



More Trust in Automated Decision-Making Algorithm

A Similar Approach as Judicial Decisions

Yunjie Liang^(✉)

Faculty of Law, Vrije Universiteit Amsterdam, Amsterdam, Netherlands
y.liang3@student.vu.nl

Abstract. Due to technical difficulties and trade secrets, the automated decision algorithm can never achieve complete transparency and credibility. This issue of transparency and trust can only be improved, not entirely resolved. People's trust in the automated decision process mainly comes from the understanding and openness of the algorithm logic. This study believes that the logic of the automated decision algorithm can be compared with that of judicial adjudication and improved accordingly. Since both have an important impact on people's interest, the trust in judicial decisions is far higher than that in automated decision algorithms. Therefore, the automated decision algorithm can take a similar way to gain more trust.

Keywords: Automated Decision-making Algorithm · Judicial Decisions · Transparency · Trust in Algorithm

1 Introduction

Automated decision algorithm has become an indispensable part of modern society. People's concern about this form mainly comes from judging their own fate and future to a non-human thing. The purpose of this paper is to demonstrate a possible approach to reduce and alleviate this concern.

1.1 Research Background

The automated decision algorithm has been applied in many fields today, such as business decisions, loan approval, stock market analysis and advertising [1]. The use of decision algorithms in administrative agencies to assist and make decisions is also becoming a worldwide trend [2]. However, algorithms seem to have become a new source of pressure for modernity and are squeezing the space for people to make their own decisions. Among them, transparency has become a key node [3]. Although complete transparency is impossible, there is still similar logic in the legal system to help improve the transparency of algorithms.

1.2 Argumentation Basis and Sequence

The existing academic research on transparency of automated decision algorithm seems to have fallen into a misunderstanding: due to the barriers between law and artificial intelligence, law scholars lack scientific understanding of algorithms, so relevant research cannot go deep into how algorithms work, but these studies have been constantly repeated around certain values and other common content. On this basis, this study tries to choose a middle position between law science and algorithm science. First, evaluate the distance from algorithmic science to legal science, and then improve the logic of the algorithm in judicial adjudication to propose a possible way to improve its transparency.

Judicial adjudication is an algorithm in a broad sense. People input facts and legal provisions and output the judgment results. So why is the judicial decision widely recognized by people, but the decision algorithm is not? The logic of judicial adjudication may be an algorithmic logic that can be transferred and applied.

2 Trust and Transparency: Reached the Bottleneck?

The existing research on transparency has fallen into a bottleneck to some extent: if the regulation of the algorithm is not based on the understanding of the algorithm itself, it is easy to fall into basic abstract value discussion. This section analyses the problems faced by current research on transparency of automated decision algorithm.

2.1 Obstacles to Knowledge and System

The language barrier between the computer and legal knowledge is one of the factors hindering the understanding of automated decision algorithm for laymen [4]. Since most computer scientists and jurists only work in their own fields, they need better communication with other fields to promote mutual understanding, especially the key concepts and definitions. Just like the definition of the algorithm [5], the two fields use it differently, which leads to the emergence of two “algorithms” and hinders communication.

Although there has been a trend of interdisciplinary talent training, such as computational law at Tsinghua University, there is still a long way to go before a mature talent training system and a broad consensus are formed. At present, Currently, the legal discussion on algorithms has not yet reached the technical level, which means that few papers will make legal value judgments on a specific algorithm in AI papers. Almost all legal papers use the concept of algorithms in a broad sense. This has become one of the key points hindering the legal research of algorithms.

2.2 Legal Value and Technology Value

Value is another issue that needs attention. In constitutional provisions for algorithms, any individuals' rights that may be impacted by algorithms are listed and given protection, such as the AI act [6]. But this is obviously insufficient.

As an abstract existence in the legal system, value often needs to be displayed by the subjective thoughts of legislators or judges and detailed statements of the principle of

proportionality to help people understand. The subjectivity, however, sometimes faces some disputes. Therefore, how to transform the subjective legal value into a scientific and technological value that can be displayed in code language has become a new problem.

2.3 Rule of Law and Code

Since Professor Lawrence Lessig proposed that code is law, the regulation of legal space through code has become a new milestone in the development of digital law [7].

The code is gradually gaining some of the power originally held by the law and has control and penetration power over society. This has created a new legitimacy problem: most people can read the legal provisions through familiar language rather than understand the deep logic and language of the code. Therefore, how to translate the code into daily language becomes another problem.

Therefore, even if there is a rule of code, if this “rule” cannot be disclosed, the rights held by those who are at the centre of this “rule” may even become a privilege.

3 The Credibility of Judicial Decisions

On the basis of the above analysis, it can be seen how judicial decisions are recognized by the public. Judicial adjudication is also an algorithm to some extent. Judges input legal provisions and legal facts, and the results of adjudication are output. The balance performed by judges based on law is displayed and recorded in written form. From the perspective of practical results, people’s trust in legal decisions is far greater than their trust in algorithms. Although many laymen are still unable to analyze the logic of the entire judicial decision due to their lack of understanding of legal professional concepts, this does not hinder their trust. As the consequences of judicial decisions and algorithmic decisions have a great impact on individual interests, it is important to consider how to integrate them well to pursue justice.

3.1 Identity of the Judge

In China, the judge system ensures the quality of the judge team through the promotion system and the hierarchy system. The academic and work backgrounds of the judges have been trained over the years, and these are available on relevant websites. The higher the level of the court, the better the background of the judges. Additionally, each judicial decision is attached with the name of the judge. Through academic background, publications, past work experience, etc., the opinions in any judgment are traceable, which protects the right to know of those affected by the judgment. The judge system not only ensures the selection of the best candidates, but also reflects openness and transparency, which leads to the trust of people to the judge and judgment.

3.2 Standardized Narrative Structure

Although there are stylistic differences in the judgments of various countries, the logic of argument follows the correspondence between law and fact. The classic and time-honored form of syllogism has been developed from the era of Socrates to today and has

been developed into more sophisticated and standardized demonstration methods [8]. For example, the Chinese judgment generally follows the same framework, while the German judgment cannot be separated from the identification case analysis (Gutachten). The standardized way forms a professional discourse system, which makes any judgment logically repeatable and verifiable. Moreover, the judge also tries to give consideration to the readability in the process of writing the judicial documents. From a practical point of view, the individuals can at least understand part of the content by reading the judicial documents.

In general, through the standardized writing method, judicial documents are readable, repeatable and verifiable.

3.3 Publicity and Translation

The credibility of judicial decisions also comes from the publicity of content and the translation from legal language to daily language.

The former means that any judgment is searchable, and any individual, can find the original text of the judgment through the open channels of the court or the government.

The latter refers to a large number of news media or legal influencers who explain obscure legal terms to the public in plain language on the network platform, and sometimes add their own comments to help people understand the practical significance of a case.

The issues of publicity and translation build a bridge between the content of the judicial documents and public trust. Therefore, individual has the opportunity to understand any judicial document, which further brings social trust in judicial adjudication.

4 Algorithm Improvement: A Possible New Approach

Based on above, there may be a new direction of improvement in the automated decision algorithm: under the premise of considering confidentiality and trade secrets, apply the content that can be used for reference in judicial decisions to algorithm to increase people's trust in the algorithm.

The premise of this argument is that when the automated decision algorithm is actually acquiring some functions possessed by the law in the past, such as the guidance of group behavior, it is actually reasonable for people to treat the algorithm in the way they used to treat the law.

4.1 Personnel and Identity

In regard to the relationship between the judicial trial level and the judge's background, it is necessary to link the possible consequences of an automated decision algorithm with the person who wrote the algorithm. That is, the critical algorithm should be written by the person with richer academic and practical background.

On this basis, reasonable attention should also be paid to the background information of the algorithm writers. There is legal oversight of algorithms when they actually play some of the roles that would otherwise be played by law. Specifically, the authors of the algorithm have become judges in a sense, so their background information should be published to protect the public's right to know.

4.2 Common Framework

Since the argument framework was developed from syllogism adopted in judicial decisions, which has the ability to be repeatedly verified. According to similar logic, an algorithm should at least have the possibility of being understood and supervised by peers.

Although it is undeniable that in the field of algorithm, due to the existence of machine learning and deep learning technology, the final algorithm may be far from what people expected at the beginning, and even designers cannot fully understand the algorithm they created. However, this study believes that such a situation is only a phased product of the development of artificial intelligence. In the long run, it is possible to develop a common and reproducible framework as long as technicians have this kind of conscious thinking when conducting scientific research.

Therefore, in terms of the transparency of the algorithm, not only should the design of the algorithm follow a common framework for the review of peer experts. Just as the disclosure of judicial decisions at least follows a clear logic from legal analysis to the correspondence between facts and laws, the disclosure of algorithms should also seek a common and similar framework.

4.3 Partial Disclosure and Translation

Partial disclosure is necessary in algorithm. Compared with judicial decisions, most people simply cannot understand the logic of the programming due to the difficulty of its language, so partial disclosure here refers to the disclosure of the operation process of the algorithm. At least the public has the right to know what kind of algorithm is having an important impact on their daily life.

Although there are some concerns about the discrimination in the algorithm, such as the problem of the selection criteria of the database, However, in fact, many studies have proven that the existence of bias in decisions made by automated decision algorithms has been significantly reduced compared to decisions made manually [1].

The popularization of algorithms similar to legal education should also become an important link. Algorithm engineers can interpret the algorithms published by large scientific and technological enterprises with the help of news media and network platforms and analyze the advantages and disadvantages of such an algorithm. Professionals like popular science writers can become a bridge between incomprehensible algorithms and everyday languages, reducing the difficulty of understanding algorithms for people without a computer science background.

5 Conclusion

The purpose of this paper is to improve people's trust in algorithms in a manner similar to judicial adjudication. Since judicial decision is widely accepted by the public and current algorithms have actually assumed some legal functions, the algorithms design process could be improved in a similar way as judicial decision process. These include as the followed: the background of the algorithm designer, the general and verifiable

demonstration method, and the degree of publicity. On this basis, future research on the legal regulation of automated decision algorithms may go deep into the language level - that is, how to connect the basic unit of law with the basic unit of programming. When the computer language and the basic unit of rights can be linked together, a common and universal framework can be realized.

References

1. Coglianese, C., & Lai, A. (2022). Algorithm vs. algorithm. *Duke Law Journal*, 71(6), 1281-1340.
2. Calo, R., & Citron, D. (2021). The automated administrative state: crisis of legitimacy. *Emory Law Journal*, 70(4), 797-84
3. Rowe, E. A., & Prior, N. (2022). Procuring algorithmic transparency. *Alabama Law Review*, 74(2), 303-364.
4. Linna, D. (2021). Law computation: an algorithm for the rule of law and justice?. *Northwestern Journal of Technology and Intellectual Property*, 19(1), 1-8.
5. Yu, P. K. (2021). Beyond transparency and accountability: three additional features algorithm designers should build into intelligent platforms. *Northeastern University Law Review*, 13(1), 263-296.
6. Regulation of the European Parliament and of the Council Laying Down the Harmonised Rules on Artificial Intelligence (Artificial Intelligence Act) and Amending Certain Union Legislative Acts (2021). COM/2021/206 final. <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A52021PC0206>.
7. Donggen, X (2023). The Legitimacy and Legality Analysis of the Rule by Code in Co-governance Model (er yuan gong zhi shi jiao xia dai ma zhi zhi de zheng dang xing yu he fa xing fen xi). *Oriental Law* (01),36-48. <https://doi.org/10.19404/j.cnki.dffx.20230111.004>.
8. Grimm, D. (2019). What Exactly Is Political about Constitutional Adjudication? In C. Landfried (Ed.), *Judicial Power: How Constitutional Courts Affect Political Transformations* (pp. 307–317). Cambridge: Cambridge University Press. <https://doi.org/10.1017/9781108348669.015>

Open Access This chapter is licensed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits any noncommercial use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

