ISSN 2616-5783 Vol.6, Issue 2: 116-121, DOI: 10.25236/AJHSS.2023.060220

Exploring the Role of Media Scrutiny in Algorithmic Auditing

Wang Lixiang

College of Journalism and Communication, Tianjin Normal University, Tianjin, 300382, China

Abstract: *With the comprehensive involvement of algorithms in the information environment of people's daily lives, a series of problems caused by algorithm alienation have also aroused concern. In order to reveal whether computer algorithms have followed proper procedures and whether they have followed relevant legal standards and ethical codes, researchers have proposed the approach of algorithm auditing. However, the essence of algorithmic auditing is still algorithmic technology. How to define the problems of auditing, the value standards of auditing, and to test the results of auditing all need to be considered back at the social level, in conjunction with the stakeholders of the algorithm. As a carrier of social information, the news media amplifies the rights of algorithms while disseminating information. The process of media embedding in society and the process of algorithms diffusing society are two sides of the same coin, and this paper focuses on the monitoring role of the media as a third-party auditor in algorithmic auditing, and explores the future path of media participation in algorithmic auditing.*

Keywords: *Algorithmic audit; media monitoring; algorithmic governance*

1. Introduction

Thanks to advances in artificial intelligence technology and machine learning algorithms, commercial organisations as well as the public sector are increasingly adopting algorithms to automate decision-making and reap huge value gains from them. Algorithms, as a connection point for data and AI, are reconfiguring content networks, interpersonal networks and physical networks in the traditional media era, as Scott Rush, a British cultural studies expert, emphasises : 'In a society where media and code are ubiquitous, power increasingly exists in algorithms' [1]. With the hot topics such as big data killing, recruitment algorithm discrimination, face recognition algorithm leaking personal information, information recommendation algorithm solidifying cognition and so on, people shift from the unconscious use of technology by algorithms to worrying and questioning the use of algorithms, how to regulate algorithms and make them better serve humans?

In response, research scholars have proposed auditing algorithms. The US is at the forefront of algorithm auditing in the world, and as early as 2014, University of Michigan professor Sandweg pointed out that algorithm auditing is a research method to detect discrimination on internet platforms, and proposed five audit approaches from the code level. In recent years, with the increasing prominence of algorithmic issues in China, algorithmic auditing has also become an important research topic in China. However, the current research on algorithmic auditing is still in the development stage of the industry, and I found that the research areas are concentrated in law and computer-based, and the research issues are focused on the causes, importance and ethical norms level of algorithmic auditing, and there is a lack of professional discussion on the role of media in algorithmic auditing.

There is no denying the increasing role and influence of the media in a mediated existence. in spring 2022, Ofcom noted in "*Auditing algorithms : the existing landscape, role of regulators and future outlook*"[2] that in addition to regulators In addition to regulators, other algorithm audit stakeholders including government, large technology companies, consultancies, academic researchers, journalists and members of the public all play an important role in the theoretical and practical aspects of algorithm auditing, supporting more rigorous scrutiny, evaluation and understanding of algorithms.

Nowadays, along with the rapid development of the media integration process and the addition of information technology, IOT technology and mobile communication technology, today's media has long gone beyond the traditional media role, transforming from an intermediary in the information dissemination link to an embedded person in the social operation link[3], and the influence and guiding

ISSN 2616-5783 Vol.6, Issue 2: 116-121, DOI: 10.25236/AJHSS.2023.060220

power of the media has never been stronger, especially since China's media is the ear and mouthpiece of the Party and the people as The media in China, especially as the mouthpiece of the Party and the people, has to shoulder the responsibilities and missions that should be undertaken in algorithmic audits. It is important to study the role and responsibilities of media monitoring in algorithmic auditing, to promote the improvement of algorithmic auditing values, to avoid falling into the trap of "auditing technology with technology", to help the public perceive algorithms more clearly, to improve algorithmic auditing standards, and to reconcile the balance between the application of algorithmic technology and humanistic care.

2. Existing research on algorithmic auditing

The introduction of algorithmic auditing stems from concerns about algorithmic problems. Researchers at Northwestern University, Jack Bandy et al. have categorised the main algorithmic problems into four main types : Algorithmic Discrimination, Algorithmic Distortion, Algorithmic Exploitation and Algorithmic Misjudgment [4]. Algorithmic discrimination is at the heart of algorithmic auditing research and refers to algorithms that treat or influence people differently based on race, age, gender, location, socio-economic status or identity. Algorithmic distortion refers to algorithms that distort or obscure the true picture and provide misleading information to users. Algorithmic exploitation is when an algorithm inappropriately uses content from other sources or from people's sensitive personal information, while algorithmic misclassification is when an algorithm deviates from the established computational analysis and makes incorrect predictions or classifications.

In order to address the algorithm problem, meet the requirements of algorithmic transparency and algorithmic accountability, and hold algorithms accountable for automated decisions, research scholars have proposed to audit algorithms. Algorithm auditing is an important method for investigating unfairness and discrimination in algorithmic decision-making processes on the Internet and has been considered by many scholars as the focus of algorithmic regulatory rule construction, becoming a new research hotspot in recent years. Sandvig, a professor at the University of Michigan, summarized five approaches to algorithm auditing in 2014 [5] : Code Audit, Noninvasive User Audit, Scraping Audit, Sock Puppet Audit and Crowdsourced Audit . Later, Seung C. Lee. added to this foundation by proposing a rational counterfactual framework for algorithmic auditing[6], which advocates the use of causal logical reasoning to identify decision factors that lead algorithmic systems to make rational or irrational decisions, and the use of a combination of identified decision factors to perform algorithmic audits to detect or correct the variables and values underlying the bias of the algorithm.

In addition to methodological constructs at the theoretical level, some of the aforementioned algorithmic auditing methods have been applied in practice, for example Jack Bandy in 2019 noted that algorithmic auditing has exposed discrimination in image search algorithms, Google auto-complete, dynamic pricing algorithms, automated facial analysis and word embeddings, and Jack Bandy et al. have also used crowdsourcing audits and vest audits on Apple News' curation system to specific auditing practices.

However, the limitations of the above audit approaches are that they all require professionals with certain skills to initiate, implement or direct the entire process, which makes the threshold for auditing high and makes it difficult for the average person encountering algorithmic issues to receive feedback. In addition, the identification of algorithmic issues is often emergent, processing different data and performing machine learning that may yield different results, making algorithmic issues difficult to predict and include in an audit. In addition to the technical threshold, technical professionals involved in audits may lack the relevant cultural background and life experience to recognise or define the criteria for algorithmic harmful behaviour, or to anticipate the algorithmic injustice that may be experienced across a wide range of industries. In response, scholar Biagio suggests that sociological inquiry methods such as algorithmic ethnography and experimental methods can be used to achieve a full understanding of algorithms and their outcomes[7]. Hong Shen, a researcher at Carnegie Mellon University, points out that identifying some harmful algorithmic behaviours needs to be considered together with the context of everyday use and socio-cultural background, and that problematic machines can be detected, understood or interrogated through users' everyday use of algorithmic systems to test and investigate whether algorithmic systems are operating in socially harmful ways [8]. It can be found that understanding algorithms and regulating them from a social level has become intertwined with professional technical auditing as two sides of the same coin of algorithm auditing, which cannot be ignored.

The research on algorithmic auditing in China has been conducted in the past year (2021.10.1-

ISSN 2616-5783 Vol.6, Issue 2: 116-121, DOI: 10.25236/AJHSS.2023.060220

2022.10.1), with 16 academic articles on the topic of "algorithmic auditing" in the search database of Zhiwang, focusing on the fields of computing and finance, with emphasis on technical means, necessity and ethical guidelines. However, when it comes to Internet governance issues, many scholars have proposed algorithmic auditing as an effective tool. For example, Shen Yan, a professor at Peking University, pointed out at the China Financial Forty Forum that algorithmic audits could be considered in response to new challenges in algorithmic governance, and that the core of algorithmic audits is to avoid "one-size-fits-all" regulation through proper design of governance mechanisms and the development of technologies to solve problems brought about by new technologies.

In general, the industry generally recognises the importance of algorithmic auditing and is exploring it at both the technical and social normative levels. What is audited in an algorithm audit? What are the risk elements in the use of algorithms? How to define audit boundaries? How can the public be satisfied with the results of the audit? These are all questions that need to be considered at a societal level. To implement algorithmic auditing into the life of society, and to break away from the technical arena, it is also necessary to be closely connected to the daily life of the people. Our media, as the eyes and ears of the people, are in a better position to unite the forces of users, to enhance the effectiveness of algorithmic audits, to gain insight into the real needs of stakeholders affected by algorithms, and to improve the ethical construction of algorithmic audits.

3. Media monitoring: moving from technical auditing to macro social auditing

3.1 Social-discipline: media disclosure for internal algorithm audits

Information disclosure is an important function of the media in Internet governance. Access to information from diverse media platforms such as newspapers, television, WeChat, microblogs and websites has become part of people's daily lives, and as the media reaches an increasingly wide range of audiences, its ability to act as a positive model and a negative warning is recognised. As third-party watchdogs, media disclosures are unlikely to play a direct role in algorithmic audits, but they can act as warning red flags to promote algorithmic audits within companies. Researchers such as Inioluwa Deborah Raj at the University of California, Berkeley, point out that external audits of algorithms serve more of a supervisory and management role, while internal audits are more advantageous when it comes to the security of the system's own algorithm operations and algorithmic deviations [9], but how can firms be motivated to proactively audit their internal algorithms? Negative media disclosures are an effective enabler.

In our country, this aspect of the media's role is reflected in exposing corporate problems, causing a decline in the company's reputation and a fall in its stock through the pressure of public opinion, leading to operational risks and thus forcing management to properly confront possible problems within the company. In recent years, there have been numerous reports on issues related to machine algorithms, such as the big data killing case, the hotly debated takeaway rider trapped in an algorithm, and the face recognition case. Through reporting on related incidents, the media has not only raised awareness of the protection of users' personal information security step by step, but also led to the improvement of relevant laws and regulations, such as shelving relevant bad apps and setting up access blacklists. The media can collect clues and identify focal issues to pass on information widely and quickly to stakeholders, and when they perceive a crisis, companies should audit their own internal algorithms.

3.2 The social commons : information interaction optimises algorithmic value sensitivity

The technical essence of artificial intelligence is an algorithm, while the social essence of an algorithm is a kind of power. Algorithms as a kind of non-institutional power are being subliminally integrated into people's daily lives, closely intertwined with human productive life and constitute a new type of network world. Algorithms set the agenda of society by chasing explosive points and are held hostage by commercial capital, which inevitably represents the value orientation of commercial interests, making information unequal, information content of varying quality, and entertainment tendency obvious, constantly dissolving the social value consensus, eroding the clear Internet environment, and depleting people's trust in social democracy, and the media's role as a social public instrument to gather social consensus is The media's role as a social tool to forge social consensus is being constantly reaffirmed.

In the late 1980s and early 1990s, Patea Friedman, a professor at the University of Washington School of Information, introduced the concept of Value sensitive design VSD (VSD), which can

ISSN 2616-5783 Vol.6, Issue 2: 116-121, DOI: 10.25236/AJHSS.2023.060220

enhance the value ethical properties of algorithms by incorporating human values into the consideration of algorithm development. Conceptual investigation is the first step in the iterative design process of VSD, requiring designers to understand and articulate the various stakeholders of the technology, as well as the values and any value conflicts that may arise from these stakeholders. Shea Brown, a professor at the University of Iowa, USA, also proposes to convert the ethical assessment of algorithms into an audit tool with practical steps, by assessing the negative impact of algorithms on stakeholders' rights and identifying the factors that lead to these negative impacts. [10] And the media, as a social commons with a mission to reflect the public interest, is an important arena for capturing the vocal messages of stakeholders.

This also coincides with the duties and missions of our media, which are based on the party and people's nature, and which must play a more positive role in guiding and staying close to life. Nowadays, as the internet enters the second half of the market and the media approaches decentralisation, every citizen can make their voice heard on the internet through media platforms, communicate and explore around issues related to algorithms. The media should provide a stable and convenient public sphere for this purpose, summarise people's general interest in the value of algorithms, identify forward-looking algorithm problems, take risk prevention and problem solving as the core motive, and provide an ethical audit of algorithms provide key assessment indicators that truly respond to public concerns.

3.3 Fusion Smart : embedded connectivity to strengthen audit governance effectiveness

Intelligent information technology has not only changed the boundaries and connotations of traditional media, but also changed the information dissemination mechanism of society. From artificial intelligence to the Internet of Things, media integration is entering a new era of integrated media intelligence. Traditional media are constantly seeking breakthroughs and crossing borders to launch media practices in other fields, such as live-streaming with goods, while non-media organisations are also starting to intervene in media practices in the traditional sense in order to keep up with the fast-paced demand for information distribution and to serve their own user groups more conveniently, such as government departments opening new media accounts for government affairs to publish relevant information. More and more atypical media and atypical media functions are appearing in our lives and are used in many scenarios to satisfy information needs and assist in the efficient functioning of society. Media boundaries are not only melting away, they are also increasingly becoming a structural force in a smart society, and smart cities give us good expectations in this regard.

Algorithmic decision making is essentially a decision on information. From the perspective of social development and the future of media, the intelligent embedding of media has built a network of intelligent algorithms that link social information, and the problems of algorithms are closely related to the problems that arise in everything is media and intelligent communication. Based on the homogenisation of media convergence and social development processes, the Smart Media Network can dynamically provide data on the functioning of algorithms and their operational status, enable real-time optimisation of algorithm models, and monitor the effectiveness of algorithm audits in post-event governance.

4. Exploring the future path of media participation in algorithmic auditing

4.1 Build a coalition audit platform to enable real-time treatment of social issues

The media, as a bridge of communication between the algorithm side and the user side, has to give full play to its role as an intermediary in the algorithm audit. The essence of algorithm operation lies in the mining and analysis of users' personal data, environmental characteristics data and content information data, with heat and interest as the main value judgment criteria, which leads to data rationality playing a major influence in algorithm decision making. The audit of data is an important part of algorithm audit, whether user data is misused, whether it is leaked, when, where and who the data is unreasonably used, are all Whether user data has been misused, whether it has been leaked, when, where and to whom it has been unreasonably used are all important dimensions to consider in an algorithmic audit. From the perspective of algorithmic news recommendation, the source of data affects the credibility of news, the quality of data reflects whether the news content is true, and the protection of data privacy reflects whether users' rights are protected. [11]

As a social public instrument reflecting and maintaining public interests, the media can use alliance chain technology to build an alliance audit platform at the media level, reflect the algorithm problems

ISSN 2616-5783 Vol.6, Issue 2: 116-121, DOI: 10.25236/AJHSS.2023.060220

reflected by the public to the data audit of the blockchain, and realize the traceability of the data dimension of the algorithm problems. In the way of open authorised nodes, the audit of specific data can be reached at the required time period and point in time, so that different alliance members can check each other and avoid the problem of uncontrollable and non-transparent data of private chains. The media can act as the gatekeeper of the alliance chain, supervising the authorization, opening and docking of nodes, receiving algorithm problems fed back by users, feeding back to the corresponding data nodes on the chain in a timely manner for reasonable traceability and reasonable auditing, and at the same time, it can rely on the data on the chain to replicate an algorithm database to test the influencing factors of algorithm problems, so as to achieve timely docking and timely resolution of problems.

4.2 Change content audit to content audit and train a professional audit team

The social problems caused by algorithms are already on board. Information leakage, employment discrimination, fake news, information cocoons, digital divide, digital labour, and technocrats are all pressing issues for academia and industry to address now, from the pervasive dissemination of information online to the actual disruption of offline life, algorithms quietly but loudly swear sovereignty over social change. In this new era, the media, as the watchdog of society, should play a more constructive role, not only as a discloser of information, but also as a leap from traditional content review to realise the deeper reasons behind the algorithm problem and achieve positive guidance for social development. Taking Weibo Hot Search as an example, in addition to verifying the authenticity of Hot Search news and positively guiding public opinion, we should also pay attention to the hidden social issues behind the news, correlate the temporal data, relational data, geographical data, and network data (such as tags, keywords, and interactive retweets) of Hot Search news to build a content audit ecology in order to predict the possible risks to society, promote a benign response to similar events, and build a sociological of early warning mechanisms.

In addition, unlike traditional algorithmic auditing, algorithmic auditing in the age of artificial intelligence also requires a higher level of computer literacy among auditors and, based on the diversity of social issues, a targeted training of a complex audit team. It is important to form a team of complex talent that understands both algorithms and a wide range of industries. Technical personnel who understand algorithms can focus on tracing problems back to their roots, building problem feedback networks and reducing complex social problems to systematic processes that can be analysed and predicted, while category-based media practitioners who understand various industries can gain insight into social problems, identify hidden social problem factors, match problems with algorithmic operational aspects and defend fundamental public interests in a complex social environment. The public interest is at stake.

4.3 Encouraging interactional rationality and improving the self-consistency of algorithmic value rules

As algorithms increasingly become the infrastructure building of society, the profit-seeking, efficiency-oriented and purpose-oriented nature behind them is also transforming people's cognition, decision-making and behaviour. In the Internet world, the mimetic environment constructed by algorithms increasingly caters to the subjective scenarios of individuals, which inevitably leads to a gradual deviation of individuals from society, and also makes refined egoism and extreme emotions constantly play out, and as social consensus becomes increasingly difficult to As social consensus becomes increasingly difficult to form, the fragmentation of society becomes more and more imminent, and this has to make us wary. For the media, the heat of information is not the same as the legitimacy of communication. In the face of the open and diverse new media environment and the complex social context, the media should help algorithms find the right fit with social values in the process of development and application.

Interactional rationality is a complementary theory to Weber's "value rationality" and "instrumental rationality", which argues that individualism and materialism can be effectively overcome through a process of linguistic understanding and communication between people in order to coordinate their respective action plans. The contradiction between individualism and materialism. In the process of algorithm auditing, the media should strengthen the value construction of public algorithm systems, facilitate communication between users in the process of algorithm development and operation, encourage users to actively reflect on problems, and guide the interaction between companies and the public into correct algorithm values. At the level of concrete practice in our media, it is possible to build a special section on algorithmic values, provide a public communication platform, help experts,

ISSN 2616-5783 Vol.6, Issue 2: 116-121, DOI: 10.25236/AJHSS.2023.060220

companies, users and other stakeholders to discuss and co-construct key value indicators about evaluating algorithms, reach a dynamic balance of algorithmic value rules, maintain citizens' sense of security and trust in the algorithmic decision-making process itself and the institutions they belong to, and achieve a consensus on algorithmic values.

5. Conclusion

In the words of Professor Broussard of Harvard University, technology is not always the solution, and algorithmic auditing at the technical level is only a set of statistical techniques with limited application, but ultimately relies on the work of people. As a way of detecting unfairness and discrimination in algorithmic decision-making in computing, algorithm auditing is not only about analysing the technical model of algorithmic systems, but also about reaching into the veins of society to discover problems that are difficult to detect with technology, to truly achieve the purpose of algorithm auditing - that users know what algorithms are doing, to increase users know what the algorithm is doing, increase trust in the company, and promote social justice and democracy. As the eyes and ears of the Party and the people, the media in China's local context should give full play to its role as a public instrument of society and realise the integration of algorithmic audits in the exploration of a new mainstream media. In the process of algorithm auditing, it is necessary for China's media to be a good linker of collaborative social governance, to shoulder the responsibility and responsibility of socialising, ruling by law, intellectualising and professionalising Internet governance, and to make algorithms a technical cornerstone that effectively reflects the subjectivity of the people.

References

[1] Yu Guoming, Yang Yingying, Yan Qiaomei. (2018).Algorithm as power:The power revolution of algorithmic paradigm in news communication[J]. Editor's Friend (05):5-12.
[2] Ofcom.(2022). "Auditing algorithms : the existing landscape, role of regulators and future outlook". Findings from the DRCF Algorithmic Processing workstream ,Spring.
[3] Jiang Linlin, Sun Yu.(2022). Beyond media:A triple vision for exploring the new stage of media convergence[J]. Contemporary Communication (02) :58-61.
[4] Jack Bandy,Authors Info & Claims.(2021)." Problematic Machine Behavior: A Systemat ic Literature Review of Algorithm Audits ".Proceedings of the ACM on Human-Compu ter Interaction Volume 5 Issue CSCW1 April.
[5] Christian Sandvig et al.(2014). "Auditing Algorithms : Research Methods for Detecti ng Discrimination on Internet Platforms". the 64th Annual Meeting of the Interna tional Communication Association. International Communication Association. May 22.
[6] Lee, Seung C.(2021). "Auditing Algorithms : A Rational Counterfactual Framework". journal of International Technology and Information Management. 30(2).
[7] Biagio Aragona.(2021)." Algorithm Audit : Why, What, and How?" [EB/OL]. https://doi.org/ 10.4324/9781003080381.
[8] Hong Shen et al.(2021)." Everyday Algorithm Auditing : Understanding the Power of E veryday Users in Surfacing Harmful Algorithmic Behaviors". Proceedings of the ACM on Human-Computer Interaction Volume 5 Issue CSCW2 October .
[9] Andrew Smart et al.(2020)." Closing the AI accountability gap : defining an end-to-end framework for internal algorithmic auditing"[EB/OL].https://dl.acm.org/do i/abs/10.1145/3351095.3372873, 2020.1.
[10] Brown Shea; Davidovic Jovana et al.(2021)."The algorithm audit : Scoring the algor ithms that score us ".Big Data & Society.1.28.
[11] Yin Kaimin, Liang Yi.(2021). The ethical controversy and review of algorithmic journalism[J]. Modern Communication (Journal of Communication University of China). 43(09) :64-68.