

Crisis of Algorithmic Recommendations and Collaborative Governance Models

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ABSTRACT

Algorithmic recommendations possess the "power" to collect, filter, push information, and record data, exhibiting technical attributes. Simultaneously, as algorithmic decisions replace manual decisions in the era of intelligent communication, algorithmic recommendation technology assumes the role of human value judgments traditionally found in media, thus bearing value-laden attributes. The dual attributes of algorithmic recommendations not only create information cocoons and echo chambers, exacerbating the polarization of social values, but also foster social segmentation, leading to group polarization and the spread of information manipulation risks, disrupting the ecological field of online information. To mitigate the negative effects of algorithmic recommendations in the era of intelligent communication, a collaborative governance model involving multiple stakeholders must be established. Intelligent media platforms should enhance social responsibility and strengthen the "self-regulation" of algorithms, governments need to enhance algorithmic supervision to form a governance framework for algorithmic safety, and users should have the right to algorithmic explanations, shaping the image of "algorithmic co-governors."

KEYWORDS

Algorithmic recommendations; Technical attributes; Value-laden attributes; Information dissemination crisis; Collaborative governance model

1 Dual Attributes: Technical and Value-Laden Attributes of Algorithmic Recommendations

1.1 Technical Attributes of Algorithmic Recommendations

Algorithms consist of three steps: "input-operation-output, " forming a combination of "programming design and mathematical rules."

Although people can ascertain the data input and output results of algorithms, the internal operation process remains unknown, creating an algorithmic "black box." Non-professionals, particularly the general public, are unable to grasp or understand the operation and decision-making principles of algorithms.

Furthermore, as algorithmic technology evolves, the technical "black box" of algorithms tends to become increasingly opaque.

In advanced forms of this "black box," even algorithm professionals or deployers may struggle to explain the operation and decision-making principles of algorithms.

1.2 Value-Laden Attributes of Algorithmic Recommendations

While algorithmic recommendations empower precise information distribution and enhance reception rates, they can also provide real-time feedback on user behavior and gradually guide user values. This is because algorithmic recommendation technology possesses the "power" to collect, filter, push information, and record data, assuming the role of human value judgments traditionally found in media. To some extent, this may lead to a shift in the gatekeeping power of news.

2 Chain Reactions: Information Dissemination Crisis Triggered by Algorithmic Recommendations

2.1 Echo Chamber Effect Exacerbates the Polarization of Social Values

Value polarization refers to the process by which the structure of social ideology shifts from homogeneous and unidirectional to heterogeneous and diverse, with different value orientations emerging. Algorithmic information distribution actively pushes related news to users based on their initial choices. Although algorithms only push similar and preferred information without creating new content, such recommendations form a closed information space, isolating the possibility of diverse information penetration and dissemination. Consequently, users receive increasingly homogeneous information, forming information cocoons and deriving echo chambers. The term "echo chamber effect" originated from Cass Sunstein's book "Republic.com," which describes how information filtering mechanisms cause people to receive only information they are interested in or agree with. Over time, as the views contained in this information are repeatedly reinforced and deepened, individuals in this closed information circle only hear their own "echo," becoming more entrenched in their biases and mistakenly perceiving them as truths, thereby rejecting other reasonable perspectives and opinions.

2.2 Social Segmentation Disrupts the Ecological Field of Online Information

Algorithmic information distribution easily forms closed information spaces, giving rise to highly homogeneous and diverse niche communities. Individuals in such communities often share similar or identical value views, and under the echo chamber effect, their internal values are continuously solidified. Over time, the value differences between different communities will gradually evolve into data labels that individuals use to distinguish themselves from others, leading to social segmentation. Social segmentation fosters group polarization and implicitly contains risks of information manipulation, damaging the ecological field of online information.

3 Collaborative Governance: Establishing a Multi-Stakeholder Governance Model for Algorithmic Recommendations

3.1 Platform Self-Regulation: Enhancing Social Responsibility and Strengthening Algorithmic "Self-Regulation"

Self-regulation by algorithm deployers to standardize the design and operation of algorithms holds advantages over other social entities. Self-regulation effectively mobilizes relevant knowledge and experts, characterized by timeliness and flexibility, making it more suitable for the nature of the matter. Therefore, intelligent media platforms, as the deployers of algorithmic recommendation technology, should enhance their social responsibility and take on the role of technical entities in

collaborative governance by promoting positive information dissemination.

Firstly, intelligent media platforms should embed principles such as algorithmic fairness, justice, and public order into the core tasks of algorithm design to optimize and govern the production, output, and distribution of information under algorithmic recommendations.

Secondly, these platforms should provide specialized ethical training services for algorithm developers to prevent the embedding of biased values through proactive ethical training.

Finally, in the full process of algorithmic production, output, and distribution, multiple layers of "filters" need to be set up. Current intelligent filtering cannot fully recognize "implicit semantics" in information. Therefore, a collaborative review model combining technology and human oversight should be adopted to create an orderly framework for disseminating positive information.

3.2 Government Regulation: Strengthening Algorithmic Supervision to Form a Governance Framework for Algorithmic Safety

In 2021, the "Guiding Opinions on Strengthening Comprehensive Governance of Internet Information Service Algorithms" and the "Draft Regulations on the Management of Algorithmic Recommendations for Internet Information Services" were successively issued. Based on these legal documents, the government should establish a classification and hierarchical management system for algorithmic recommendation service providers, achieving comprehensive supervision throughout the entire chain ("pre-event, mid-event, post-event") to form a governance framework for algorithmic safety.

The primary premise of establishing a classification and hierarchical management system for algorithmic recommendation service providers is to reasonably classify the risk levels of algorithms. Articles 55 and 56 of China's "Personal Information Protection Law" form a regulatory group for personal information protection impact assessment, which can be extended to various algorithmic application scenarios. Thus, algorithm risk levels can be set based on the degree of algorithmic decision-making autonomy, the impact on personal rights and social public interests, and the nature of the application scenarios, categorizing them into low, medium, and high-risk levels.

Based on the low, medium, and high-risk classification, in pre-event regulation, a relatively relaxed filing system should be adopted for providers using low-risk algorithms, while an approval system should be implemented for providers using medium and high-risk algorithms, with corresponding obligations for algorithm disclosure.

3.3 User Co-Governance: Empowering Users and Shaping the Image of "Algorithmic Co-Governors"

The key to users as "algorithmic co-governors" lies in implementing the right to algorithmic explanation. Article 24(3) of the "Personal Information Protection Law" provides a legislative framework, stating, "In decisions made through automated decision-making that have a significant impact on individuals' rights and interests, individuals have the right to request an explanation from personal information processors." Although this clause limits the right to algorithmic explanation to "automated decision-making" scenarios, it should not be interpreted narrowly to exclude auxiliary algorithmic decisions with human intervention. Instead, a reasonable expanded interpretation should be applied in line with the legislative purpose. The EU's General Data Protection Regulation (GDPR) offers valuable insights, distinguishing between manual and automated decision-making and categorizing decisions with no substantive human intervention as automated decision-making.

The right to algorithmic explanation primarily includes two aspects: first, users have the right to request an explanation of the logic and basis for their "personal profiling" (including the types and

characteristics of data captured by the platform, the specific dimensions forming the profile, etc.) in a comprehensible language. Second, users have the right to request an explanation of the logic of information production, output, and distribution under algorithmic recommendations in a comprehensible language.

4 Conclusion

The governance of algorithmic recommendations is a major issue in the era of intelligent communication, requiring consideration of both technical and value-laden requirements. Current practices indicate that technology is not inherently neutral. Furthermore, under algorithmic recommendations, excessive information consumption by humans exacerbates the formation of information cocoons, the echo chamber effect, and even social segmentation, fostering group polarization and information manipulation risks, disrupting the online information ecosystem. The goal of governing algorithmic recommendations is not to eliminate intelligent communication pathways but to clarify the technical operation logic and value sequences of algorithmic recommendations in the era of intelligent communication. Through systematic thinking and institutionalized norms, algorithmic recommendations can be guided to serve humanity as technical tools.

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