

INTERNATIONAL JOURNAL OF LAW MANAGEMENT & HUMANITIES

[ISSN 2581-5369]

Volume 7 | Issue 5

2024

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Humanity in the Era of Artificial Intelligence: Navigating Legal and Ethical Labyrinth

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ABSTRACT

This research paper examines the complex legal and ethical challenges arising from the widespread integration of artificial intelligence (AI) into society. It explores key areas of concern, including algorithmic bias, liability in autonomous systems, privacy in the data age, and potential job displacement. Through analysis of case studies, research findings, and global regulatory approaches, the paper highlights the inadequacy of current legal frameworks to address AI-related issues. The study reveals significant gaps in accountability, transparency, and fairness across various AI applications, from facial recognition technology to autonomous vehicles. Findings underscore the urgent need for adaptive legal structures and ethical guidelines to govern AI development and deployment. The research paper proposes potential solutions, emphasizing the importance of international cooperation, public awareness, and ongoing monitoring of AI's societal impacts. By addressing these challenges, the research contributes to the evolving discourse on balancing technological innovation with ethical considerations and human rights protection in the AI era. This comprehensive examination of the legal and ethical landscape surrounding AI aims to inform policymakers, researchers, and industry professionals, fostering responsible AI development that benefits humanity as a whole.

Keywords: Artificial Intelligence Ethics, Legal Frameworks, Algorithmic Bias, Data Privacy, Technological Governance.

I. INTRODUCTION

AI holds immense potential to transform healthcare, transportation, education, and countless other sectors. For instance, research by Stanford University demonstrates how AI algorithms can outperform human radiologists in cancer detection. Self-driving car companies like Waymo are conducting real-world trials, potentially paving the way for more efficient transportation. However, these advancements also raise some ethical concerns, such as Algorithmic bias, where AI systems perpetuate societal prejudices, which can lead to discriminatory hiring practices or

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unfair loan approvals.

II. ETHICAL CONCERNS

(A) Bias and fairness

AI systems trained on biased data can sustain discrimination in areas like hiring, loan approvals, and criminal justice. A report by **ProPublica**³ reported in 2020 that there is racial bias in AI-powered risk assessment tools which are used in the criminal justice system. Moreover, the increasing reliance on AI raises questions about accountability, such as who will be responsible for the decisions made by an autonomous vehicle in an accident done by a car?

(B) Privacy

As we know, AI can collect and analyze huge amounts of personal data, raising issues of consent and right to privacy. For example:

1. In 2021, two mobile apps, *Sulli Deals and Bulli Bai*⁴, listed Muslim women for “sale” online, without their consent. These apps reportedly used images scraped from their social media platforms. Thus, this incident highlights how AI can be misused to scrape personal information and violate privacy.
2. In 2018, *Cambridge Analytica*⁵, a political consulting firm, had taken personal data from millions of Facebook profiles without their consent. This data was allegedly used to influence voter behavior during elections. Again, this indicates how AI can be misused to manipulate huge amounts of personal data for targeted purposes.
3. In 2020 a report by the *Pew Research Center*⁶ has findings that a growing number of Americans are bothered about the amount of data collected by AI systems, and how it is being used.
4. A 2021 report by the *Council of Europe* called for a global ban on facial recognition technology, citing privacy concerns as a major reason for their citizens.⁷
5. Accountability: As AI is becoming more autonomous day by day, who is accountable

³Julia Angwin, Jeff Miller, *Machine Bias*, ProPublica (2016), <https://www.propublica.org/article/machine-bias-risk-assessments-in-criminal-sentencing> (last visited Oct 13, 2024).

⁴Mariya Salim, “Bulli Bai”, “Sulli Deals”: On Being Put Up for “Auction” as an Indian Muslim Woman, *The Wire* (2024), <https://thewire.in/communalism/indian-muslim-woman-auction-bulli-bai> (last visited Oct 13, 2024).

⁵Wikipedia Contributors, *Cambridge Analytica*, Wikipedia (2024), https://en.wikipedia.org/wiki/Cambridge_Analytica (last visited Oct 13, 2024).

⁶ Colleen McClain, Michelle Faverio, Monica Anderson and Eugenie Park, 2. *How Americans protect their online data*, Pew Research Center (2023), <https://www.pewresearch.org/internet/2023/10/18/how-americans-protect-their-online-data/> (last visited Oct 13, 2024).

⁷The Council of Europe: guardian of Human Rights, Democracy and the Rule of Law for 700 million citizens - Portal - www.coe.int, Portal (2014), <https://www.coe.int/en/web/portal> (last visited Oct 13, 2024).

for its decisions? This can be traced through some previous cases, and studies:

- a) In 2018⁸, an Uber self-driving car struck and killed a pedestrian in Arizona. No clear answer emerged as to who was responsible: the engineers who programmed the car, the ones who deployed it, or the safety systems designed to prevent such accidents.
- b) A 2022 study conducted by the *Brookings Institution* identified four key challenges to AI accountability.
- c) Difficulty in attributing decisions to specific actors.
- d) Lack of transparency in AI systems.
- e) Potential for unintended consequences.
- f) Difficulty in regulating rapidly evolving AI technologies.

(C) Transparency

The lack of transparency can erode trust and make it hard to identify and fix biases as many AI systems are made complex and opaque, which makes it difficult to understand.

In 2019⁹ a study conducted by *ProPublica* found that Black applicants were more likely to be denied loans than white applicants with similar creditworthiness. The lack of transparency in the approval of loans made it difficult to find out the source of bias and preventive action at the right time.

A 2020 report submitted by the *Algorithmic Justice League* discovered that the software used for facial recognition by law enforcement agencies has higher rates of errors in identifying the color of people, which results in wrongful arrests.

A 2021 study conducted by *IBM* found that bias in AI healthcare algorithms can lead to misdiagnosis and unequal treatment for certain patient groups.

III. LEGAL IMPLICATIONS

(A) Liability

Currently, available laws are not sufficient to address who is responsible for errors or harm caused by AI systems.

⁸ BBC <https://www.bbc.com/news/technology-54175359>, 5.10.2024.

⁹ Julia Angwin, Jeff, *Machine Bias*, ProPublica (2016), <https://www.propublica.org/article/machine-bias-risk-assessments-in-criminal-sentencing> (last visited Oct 13, 2024).

In 2021 a report published by the *European Commission*¹⁰ called for the evolution of a proper legal framework for AI that would assign responsibility based on risk. The report shows that current liability regimes may perhaps not be well-suited for the complications in AI systems.

These examples and research highlight the need for legal frameworks that can adapt to the evolving landscape of AI. As AI becomes more sophisticated and integrated into our lives, clear rules regarding responsibility for harm will be crucial for ensuring safety, and accountability, and fostering public trust in this powerful technology.

(B) Intellectual property:

Who owns the creative output of AI systems? Can AI itself be an inventor?

In the US, the U.S. Copyright Office rejected a copyright application for an AI-generated artwork titled “*A Recent Entrance to Paradise*” in 2022¹¹. The decision highlights the current legal stance that AI output alone is not copyrightable.

A company named Stephen Thaler has filed patent applications where the inventor is listed as DABUS, an AI system it developed. The applications were rejected by patent offices in the US, Europe, and elsewhere. Proponents of AI inventorship argue that if an AI can demonstrably create novel inventions, it should be recognized as an inventor.

IV. CONTRASTING APPROACHES: ARTIFICIAL INTELLIGENCE REGULATIONS IN THE DIFFERENT COUNTRIES

The legal frameworks governing AI are still in their growing phase in many countries. Some countries, like the European Union, are taking the lead in developing regulations that emphasize transparency, fairness, and accountability in AI development and deployment. The Act proposed by the EU on Artificial Intelligence¹² in 2023 focuses on high-risk AI systems that could impact the safety and fundamental rights of the citizens. On the other hand, The United States has not established a comprehensive legal framework for AI yet. However, different bills have been proposed, such as the Algorithmic Accountability Act of 2022¹³, which aims to

¹⁰Marc M Anderson. Some Ethical Reflections on the EU AI Act. IAIL 2022: 1st International Workshop on Imagining the AI Landscape After the AI Act, Jun 2022, Amsterdam, Netherlands. (hal-03921857)

¹¹U.S. Copyright Office, *Copyright and Artificial Intelligence | U.S. Copyright Office*, Copyright.gov (2023), <https://www.copyright.gov/ai/> (last visited Oct 13, 2024).

¹²AI Act, *EU AI Act: first regulation on artificial intelligence | Topics | European Parliament*, Topics | European Parliament (2023), <https://www.europarl.europa.eu/topics/en/article/20230601STO93804/eu-ai-act-first-regulation-on-artificial-intelligence> (last visited Oct 13, 2024).

¹³Koen Vranckaert, *How Cautious is too Cautious? The US and EU Artificial Intelligence Roadmap (Part 3: the Algorithmic Accountability Act 2022)* - *CiTIP blog*, CiTiP blog (2023), <https://www.law.kuleuven.be/citip/blog/how-cautious-is-too-cautious-the-us-and-eu-artificial-intelligence-roadmap-part-3-the-algorithmic-accountability-act-2022/> (last visited Oct 13, 2024).

address the growing concerns regarding the use of AI and algorithmic decision-making, mainly issues of fairness, transparency, and potential discrimination. If this Act is enacted, it would represent a significant step toward ensuring that AI technologies are deployed ethically and responsibly in the USA.

The UK also has been developing AI-related policies and strategies to promote innovation and development to ensure ethical and responsible AI use. The UK government has released various reports and guidelines on AI ethics and governance, and it has been engaging with stakeholders to shape its approach to AI regulation. Some of the reports are:

In January 2021, the UK's AI Council published the "National AI Strategy" and the "AI Roadmap," outlining recommendations for fostering AI innovation and growth while ensuring righteous, ethical, and responsible AI development.

In December 2020, the UK government responded to the CDEI's review of online targeting, acknowledging the need for stronger regulation to address the risks associated with AI-driven targeting and recommendation systems and the UK government announced the AI Sector Deal in April 2018.

China has also issued guidelines and standards for AI ethics, as there are certain issues regarding state surveillance and privacy implications associated with the use of AI technologies.

The Singapore government has established various initiatives, such as the Model AI Governance Framework¹⁴, to guide organizations in the responsible and ethical use of AI.

V. UNDERSTANDING ETHICS AND LEGAL FRAMEWORKS

AI Ethics: AI ethics is a system of moral principles and techniques intended to inform the development and responsible use of artificial intelligence technology.

Legal Frameworks: It is a broad system of rules that governs and regulates decision-making, agreements, laws, etc.

(A) Ethical Principles for Artificial Intelligence Development

Transparency: AI systems should be designed and operated easily and understandably, allowing users to understand how they arrive at decisions. This can help in building trust and identifying potential biases.

Fairness: AI systems should be developed in such a way that they avoid discrimination

¹⁴PDPC | *Singapore's Approach to AI Governance*. www.pdpc.gov.sg/help-and-resources/2020/01/model-ai-governance-framework. (last visited Oct 13, 2024).

irrespective of every kind of bias and ensure ethical treatment for every individual and group.

Accountability: There should be clear lines of responsibility for the deployment, development, and use of AI systems. This ensures someone's responsibility and accountability for unintended consequences, as we already have seen in the Arizona Uber case.

Privacy: AI systems should be designed and used in such a way that respects the user's privacy and protects personal data. We have witnessed how *Bulli Bai* and *Sulli Bai* were used to defame and infringe the privacy.

(B) Existing legal frameworks and regulations

There's currently no nation that has an international legal framework governing AI. However, various jurisdictions are developing their approaches:

- The *EU's GDPR (General Data Protection Regulation)* emphasized data privacy and user rights. The EU Commission is also proposing a comprehensive AI Act that would set transparency, risk assessment, and human oversight requirements for high-risk AI applications in the future.
- The US takes a more sector-specific approach to AI regulation. There's a growing focus on ethical principles, but no overarching federal legislation for AI.
- China has adopted a National Strategy for AI development but there are no current comprehensive AI regulations, the government is exploring ways to balance innovation with ethical considerations.

(C) Ethical considerations in Artificial intelligence development

AI development and deployment raise a multitude of ethical concerns in today's world. Some of them are:

Bias and Discrimination: AI systems trained on biased data can create discrimination in areas like hiring, loan approvals, and criminal justice. For instance, a report by *ProPublica* investigation revealed that an AI system used for loan approvals by major banks exhibited racial bias against Black applicants.¹⁵ This is because the system was trained on historical data that reflected existing societal biases.

Lack of Transparency: Many AI systems, in which deep learning is used, are complex and opaque. This “**black box**” nature makes it difficult to understand, making it hard to identify and

¹⁵Julia Angwin, Jeff, *Machine Bias*, ProPublica (2016), <https://www.propublica.org/article/machine-bias-risk-assessments-in-criminal-sentencing> (last visited Oct 13, 2024).

fix biases.

Unintended Consequences: AI systems sometimes produce unexpected outcomes, leading to unintended consequences. This is because the systems can learn complex patterns from available data that might not always translate well to the real world.

VI. CASE STUDIES

(A) Facial recognition technology

- *Bias in Algorithmic Identification:* A 2020 report by the *Algorithmic Justice League* has the conclusion that the facial recognition software used by law enforcement agencies has higher error rates for identifying people of color. This can have serious consequences, such as wrongful arrests.
- *Privacy Concerns:* The widespread applicability and use of facial recognition technologies raises serious concerns about mass surveillance and potential misuse by governments or private companies.

(B) Autonomous vehicles

- *The Trolley Problem:* Autonomous vehicles raise complex ethical dilemmas in accident scenarios. Programmers must grapple with trolley problem-like situations, deciding who to harm in unavoidable accidents.
- *Safety and Regulation:* Ensuring the safety of self-driving cars and establishing clear rules and regulations for their operation are ongoing challenges.

VII. LEGAL LANDSCAPE OF ARTIFICIAL INTELLIGENCE GOVERNANCE

The legal landscape for AI governance is a complex tapestry woven with regional and national threads. It can be simplified as follows:

(A) The Current Legal Landscape

Absence of Global Framework: There's currently no single and comprehensive legal framework for governing AI on a global scale. Only guidelines are proposed for the upcoming frameworks.

Regional and National Initiatives: Individual countries and blocs like the European Union (EU) are taking the lead in developing their legal approaches to AI governance through their different guidelines and acts.

Sector-Specific Regulations: Many countries have existing regulations in areas like data privacy and consumer protection that can be easily applicable to AI development and use in specific

sectors like finance or healthcare, by keeping these in mind new guidelines will be formed.

(B) Comparison of approaches

European Union: The EU takes a risk-based approach, with stricter regulations for high-risk AI applications which we can see in their *GDPR (General Data Protection Regulation)* which emphasizes data privacy rights, and the proposed AI Act outlines transparency, human oversight, and risk assessment requirements. Also, the GDPR has implications for how AI systems collect and use personal data. Companies operating in the EU need to comply with these regulations to avoid hefty fines.

United States: The US leans towards a more sector-specific approach. Focusing on different agencies like the *Federal Trade Commission (FTC)* or the *Food and Drug Administration (FDA)* oversee AI in their respective domains.

Example: The FTC can use existing consumer protection laws to address potential harm caused by biased AI algorithms.

India: India is still formulating its approach to governing AI systems. Currently, India has not implemented specific AI regulations yet, but we have released policy frameworks emphasizing responsible development and ethical considerations. For example, *the “Model AI Governance Framework”* by *NITI Aayog* outlines principles for responsible AI development in India.

(C) Effectiveness and gaps

The existing frameworks provide an initial point for addressing data privacy, algorithmic bias, and consumer protection concerns from different nations.

- Lack of global harmonization can lead to regulatory arbitrage and hinder innovation. Existing frameworks might not adequately address the rapid pace of AI development and the emergence of entirely new applications. For proper regulation, we need to cooperate internationally as AI has no national boundaries.
- The allocation of responsibility for harm caused by AI systems remains unclear in many jurisdictions. Thus, it requires a clear and focused framework to regularize the misuse of AI.

(D) Best practices in the field

Algorithmic Justice League (AJL) is a nonprofit organization dedicated to promoting racial equity and ethics in the development and deployment of AI. They offer resources and guides

for companies to develop fair and unbiased AI systems.¹⁶

Partnership on AI (PAI) is a multi-stakeholder initiative that aims to bring together companies, NGOs, and research institutions for the establishment of the best practices for ethical AI development and deployment. They offer resources like the “*AI Best Practices*” document that outlines key principles for responsible AI.¹⁷

The *European Commission’s Proposed AI Act* that proposed regulation sets out a risk-based approach to AI governance, with stricter requirements for high-risk AI applications. It emphasizes transparency, human oversight, and accountability.¹⁸

The *Montreal Declaration for Responsible AI Development*¹⁹ outlines principles for responsible AI development, focusing on human rights, fairness, and well-being. It serves as a guide for researchers, developers, and policymakers.

VIII. CONCLUSION

Nowadays AI is revolutionizing our world, but ethical and legal concerns loom large. Bias and privacy are the two top worries through which AI can perpetuate discrimination and gobble personal data, raising privacy concerns. *Opaque AI* systems make it hard to understand how they work, hindering bias detection. Who’s accountable for AI decisions, especially with autonomous systems? As we already have seen earlier in the paper

And the legal landscape is fragmented. No global AI laws exist till today, and currently one might not keep pace with AI’s rapid evolution due to the fragmentation.

Efforts are underway to address these issues. Organizations promote ethical AI development, and the EU proposes regulations for high-risk AI.

But the actual question is what the future demands: The answer is.

- *Global cooperation on AI governance.*
- *Adaptable legal frameworks.*
- *Balancing innovation with risk management.*

¹⁶Algorithmic Justice League - Unmasking AI harms and biases, Ajl.org (2020), <https://www.ajl.org/> (last visited Oct 13, 2024).

¹⁷Partnership on AI - Home - Partnership on AI, Partnership on AI (2024), <https://partnershiponai.org/> (last visited Oct 13, 2024).

¹⁸AI Act, *EU AI Act: first regulation on artificial intelligence* | Topics | European Parliament, Topics | European Parliament (2023), <https://www.europarl.europa.eu/topics/en/article/20230601STO93804/eu-ai-act-first-regulation-on-artificial-intelligence> (last visited Oct 13, 2024).

¹⁹Montreal Declaration for a Responsible Development of Artificial Intelligence - La recherche - Université de Montréal, Umontreal.ca (2017), <https://recherche.umontreal.ca/english/strategic-initiatives/montreal-declaration-for-a-responsible-ai/> (last visited Oct 13, 2024).

- *Further research is also needed on mitigating bias, allocating responsibility for AI harm, and understanding AI's societal and economic impacts.*
- *Awareness, accountability, and cooperation among the experts are also needed.*

By working together, we can ensure AI benefits everyone equally and largely and it is necessary as it is the need of the hour.

Authors recommendations for further research

This paper aims to intricate web of ethical and legal challenges surrounding AI. There are a few suggestions for navigating this complex landscape which are as follows:

- We need to develop AI systems that are easy to understand and clear to the public at large. It should be able to grasp how decisions are made, allowing for bias detection and mitigation. A large investment in research on explainable AI (XAI) techniques to demystify complex algorithms is needed. For Mitigating Biases and Promotion of Fairness rigorous data cleaning and bias detection methods should be implemented. Develop and deploy fairness metrics to track and address potential biases in AI systems.
- Accountability is an essential aspect so for it, a defined clear line of responsibility for all actors involved in the AI development and deployment lifecycle, from engineers to programmers to management, from experts to students.
- We need to create legal frameworks that assign liability for loss and harm caused by AI systems, ensuring accountability for unintended consequences irrespective of national boundaries.
- To foster international collaboration and global cooperation on AI governance, a comprehensive legal framework should be progressed. This will prevent regulatory arbitrage and ensure consistent ethical standards. Knowledge sharing and best practices exchange between nations will promote responsible AI development.
- By raising public awareness about the capabilities and limitations of AI educating the public about potential ethical concerns surrounding AI and empowering them to advocate for responsible development and deployment we can make AI more accountable and fairer.
- Establishment of ongoing monitoring mechanisms to track the evolving impacts of AI on society. And develop frameworks that can adapt to the rapid pace of AI advancements, ensuring regulations remain relevant and effective to make AI ethical.

- By implementing these suggestions, we can foster responsible development and deployment of AI, ensuring it benefits everyone and contributes to a brighter future ahead.
