

UNMASKING THE ALGORITHMS IN AI

By: Naukhaiz Aftab

ABSTRACT

Data privacy and protection in Artificial Intelligence (AI) play a crucial role. AI has been in use across all the sectors like employment, education, legal, research and development, healthcare, etc. Although often perceived as objective and neutral, AI can perpetuate or even intensify existing societal inequalities through algorithmic bias. This paper examines the operational tools of AI, pinpointing critical sources ranging from inconsistent training modules to opaque design architectures characterized as black boxes, and investigates their practical drawbacks. Focusing particularly on the Indian scenario, this paper underlines the limitations of current ethical legal frameworks in addressing these challenges and underscores the pressing need for robust governance. Through a comparative lens, it analyses regulatory responses in jurisdictions such as the European Union AI law GDPR, United States laws like California Consume Privacy Protection Act 2018, and United Kingdom Data Protection Act,2018, drawing lessons for India's emerging AI policy landscape. With the concluding points and a holistic set of recommendation ranging from technical safeguards and legislative reforms to ethical design principles and international collaboration this paper aims to contribute to the ongoing global discourse on ensuring AI system are transplant, accountable and line up with principle of justice and equity.

Keywords: Algorithmic Bias, Artificial Intelligence, Justice and Equity.

1. INTRODUCTION

Artificial Intelligence is transforming humans' life across all the sectors like finance, healthcare, legal system, law enforcement agencies and education. The heart of AI is based on the algorithms which are basically mathematical models that process vast amount of data to make decisions. Notwithstanding the efficiency and speed, AI is not immune to biases. When trained on incorrect or inadequate datasets, AI systems might yield discriminatory conclusions that disproportionately impact underprivileged people.

This study examines the socio-economic legal implication of algorithmic decision making, focusing on how algorithmic bias challenges existing legal norms and ethical standards. This paper also seeks to identify legal gaps and proposes reforms to ensure that AI technology promote justice rather than bias.

Algorithmic works bad whenever it produces bias result repeatedly based on the faulty trained data. This phenomenon has the potential to introduce new, unexpected biases into societal structure in addition to sustaining current social inequalities.

The opaque nature of AI algorithms poses a significant hazard and requires good management. The architects of AI models often encounter opaque decision-making processes, complicating the identification of how the AI arrived at its conclusions. The extensive influence of AI, coupled with its inherent lack of transparency, creates a significant accountability deficit. When AI makes critical decisions that are prone to prejudice, however the bias mechanism remains obscured behind a 'black box,' the question of accountability for the resulting harm arises.

Algorithms in AI are sequences of rules and regulations that help the machine learn from data. Machine learning is a subset of artificial intelligence, which enables the system to acquire knowledge and improve with experience. Furthermore, these algorithms might assimilate and exacerbate the biases inherent in their training datasets, resulting in algorithmic bias.

2. LITERATURE REVIEW

- **Barocas & Selbst (2016)**- The study highlights the biases embedded in the training data of AI, and its effect of producing discriminatory results. The authors highlighted that considering algorithmic bias purely as a technical glitch overlooks its roots in structural inequality.
- **O'Neil (2016)**- Large-scale predictive models with opaque logic and no accountability mechanisms function as "*Weapons of Math Destruction*," inflicting real-world harm on individuals. Therefore, the researcher argues for a transparent impact assessment and legal remedies.
- **Eubanks (2018)**- The author in this paper stated the impact of biased results of AI. The automated decision-making tools may penalize the poor and marginalized people who depends upon the social and welfare services.

- **Chander (2021)**- India's current legal framework like Information Technology Act, 2000, The Digital Personal Data Protection Act, 2023 lacks explicit provisions to address the AI-driven discrimination.

Together, these above literatures arise the need for legal, ethical, and technical interventions that align with our democratic and constitutional values.

3. REAL-WORLD MANIFESTATION OF ALGORITHMIC DISCRIMINATION

3.1 EMPLOYMENT AND HIRING ALGORITHMS

AI related recruitment tools are widely used across the India's information technology sectors as well as other corporate sectors, but algorithms result inclines towards the candidates whose profiles mostly resembles with the existing employees. This circumstance presents a significant concern that must be addressed promptly, as this algorithm may result in the rejection of eligible individuals, potentially impacting the economy at large. For instance, many corporate now discontinued to screen resume using AI since resumes were straightly rejected pertaining to the females. To overcome this issue, there must be a systematic balance of transparent AI algorithm with human intervention in hiring process, not solely depend on artificial intelligence.

3.2 CRIMINAL JUSTICE SYSTEM

AI is increasingly embedded in law-enforcement and criminal justice system. This system entrenches historic injustices and amplifies disparities in the context of racial and socio-economic lines. Notwithstanding the precedent set by Justice K.S. Puttaswamy (Retd.) and Anr. vs. Union of India and Ors., the Delhi police has been employing live facial recognition technology on CCTV footage, leading to the unwarranted interrogation of innocent individuals. The criminal justice system has been utilizing AI tools indiscriminately, so compromising constitutional values and human rights, rather than addressing the underlying prejudices inherent in these technologies.

3.3 EDUCATION AND ADMISSION

AI is increasingly applied to school and college admissions, exam grading, and scholarship allocation. Exclusively depend on the AI Algorithms for grading the exam performance cannot be acceptable ethically as well as legally. During the COVID-19 exam cancellations (2020), the UK's Office of Qualifications and Examinations Regulation (Ofqual) used an algorithm to assign provisional A-level grades. Students from underperforming schools—often in low-

income or rural areas—were disproportionately downgraded. The backlash forced a reversal where the final grades were provided solely on teacher assessments.

In Indian context, right to education (Article 21) Guarantees free and compulsory schooling but this should not be equated by using AI technology in grading or admission process. Furthermore, the Right to Education Act of 2009 stipulates a 25% reservation in private schools for marginalized groups—an aspect where artificial intelligence cannot intervene to prevent the avaricious administration or trustees of the schools from undermining the Act's objectives.

To mitigate the assessment made with the help of AI in educational institutions, it is needed to develop a grading system which will be based on parameters to be assessed manually by the teachers and if necessary independent auditors can be engaged to conduct audit to see that the grading has been made solely by manually by teachers.

3.4 HEALTHCARE

Now question arise that whether AI can enter in healthcare system? Answer is simple that AI is universal from Diagnostic support (e.g., imaging interpretation, pathology analysis) to risk-scoring and patient prioritization and from predicting who need intensive care or transplants to resource allocation (e.g., bed assignments, tele-triage systems).

In USA, there is dedicated law for healthcare system to protect the patient's privacy, that statute is called as (HIPAA) Health Insurance Portability and Accountability Act enacted in 1996. On the other hand, India does not have dedicated law for healthcare. India has umbrella Act which is the 'Digital personal Data Protection Act, 2023' addressing for all privacy related issues.

AI systems in medicine can inherit and amplify existing disparities what we call algorithmic bias. When training data represents or misrepresents certain populations, models systematically under-diagnose, under-prioritize, or misallocate resources, worsening the conclusive result.

3.5 ORTHER CRITICAL SECTORS

- Finance and Investment in Stock Markets.
- Research and Development.
- Art and culture.

4. LEGAL AND ETHICAL ANALYSIS

From a legal standpoint, algorithmic discrimination challenges the core principle of equality which is sourced in Article 14 of the Constitution of India. Liability is another complex issue

arise from bias AI algorithm. Courts and policymakers grapple with accountability when harm results from AI-driven decisions. Addressing the legal and ethical challenges requires a multi-pronged approach that combine the fairness audits, inclusive datasets and redress grievance mechanisms.

5. GLOBAL PERSPECTIVE AND COMPARATIVE INSIGHTS

The European Union has been at the forefront in regulating AI. The privacy regulation of European Union that is General Data Protection Regulation (GDPR) provides individuals with the right to an explanation for algorithmic decisions. It is a foundational element for algorithmic transparency.

The United States of America follows a sectoral approach, with separate regulation for finance sector, health sector and education sector. United States have adopted a decentralize approach for governing the AI, lacking a centralised legal framework or a single AI law applicable all over the United States.

An important development in US federal AI policy is the "**Blueprint for an AI Bill of Rights**" (2022). This is a non-binding document published by the department of science and technology of White House Office. This non-binding document outlines the five core principles intended to guide the design, use, and deployment of automated systems, prominently featuring Algorithmic Discrimination Protections.

Like the USA, the UK's strategy is founded on five guiding principles for the responsible development and utilization of AI, which encompass safety, security, openness and accountability.

On the other hand, Canada has introduced ethical AI frameworks and regulatory sandboxes to test new technologies. These models focused on the transparency, accountability as well as offer useful lessons for India's evolving regulatory landscape. Data Protection law, specifically UK's General Data Protection Act, 2018, addresses fairness, requiring personal data to be handled carefully that individuals have control over their personal data.

6. CHALLENGES IN ALGORITHMIC BIAS

Artificial Intelligence System is very difficult to control. One of the biggest problems is AI algorithm bias is that AI make unfair decisions. The following are some reasons why it is difficult to control.

- a) **Transparency Issue-** AI system is like 'Black box' which means that the decisions they make is shadowed and cannot be evaluated.
- b) **Technical complexity-** AI regulation requires special knowledge in machine learning, statistics, and law which most policymakers do not have. Even if they could see the AI's program, it would be very hard to find the unfair parts without being an expert.
- c) **Jurisdictional Ambiguity-** AI made in one county, trained in another county and used in another county. This makes it confusing jurisdictional issues. Moreover, there is difference between taste, preference and hobbies whereby an AI is trained on data from America might be used in India, where custom and preference of people are not same.
- d) **Data Quality Issue-** AI learned from information or experience. If the data is bad or unfair in nature it impacts the outcome negatively. In many places data is a big problem. Example: If an AI used for giving out government aid is trained with old data, it might unfairly deny help to people who really need it.
- e) **Enforcement Limitations-** Even where laws exist, weak implementation, insufficient monitoring hinder effective enforcement.

7. REGULATORY POLICY GAPS IN INDIA

India does not yet have strong laws to regulate AI and how decisions made by algorithms affect people. While some law, like Information Technology Act 2000 and the Digital Personal Data Protection Act 2023 offers some limited protection but not specifically regulate AI related challenges.

There is no specific law to regulate or compel for AI transparency. Adoption of AI in Public Utility Service such as facial recognition in policing or beneficiary verification in social welfare schemes, often proceeds without public consent or lacks ethics. Moreover, India's judiciary has yet to develop a jurisprudence around algorithmic accountability, leaving victims of AI bias with limited avenues for redress.

7.1 Future of AI Regulations in India

India is expected to introduce laws to address regulate AI.

1. **AI Accountability:** - Who is to blame of AI mistakes? There must be someone who should be held responsible for harm cause by bias AI algorithm. Right now, there is no law on it.
2. **Making AI Less Secret:** - There must be a clear backend function of AI algorithm such as how, where, and which models the artificial intelligence system has been trained.
3. **Industry-Specific Rules:** - India must frame the AI laws for critical sectors such as education, healthcare, public utility service, banks, police etc.
4. **Intellectual Property:** Current Intellectual Property laws do not cover AI-created content, leading to confusion about ownership rights. As IPR law are human centric, that is only human can become the author of content.

This creates a significant hurdle for protecting citizens' rights and fostering public trust in AI in India.

8. RECOMMENDATIONS

- A. **Comprehensive AI Law:** - India should create a new law just for regulating AI. The law clearly defines the role responsibilities of parties involve in the process. We need to make AI fair and a regulatory framework on who should be held responsible when AI makes a mistake followed by damages.
- B. **Algorithmic Impact Assessments:** - “Check AI Before It's Used”, means any AI used in important areas like government services, must be verified and tested.
- C. **AI Watchdog Authority:** - India should create a multidisciplinary body with legal, technical and ethical expert who will blow whistle against the AI algorithm bias.
- D. **Public Consultation and Participation:** - When government make law to regulate AI algorithm must include the public concerns for suggestions.
- E. **Ethical AI Designs:** - The government should encourage companies to build AI algorithm that is fair, easy to understand, and uses quality information. This can be done by offering rewards or setting clear codified standards.
- F. **Trained concern parties:** - Government should train the concerned parties like judge and legal professionals to help them make fair decisions in judicial system and not to openly follow the output of AI.

- G. **Teach AI in Schools and Universities:** - Introduce the foundational courses in AI and ethical data science. This should be taught in all streams irrespective of computers science or information technology.
- H. **Collaborate Globally:** - India should work with other countries for harmony and cooperation. India should learn from other countries on what they are doing with AI or what rules they are framing and try to make its own laws matching global standards.
- I. **Digital India Act (DIA):** - Digital India Act (DIA) is proposed to be framed in India replacing the outdated Information Technology Act of 2000 and should include the AI regulations.
- J. **Funds Research on 'Unmasking AI Algorithm':** - India should invest money in own research and development to find the ways to detect and remove unfairness from AI systems.

9. CONCLUSION

Artificial Intelligence (AI) is a very powerful tool that can perform a wide range of complicated task in an ease manner. However, it also has a big risk, it can repeat the same biasness. The Indian legal and regulatory framework must evolve to address the unique challenges posed by algorithmic decision-making. India is at an important point. To build a fair digital future for everyone, we must find and fix the unfairness hidden insights of the AI systems.

While we may learn from other countries' regulations like USA, UK, Canada and European Union, we must not blindly follow their regulation because India has unique social problems, so it is urgent to make a clear and concise law for AI algorithm. The old laws we have (Information Technology Act,2000 and Digital Personal Data Protection Act, 2023) are not enough to handle the problem of AI.

AI is useful for everyone either we consider gender, age, any profession or student of any stream. An assertive strategy rooted in our constitutional values, moral principles, and international standards may develop AI systems that promote justice instead of worsening inequalities.

Effective AI policy should not solely focus on managing technology, it must also empower citizens. As India advances towards its "Digital India", it is imperative that the technology developed accommodates to every individual. By prioritizing fairness, India can guarantee that

AI does not marginalize any individuals and that the advantage of technology serves fairness among all.

REFERENCE: -

1. Barocas, S., & Selbst, A. D. (2016). Big data's disparate impact. *California Law Review*, 104(3), 671–732. <https://doi.org>
2. Crawford, K., & Paglen, T. (2019). Excavating AI: The politics of training sets for machine learning. *Excavating AI*.
3. Chander, A. (2021). The racist algorithm? *Michigan Law Review*, 119(4), 1021–1052. <https://doi.org>
4. Eubanks, V. (2018). *Automating inequality: How high-tech tools profile, police, and punish the poor*. St. Martin's Press.
5. European Commission. (2021). *Proposal for a regulation laying down harmonised rules on artificial intelligence (Artificial Intelligence Act)*.
6. O’Neil, C. (2016). *Weapons of math destruction: How big data increases inequality and threatens democracy*. Crown Publishing Group.
7. Whittaker, M., Crawford, K., Dobbe, R., Fried, G., Kaziunas, E., Mathur, V., . . . & Schwartz, O. (2018). *AI Now Report 2018*. AI Now Institute.