

Ethical Implications of Artificial Intelligence

for

Thom Davis

CIST 3000 Instructor

University of Nebraska-Omaha

Omaha, Nebraska

By

Landon Magana

CIST-3000 Student

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Outline

1. Introduction

- a. Artificial intelligence (AI) is rapidly transforming society through automation, decision-making systems, and data analysis.
- b. The purpose of this report is to explore how AI's rapid growth raises ethical questions that influence individuals and organizations.
- c. The audience includes students, professionals, and policymakers who want to understand both the potential and the risks associated with ethical AI.
- d. Working Thesis: As artificial intelligence continues to advance, society must prioritize ethical frameworks that ensure fairness, accountability, and transparency in AI systems to protect human rights and social trust.

2. Body

- a. Ethical Dilemmas in AI Development
 - i. Issues of algorithmic bias and discrimination
 - 1. AI systems can reinforce social inequalities if trained on biased data
 - ii. Lack of transparency in machine learning decision-making
 - 1. The “black box” problem makes accountability difficult
 - iii. The moral responsibility of developers and corporations
 - 1. Tech companies must adopt ethical standards that consider long-term impacts
- b. Societal Impacts of Artificial Intelligence
 - i. Effects on employment and the economy
 - 1. Automation may displace certain jobs but also create new roles in AI maintenance and oversight.
 - ii. Influence on privacy and surveillance
 - 1. Data-driven AI can threaten personal privacy if misused for mass data collection.
 - iii. AI in social relationships and communication
 - 1. Interaction with AI entities (like robots or virtual assistants) challenges human authenticity and emotional connection.
- c. Addressing Ethical Concerns through Policy and Education
 - i. Implementing global AI ethics guidelines
 - 1. Governments and organizations should adopt frameworks emphasizing fairness and accountability.
 - ii. Promoting AI literacy and ethical awareness

1. Educating both developers and users can mitigate misuse and misunderstanding of AI technology.
- iii. Collaboration between public and private sectors
 1. Shared responsibility can help create balanced regulations that foster innovation while protecting society.

d. Conclusion

- i. Restate thesis: Ethical AI development is essential to ensure that technology benefits society rather than harms it.
- ii. AI affects employment, privacy, and human interaction, demanding ethical oversight and transparency.
- iii. Closing thought: As AI continues to evolve, humans must evolve their ethical frameworks alongside it—promoting accountability, fairness, and respect for human dignity in every algorithm created.

Executive Summary

Artificial intelligence (AI) has rapidly transformed modern society by improving efficiency, automating tasks, and enhancing decision-making across multiple industries. From healthcare and transportation to business and communication, AI systems are deeply rooted in people's everyday lives. This report further examines the evolution of AI over the years and its effect on many institutional sectors. This involves the inclusion of AI in social media marketing, either through data analytics of consumer engagement or the use of generative AI content. Additionally, AI is used in traffic management to increase the optimization of traffic based on historical data. While these technologies offer significant benefits, their rapid development raises ethical concerns that must be addressed to ensure responsible use.

This report explores the ethical implications of artificial intelligence, focusing on issues such as algorithmic bias, lack of transparency, and accountability. It examines how biased training data can lead to discriminatory outcomes, how complex “black box” systems limit explainability, and why developers and corporations hold moral responsibility for the consequences of AI deployment. The report also discusses existing and potential solutions, including ethical guidelines, regulation, and education aimed at promoting fairness and transparency.

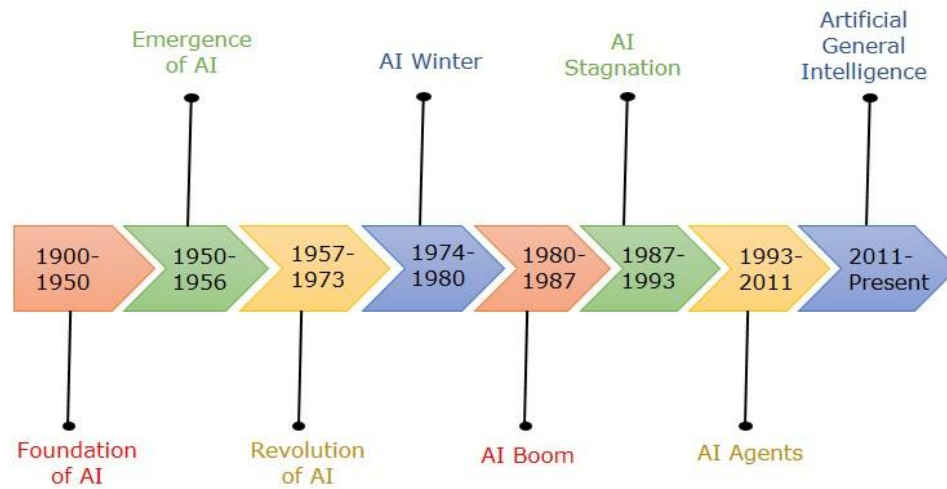
Furthermore, this report argues that as artificial intelligence continues to evolve, ethical frameworks must evolve alongside it. By prioritizing accountability, fairness, and respect for human dignity, society can ensure that AI technologies benefit humanity rather than cause harm. The inclusion of protective measures like bias recognition can aid in the process of ensuring fair data analysis while ensuring the protection and privacy of consumers. Nevertheless, while AI can be a powerful tool, it is important to maintain transparency in its usage.

Introduction

Artificial intelligence (AI) is rapidly transforming society through automation, decision-making systems, and data analysis. From healthcare diagnostics to financial forecasting and social media algorithms, AI technologies are embedded in nearly all aspects of modern life. However, this rapid growth has also raised serious ethical questions that affect individuals, organizations, and society. Understanding the moral side of AI is essential for ensuring that its development and evolution will benefit humanity rather than exploiting it. As artificial intelligence continues to advance, society must prioritize ethical frameworks that will engrave fairness, accountability, and transparency into AI systems to protect human rights and maintain social trust. The purpose of this report is not only to identify ethical concerns in artificial intelligence, but to also demonstrate how ethical AI development improves the quality and reliability of technology for everyday people. By explaining these concepts in simple terms, this report will aim to help better understand how ethical practices in AI directly benefit individuals and society.

History of Artificial Intelligence

Historically, before the rise of AI, individuals who wanted any sort of automation in their software had to do it manually and were often very limited. Around the 80's and 90's came the emergence of Machine Learning (ML), which was a computer system that allowed people to feed data to a computer, and it would learn from the data without being explicitly programmed. The success of ML came from the advances in computer power and optimization in the technology industry around that time (Giusti, 2025). ML surpassed the need for people to rely on labor intensive data analysis and processing (Khelenius, 2023). Before ML, data processing required people to analyze large datasets and come up with conclusions with that data. These advances in ML allowed computer systems to perform tasks such as pattern recognition, language translation, and other tasks far more efficiently than humans.



Evolution of Artificial Intelligence

Figure 1: Diagram of Evolution of AI from Early Foundations to Modern Applications

The development of AI has occurred in phases, shaped by technological advancements, funding availability, and societal expectations. Understanding this historical progression explains both the current capabilities of AI systems and the ethical challenges that it has created with its rapid growth. Figure 1 illustrates the major stages in the evolution of artificial intelligence from its early foundations to its modern applications.

Machine learning became the foundation for what is now recognized as artificial intelligence—computer programs that can perform tasks that would typically require human intelligence, such as recognizing speech, making complex decisions, and analyzing data (IBM, n.d.). AI has always been discussed in theory but was never implemented into society until the 21st century. Modern AI systems such as Large Language Models (LLMs) are widely used by people today because of their ability to process and generate human language. These models are designed to “understand,

interpret, and produce” human communication (Lenovo, n.d). LLMs such as ChatGPT and Gemini are forms of AI targeted towards the public because it is free and readily available. Although LLMs are the most popular form of AI, it does not have the biggest impact on your everyday life.

AI often goes unnoticed and operates behind the scenes in ways people would not realize. It is used in traffic management systems, personalized advertising, and even your social media algorithms that shape your feeds. This quiet but powerful integration shows AI’s reach across many parts of society. For example, businesses can use AI to analyze the patterns of engagement from their consumers/followers on social media (Pan et al., 2025). In this instance, using AI for data analysis can be fast and, most of the time, efficient, which allows businesses to focus on their marketing efforts where they are most needed. In addition, businesses can use generative AI to create “a large volume of captivating and realistic content tailored to individual preferences” (Pan et al., 2025, p. 1). My father owns several restaurants, and he uses generative AI to create engaging social media posts. This can range from AI generated images with daily specials or videos about new menu items, and although they might not look the most perfect, it certainly is a useful tool when posting creative content regularly.

Furthermore, AI can be transformative in traffic management. Some of its applications involve predictive analytics, real-time traffic adjustments, and Driver Assistance Systems (Akinade et al., 2024). For example, smart traffic-signal networks use machine learning algorithms to analyze real-time data, including “traffic volumes, historical patterns, and environmental conditions” to adapt to the needed signal timings (Akinade et al., 2024, p. 514). In instances of heavy snow or icy roads, predictive models analyze historical and relevant data to forecast traffic and enable proactive measures like salting the streets, enabling weather warnings, etc. (Akinade et al.,

2024). Together, these advances create safer and more sustainable urban mobility, but this does not mean that obtaining this data follows all of the necessary ethical guidelines. Nonetheless, while AI in often invisible fields can increase efficiency, this leaves a gap in the ethical dilemmas of its use in everyday life functions.

How Artificial Intelligence Processes Your Input

To better understand how ethical considerations apply to artificial intelligence, it is helpful to examine how a common AI system functions at a basic level.

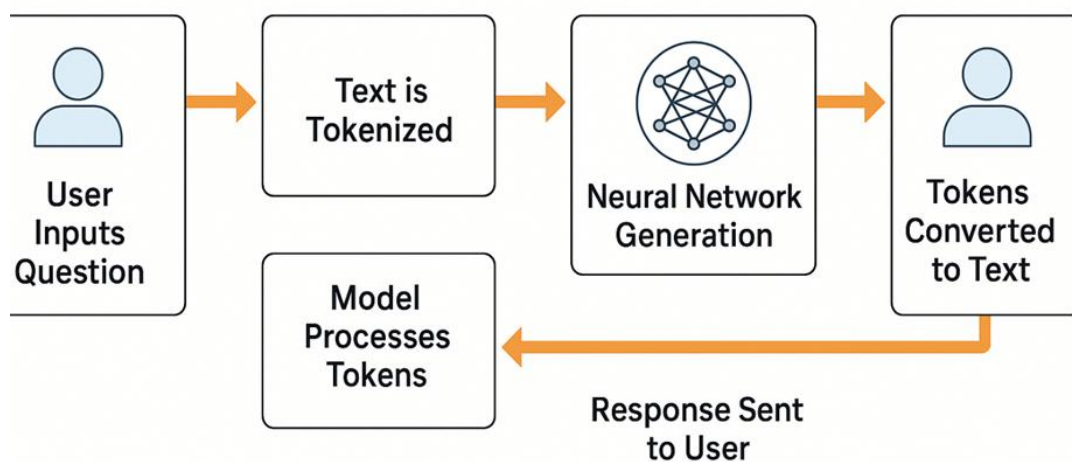


Figure 2: Simplified Process of a LLM Model Source: Author-created using OpenAI

This visualization highlights the multiple stages involved in transforming user input into a final output, emphasizing why transparency and ethical design are important throughout the process. As shown in Figure 1, user input is first tokenized, meaning the text is broken into smaller units that the model can process. These tokens are then analyzed by a neural network, which generates a response based on patterns learned from training data. Finally, the output tokens are converted back into readable text and returned to the user. Ethical considerations apply at every stage of

this process. If the training data contains bias, the model may generate biased or misleading responses.

Ethical Dilemmas in AI

Algorithmic Bias and Discrimination

One of the biggest Ethical Dilemmas in AI is its algorithmic bias. AI systems are historically known to be trained with data that could contain racial, gender, or socioeconomic biases. Using this data, AI would amplify these biases by using them in their generated results. This creates unfair opportunities in areas such as hiring processes or bank lending. An example of this would be a company using an AI hiring system that was trained on predominantly male data to unintentionally favor male applicants over female. Biases like these can often go unnoticed, which further emphasizes that need for careful examination and oversight of these AI and ML systems.

This form of AI bias can stem from the process of data mining as it is how algorithms collect and analyze data, deciding which data is valuable, and which of those are not (Belenguer, 2022).

When AI systems rely on incomplete or skewed datasets, they replicate and amplify societal inequalities rather than correcting them. Without careful oversight and diverse data, bias can become embedded in the automated systems, making it more difficult to detect.

The “Black Box” Problem and Lack of Transparency

ML and AI systems use complex models such as deep neural networks and complex datasets that process millions of variables that a human could not interpret. These areas that are hard to interpret are considered “black boxes” (Kosinski, 2024). As such, these black boxes can produce impressive results, but there is a barrier in one’s ability to fully trust these models. For example, there can be hidden cybersecurity vulnerabilities and privacy violations (Kosinski, 2024; Levy,

2009). Despite these vulnerabilities, the use of traditional AI models might be the solution to this problem; however, there are only some things that an advanced AI model can do. In a black box model, when a problem occurs it is difficult to pinpoint where exactly this problem is stemming from; therefore, making it difficult to accurately know its cause and solution.

AI developers and corporations have a responsibility when it comes to how AI is designed and used. Their ethical responsibility is to ensure that their systems follow a moral framework in the long term and take responsibility for the consequences of their systems. Developers need to prioritize safety and security and avoid prioritizing profit over human well-being. For example, the European Union passed the EU AI Act that presents a framework for classifying the risks that AI tools present to their users (Kosinski, 2024).

Other solutions to this problem include the use of open-source models which offer more transparency to the development and use of the product to the public instead of closed-source models which does not allow users to view the algorithms (Kosinski, 2024). To address this issue, researchers have advocated explainable artificial intelligence, or XAI, which focuses on making AI systems more transparent and interpretable. Increased transparency allows users to understand how decisions are made and helps build trust between AI systems and society.

Why Ethical AI Creates Better Technology

Ethical artificial intelligence means avoiding harm, but it actively improves the quality and effectiveness of AI systems. When AI is developed with ethical principles such as fairness, transparency, and accountability, the resulting technology becomes more reliable and useful for both individuals and organizations (Tai, 2020). Ethical AI systems are designed with diverse

datasets, which reduce bias and increase accuracy across different populations. This leads to better decision-making and more consistent outcomes (Sætra, 2025).

When users understand how an AI system works, they are more likely to trust and use it correctly. Logical systems allow errors to be identified and corrected more efficiently, reducing long-term risks and system failures. In contrast, AI systems developed without ethical consideration often prioritize speed or profit, which can result in unreliable outputs, security vulnerabilities, and public mistrust.

For everyday users, ethical AI improves technology by making it safer, more predictable, and more aligned with human ethics. Whether interacting with recommendation algorithms, navigation systems, or automated customer service, users benefit from AI systems that respect privacy, avoid discrimination, and provide understandable conclusions. Ethical AI leads to better technology because it is designed to work with people rather than simply acting on them.

Addressing Ethical Concerns through Policy

As artificial intelligence becomes more deeply embedded in everyday technologies, ethical challenges must be addressed through both policy development and education. Research suggests that well-defined governance structures and ethical guidelines help align AI development with societal values, ultimately producing technology that is safer and more beneficial for users (Akgun & Greenhow, 2022).

Implementing AI Ethics Guidelines and Education

One important step is implementing clear AI ethical guidelines that emphasize fairness and accountability. Ethical guidelines help organizations evaluate AI tools before they are widely adopted, especially in settings like schools where decisions affect minors and where privacy and equity are high-stakes concerns. Akgun and Greenhow (2022) highlight that educators and institutions need support to navigate ethical dilemmas connected to AI systems in classrooms. When guidelines exist, schools and organizations can more consistently ask key questions, such as: Does the system work equally well for different groups of students? Or what data is being collected?

Conclusion

Artificial intelligence has the potential to significantly improve efficiency, innovation, and quality of life across many areas of society. However, these benefits are fully recognized only when AI systems are developed ethically. Ethical AI is a basis for better technology that is accurate, trustworthy, and supported by human values.

By addressing challenges such as algorithmic bias and lack of transparency, ethical frameworks help ensure AI systems perform more consistently and serve a broader range of users.

Developers, organizations, and policymakers share a responsibility to implant ethical considerations into AI design so that technology improves human decision-making rather than undermining it.

As AI continues to evolve, ethical practices will remain essential to creating technology that people can trust and use effectively. Ethical artificial intelligence ultimately leads to better outcomes for individuals, organizations, and society, proving that responsible innovation and technological advancement must progress together.

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