Ethical Considerations in Artificial Intelligence and Computing

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The rapid development of computing and artificial intelligence (AI) technology has given rise to a number of ethical issues and worries. This proposal aims to investigate the moral issues raised by using AI, algorithms, and computing systems. It will explore the impact of AI in several areas including privacy, bias, accountability, and potential effects on society and people. This research is intended to strengthen our understanding of the ethical development and practical use of AI systems by looking at both the good and bad aspects of computer ethics. The objective is to investigate the moral implications of AI computing systems and procedures, to examine any potential discrimination and bias in AI applications, and to investigate the moral issues raised by the security and privacy of data in the big data era. This research project aims to add to the collection of knowledge on computer ethics, particularly as it relates to AI and machine learning.

# I. Introduction

Artificial Intelligence (AI) and computing have become transformative forces in the age of quick technological progress, changing many areas of life. While these technologies hold enormous potential for advancement and creativity, they also pose significant moral dilemmas. A thorough analysis of the potential repercussions and ethical standards is now necessary due to the growing importance of the ethical issues surrounding computing. This introduction lays the groundwork for a thorough investigation of computing ethics, with an emphasis on AI and is varied social impacts, privacy, bias, transparency, accountability, and the ethical design and use of AI systems. To ensure that computing technologies are used to improve human well-being and uphold ethical standards and encourage a peaceful coexistence between people and technology, understanding and tackling these ethical concerns is essential.

# II. Ethical Implications of AI Algorithms and Computing Systems

The debate over the responsible development and use of artificial intelligence centers on the ethical implications of AI algorithms and computing systems. As AI grows to enter numerous industries, questions regarding the developers’ moral obligation to create algorithms and potentially far-reaching effects come up. Acemoglu and Restrepo emphasized the importance of taking into account the potential effects on society and individuals, claiming that the growing automation of AI may result in significant job displacement and increase economic inequality. [1] According to Diakopoulos (2016), “algorithmic accountability” is essential for comprehending how AI systems arrive at their conclusion and to eliminate any biases. [2] In addition, the lack of openness and explainability in AI decision-making processes raises ethical concerns. These moral questions require an advanced approach to AI development, ensuring that the application of AI algorithms is in line with social norms and advances the interests of all parties.

# III. Bias and Discrimination in AI Applications

One of the most urgent ethical issues in AI applications is bias and prejudice, which calls for careful attention in algorithm development and data management. AI systems may unintentionally reinforce societal stereotypes as they learn from large datasets, producing discriminating results.

According to the research done by Buolamwini and Gebru on face recognition software, these systems exhibited greater eror rates for those with darker skin tones and women, illustrating the biases built-in to the algorithms. [3] The ethical quielines put forth by the European Union (EU) and the Institute of Electrical and Electronics Engineers (IEEE) place a strong emphasis on the necessity of proactively addressing bias, encouraging justice, and preventing discrimination in AI systems.[4]

As recommended, ethical AI development must give priority to varied and inclusive datasets to ensure that the technology helps everyone in an unbiased way.

# IV. Data Privacy and Security in the Era of Big Data

Data Security and privacy have become vital ethical issues in the age of big data and universal computing. The exponential expansion of data gathering and storage capacity creates difficulties for protecting sensitive personal data. There are growing worries about potential abuse and unauthorized access as massive amounts of data are collected, exchanged, and analyzed. According to a study by Datta et al., which illustrates the complex interplay between big data and privacy, the availability of personal data presents specific privacy hazards and calls for effective safeguards to preserve peoples privacy. [5]

# V. Transparency and Explainability in AI Algorithms

# VI. Accountability and Responsibility in AI Systems

# VII. Case Studies: Real-World Examples of Ethical Challenges in AI

# VIII. Ethical Frameworks for Responsible AI Development

# IX. Conclusion

# References

[1] Acemoglu, D., & Restrepo, P. (2019). Artificial intelligence, automation and work. National Bureau of Economic Research, Working Paper 24196. DOI: 10.3386/w24196.

[2] Diakopoulos, N. (2016). Accountability in Algorithmic Decision Making. Communications of the ACM, 59(2), 56-62. DOI:10.1145/2818717.

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