to foster an environment that promotes unrestricted access to AI systems that provide material and services that are appropriate to the local context while also upholding the values of multilingualism and cultural diversity, which apply to both local and international participants. The objective of this endeavor is to narrow the gap in digital access and promote fair and equal involvement in the advancement of artificial intelligence. At the national level, Member States should aim to achieve fairness in the availability and involvement of AI systems throughout their entire lifespan, regardless of

geographical location (rural or urban), gender, age, religion, race, political affiliation, ethnicity, socioeconomic status, disabilities, or any other factor (Morley et al., 2021).

UNESCO states that sustainable development is crucial. It is essential for civilizations to progress not just in terms of the environment but also in terms of social, cultural, and economic aspects. The impact of AI technology on the attainment of sustainability objectives might vary depending on the level of development in various countries (Nikolinakos, 2023). UNESCO underscores the importance of ensuring that accountability aligns with In relation to human rights, it is crucial to consider the international and national laws of each country. It is essential for AI actors to consistently uphold their ethical obligation and accountability for choices and acts that are derived from an AI system in any capacity. In order to ensure accountability, it is necessary to establish suitable oversight, impact, and assessment procedures by conducting audits of each individual (Jobin et al., 2019).

Conclusion

Based on the comprehensive examination of AI ethics and the many difficulties and challenges elucidated in this scholarly essay, it becomes evident that the endeavor to tackle ethical dilemmas in AI and develop ethical AI systems capable of exhibiting ethical behavior is a formidable and intricate undertaking (Mittelstadt, 2019). The potential significance of AI in our future civilization is contingent upon the efficacy of ethical AI systems. A collaborative approach is necessary in the field of AI ethics, including the participation of AI scientists, technologists, philosophers, users, and government officials. This article offers a thorough examination of AI ethics by condensing and evaluating the ethical risks and concerns brought about by AI, ethical guidelines and principles established by various organizations, strategies for tackling ethical issues in AI or upholding ethical principles of AI, and techniques for assessing the ethics (or morality) of AI (Pizzi et al., 2020). Moreover, this paper highlights certain problems encountered in the implementation of AI ethics and proposes potential avenues for future study. AI ethics is a vast and diverse field of study. It is unfeasible to include all conceivable subjects within this domain in a single review paper.

Contributions

Nida Syed: Problem Identification and Model Devolpement

Muhammad Raza Zafar: Literature search, Methodology

Ahsan Farooq: Drafting and data analysis, proofreading and editing

Conflict of Interests/Disclosures

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Reference

Ayling, J., & Chapman, A. (2022). Putting AI ethics to work: are the tools fit for purpose?

AI and Ethics, *2*(3), 405-429.

Board, D. I. (2019). AI principles: Recommendations on the ethical use of artificial intelligence by the department of defense. *Supporting document, Defense Innovation Board*, 2, 3.

Ejaz, U., & Godwin, O. Ethical Considerations in the Deployment and Regulation of Artificial Intelligence.

Etzioni, A., & Etzioni, O. (2016). AI assisted ethics. *Ethics and Information Technology*, *18*, 149-156.

Garrett, N., Beard, N., & Fiesler, C. (2020). More than" If Time Allows" the role of ethics in AI education. Proceedings of the AAAI/ACM Conference on AI, Ethics, and Society,

Hagendorff, T. (2020). The ethics of AI ethics: An evaluation of guidelines. *Minds and machines*, *30*(1), 99-120.

Hallamaa, J., & Kalliokoski, T. (2022). AI ethics as applied ethics. *Frontiers in computer science*, *4*, 776837.

Hauer, T. (2022). Importance and limitations of AI ethics in contemporary society. *Humanities and Social Sciences Communications*, *9*(1), 1-8.

Heilinger, J.-C. (2022). The ethics of AI ethics. A constructive critique. *Philosophy & Technology*, *35*(3), 61.

Jobin, A., Ienca, M., & Vayena, E. (2019). The global landscape of AI ethics guidelines. *Nature machine intelligence*, *1*(9), 389-399.

Kazim, E., & Koshiyama, A. S. (2021). A high-level overview of AI ethics. *Patterns*, *2*(9).

Konda, S. R. (2022). Ethical Considerations in the Development and Deployment of AI-Driven Software Systems. *INTERNATIONAL JOURNAL OF COMPUTER SCIENCE AND TECHNOLOGY*, *6*(3), 86-101.

Mittelstadt, B. (2019). Principles alone cannot guarantee ethical AI. *Nature machine intelligence*, *1*(11), 501-507.

Morley, J., Elhalal, A., Garcia, F., Kinsey, L., Mökander, J., & Floridi, L. (2021). Ethics as a service: a pragmatic operationalisation of AI ethics. *Minds and machines*, *31*(2), 239-256.

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.

Munn, L. (2023). The uselessness of AI ethics. *AI and Ethics*, *3*(3), 869-877.

Nakatumba-Nabende, J., Suuna, C., & Bainomugisha, E. (2023). AI Ethics in Higher Education: Research Experiences from Practical Development and Deployment of AI Systems. In *AI Ethics in Higher Education: Insights from Africa and Beyond* (pp. 39-55). Springer International Publishing Cham.

Nikolinakos, N. T. (2023). The European Parliament's 2020 Resolution: Proposal for a Regulation on Ethical Principles for the Development, Deployment and Use of Artificial Intelligence, Robotics and Related Technologies. In *EU Policy and Legal Framework for Artificial Intelligence, Robotics and Related Technologies-The AI Act* (pp. 281-306). Springer.

Okolo, C. T. (2020). AI in the" Real World": Examining the Impact of AI Deployment in Low-Resource Contexts. *arXiv preprint arXiv:2012.01165*.

Pizzi, M., Romanoff, M., & Engelhardt, T. (2020). AI for humanitarian action: Human rights and ethics. *International Review of the Red Cross*, *102*(913), 145-180.

Radanliev, P., Santos, O., Brandon-Jones, A., & Joinson, A. (2024). Ethics and responsible AI deployment. *Frontiers in Artificial Intelligence*, *7*, 1377011.

Schiff, D., Biddle, J., Borenstein, J., & Laas, K. (2020). What's next for ai ethics, policy, and governance? a global overview. Proceedings of the AAAI/ACM Conference on AI, Ethics, and Society,

Seppälä, A., Birkstedt, T., & Mäntymäki, M. (2021). From Ethical AI Principles to Governed AI. ICIS,

Siau, K., & Wang, W. (2020). Artificial intelligence (AI) ethics: ethics of AI and ethical AI. *Journal of Database Management (JDM)*, *31*(2), 74-87.