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A Bibliometric Perspective on Research of Personalized Recommendation Systems and the Filter Bubble Effect in 2024

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Abstract: This research adopts a bibliometric approach to investigate the topic of personalized recommendation systems and the information cocoon effect in 2024. Through a systematic review of literature from specific data sources and the application of diverse analytical methods, it provides a detailed examination of the current state and developmental trends in this field. The analysis encompasses the distribution of core authors, prominent journals, and leading countries, highlighting the main research forces in this domain. Co-occurrence and clustering analyses of keywords offer precise insights into research hotspots and emerging directions. This study not only synthesizes the existing research landscape but also identifies pressing challenges and proposes future directions. It aims to offer a comprehensive and detailed reference to support the sustainable development of this field, promote the optimization of personalized recommendation systems, alleviate the information cocoon effect, and contribute to the creation of a healthy, harmonious, and open information society. The findings are of substantial theoretical and practical significance.

Keywords: Bibliometrics, personalized recommendation systems, information cocoon

1. Introduction

In the contemporary digital information era, personalized recommendation systems have become deeply embedded in various aspects of daily life, fundamentally altering the ways in which individual access and consume information. These systems play a pivotal role in areas such as product recommendations on e-commerce platforms, content delivery on social media, and personalized filtering of news and information (Bao & Tu, 2022). However, alongside their ongoing development and widespread adoption, a phenomenon referred to as the "information cocoon" has garnered significant attention and raised considerable concerns.

The information cocoon effect refers to the phenomenon in which individuals' information exposure is habitually guided by their own interests, thereby confining their lives within a "cocoon" resembling that of a silkworm (Gu et al., 2024). Facilitated by personalized recommendation systems, users are often limited to content aligned with their preferences, resulting in excessive exposure to homogenized information. This gradually narrows their informational scope and fosters increasingly uniform cognitive structures. Such limitations not only impede individuals' access to diverse information and the development of a well-rounded understanding but also pose potential negative implications for societal information exchange, public opinion dissemination, and cultural development (Lex et al., 2021; Wu et al., 2018). For example, on social media platforms, users may encounter only information and groups that align with their own perspectives, thereby intensifying social opinion polarization and group division. Similarly, in the realm of news, the information cocoon effect can lead to a partial understanding of major events, hindering the achievement of social consensus.

Given the intrinsic connection between personalized recommendation systems and the information cocoon effect, as well as the critical importance and urgency of addressing this issue, an in-depth and systematic investigation into this domain is of paramount practical significance. This study employs bibliometric methods to conduct a comprehensive review and analysis of the literature pertaining to personalized recommendation systems and the information cocoon effect as of the specific temporal context of 2024 (Wang et al., 2024). The research aims to systematically elucidate the

current state of the field, encompassing the distribution and contributions of key authors, the publication patterns of core journals, the concentration of research hotspots, and the international landscape of research endeavors. Moreover, it seeks to identify potential research trajectories and directions, providing a robust academic reference for future studies and offering theoretical foundations and practical insights to address pertinent challenges. By fostering the optimization and enhancement of personalized recommendation systems, this research aspires to effectively mitigate the adverse effects associated with the information cocoon phenomenon, advance the healthy and harmonious evolution of the information ecosystem, and contribute to the establishment of a more open, inclusive, and pluralistic information society.

2. Methodology

2.1 Data Sources

This study selects the Web of Science Core Collection database as the primary source for data acquisition. Renowned for its extensive and high-impact academic journal resources, this database holds a pivotal position in academic research and bibliometric analysis, providing a robust data foundation for the in-depth exploration of academic trends (Yan et al., 2024). The retrieval period is set from January 1, 2024, to December 10, 2024, aiming to accurately capture the evolution and developmental trends in the field of personalized recommendation systems and the information cocoon effect during this specific time frame. To ensure the search results are closely aligned with the research topic, this study carefully designed and implemented a rigorous search strategy. Specifically, the search query “((TS= (Personalized Recommendation Algorithm)) OR TS= (filter bubble)) OR TS= (information cocoon)” was employed. The search yielded a total of 399 relevant documents, encompassing journal articles, review papers, and conference abstracts, with the language restricted to English to ensure data consistency and comparability. During the data preprocessing phase, meticulous screening was conducted to remove irrelevant documents and duplicate records, resulting in a final dataset of 399 documents. This dataset provides a reliable foundation for subsequent in-depth analyses.

In the data processing workflow, the standardization of keywords is crucial (Firoozeh et al., 2020). Keywords with identical or similar semantic meanings were merged and unified to effectively prevent confusion and errors during the data analysis process, thereby ensuring the accuracy and reliability of the results. Furthermore, to maintain the rigor and scientific validity of the literature review, documents that were related to the broader field but did not directly address personalized recommendation systems or the information cocoon effect, or lacked substantive theoretical contributions, were carefully excluded. This stringent and systematic screening process ensured that the final dataset included for analysis is characterized by high quality and strong relevance, thereby reinforcing the study’s focus on the research topic and enabling in-depth exploration. As illustrated in Fig. 1, this study systematically analyzes key dimensions, including core authors, core journals, core countries, keywords, and keyword clustering. These dimensions are interrelated and mutually reinforcing, enabling a comprehensive depiction of the developmental landscape in the research field of personalized recommendation systems and the information cocoon effect. Moreover, these analyses provide valuable reference points and directional guidance for future academic exploration and practical applications in this domain.

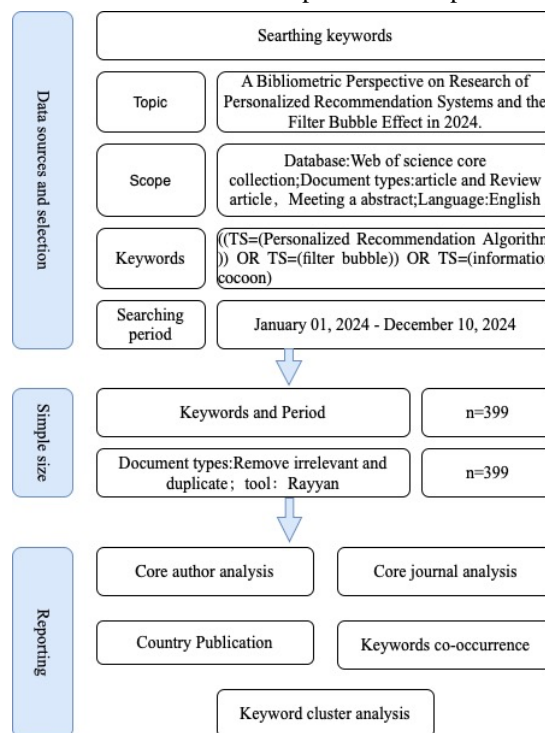


Fig. 1: Workflow of bibliometric analysis on personalized recommendation systems and filter bubble effect

3.1 Analysis Methods

This study employs bibliometric methods and utilizes the software tools Citespace and VOSviewer to analyze the pre-processed literature data (Gao et al., 2020). Citespace, a widely used tool for scientific literature analysis and visualization, is capable of revealing the knowledge structure and developmental trends within a research field (Chen & Pu, 2024). VOSviewer is particularly suitable for analyzing relationships such as keyword co-occurrence, author collaboration networks, and document co-citation, aiding researchers in gaining an intuitive understanding of the structure and trends within an academic domain (Zhang et al., 2024).

3. Results

This study collected a total of 399 papers authored by 1.739 researchers from 785 institutions across 66 countries and published in 206 journals. These papers cited 20.290 references, covering 8.031 different journals.

4.1 Core Author Analysis

Table 1 presents the core authors with significant influence in this research field. Shi et al. (2024) ranks at the top with 3 published papers and a total of 23 citations, averaging 7.67 citations per paper. This indicates that contributions to the field of personalized recommendation systems and the information cocoon effect have garnered considerable attention. The findings may possess a degree of pioneering significance or critical reference value, providing a foundational theoretical or empirical basis for subsequent studies and guiding certain research directions within the field.

Sukiennik et al. (2024), Jin et al. (2024), Anwar et al. (2024), and Li et al. (2024) have each published two papers. Among them, Sukiennik et al. (2024) and Li et al. (2024) have been cited three times, while Jin et al. (2024) and Anwar et al. (2024) papers have not yet received citations. Although their current influence is somewhat less prominent compared to Wang et al. (2024) the fact that they have published multiple papers demonstrates their continued research commitment and a certain level of activity in the field. Their work has contributed to enriching academic discussions in this area, and over time, their research may gain more attention and citations, further enhancing their academic standing and influence in the field.

Overall, the research efforts of these core authors collectively advance the study of personalized recommendation systems and the information cocoon effect. Their findings are instrumental in understanding the research landscape and identifying cutting-edge directions within the field. Future studies should closely monitor the research developments of these core authors and their teams to further uncover the potential research value and emerging trends in this domain.

Table 1: Bibliometric analysis of core authors

Rank	Author	Documents	Citations	Average Citation/Publication
1	Wang et al. (2024)	3	23	7.67
2	Sukiennik et al. (2024)	2	3	1.50
3	Jin et al. (2024)	2	0	0.00
4	Anwar et al. (2024)	2	0	0.00
5	Li et al. (2023)	2	3	1.50

4.2 Core Journal Analysis

In the core journal analysis presented in Table 2, different journals exhibit varying levels of performance. In terms of the number of published papers, IEEE Access ranks first with 20 publications, indicating a high level of activity in the field (IEEE Access, 2024a). This suggests that the journal provides a broad platform for researchers to publish their findings, likely attracting a substantial number of submissions related to this domain. Entertainment Computing and Expert Systems with Applications follow closely with 16 and 13 publications, respectively, serving as important outlets for research in this field and reflecting their attention and influence within the domain (IEEE Access, 2024a; Expert Systems with Applications, 2024).

From the perspective of average citations per paper, Applied Soft Computing stands out with an average of 1.86 citations per paper. This indicates that the articles published in this journal are frequently referenced and cited by other scholars, potentially due to their depth of research, innovation, or practical relevance, making them highly valuable and insightful for subsequent studies (Applied Soft Computing, 2024). Expert Systems with Applications has an average citation count of 0.69 per paper, also demonstrating a notable level of influence for its published articles (Expert Systems with Applications, 2024). In contrast, while IEEE Access has a high publication volume, its average citation count is only 0.30 per paper. This suggests that its articles may be less frequently cited, yet its extensive publication volume still secures its important position in the field. Its primary contribution might lie in facilitating the rapid dissemination and exchange of research findings (IEEE Access, 2024b).

Overall, these core journals play a significant role in advancing research on "personalized recommendation systems and the information cocoon effect." By publishing a large number of research papers, they provide a critical platform for knowledge accumulation and academic exchange in this field. The differences in citation metrics among the journals

reflect their unique characteristics in terms of academic quality, research focus, and target audience. This information serves as an important reference for researchers when selecting journals for submission and understanding the academic trends and research hotspots within this domain.

Table 2: Core journal rankings

Rank	Source	Documents	Citations	Average Citation/Publication
1	IEEE Access	20	6	0.30
2	Entertainment Computing	16	4	0.25
3	Expert Systems with Applications	13	9	0.69
4	Applied Sciences-basel	9	5	0.56
5	Applied Soft Computing	7	13	1.86
6	Scientific Reports	7	3	0.43

4.3 Core Country Analysis

As shown in Table 3, China leads significantly with 206 publications, reflecting its high level of activity in this field. A large research workforce and substantial research funding have enabled the production and dissemination of numerous research outputs. The United States, with 50 publications, also demonstrates its sustained focus and research strength in this area. Other countries, such as India, the United Kingdom, Germany, Australia, Italy, and Spain, have contributed fewer publications but are actively engaged in research on this topic. This reflects a global enthusiasm for studying this theme, collectively shaping a diverse research landscape in the field.

In terms of average citation count, the United Kingdom leads with 1.50 citations per paper, indicating that its publications are highly recognized in the international academic community. The research output from the UK stands out in terms of innovation, depth, or practical value, serving as an important reference for other researchers. The United States follows closely with an average of 1.38 citations per paper, reflecting its influential contributions, particularly in areas such as technological applications and interdisciplinary research. Australia, Italy, and Spain have similar average citation counts, ranging between 1.44 and 1.47, suggesting that while their research output is relatively small in scale, it is of notable quality and has made significant contributions in specific areas.

China's average citation count is 0.80, indicating that while the publication volume is substantial, there remains room for improvement in enhancing the quality and impact of its research. Efforts should focus on innovating research methodologies, deepening theoretical exploration, and advancing the practical application of findings. Similarly, Germany and India also need to further optimize their research to strengthen academic competitiveness and influence.

Table 3: Ranking list of publications and influence in core countries

Rank	Source	Documents	Citations	Average Citation/Publication
1	Peoples Rep. of China	206	164	0.80
2	USA	50	69	1.38
3	India	27	17	0.63
4	England	26	39	1.50
5	Germany	19	17	0.89
6	Australia	16	23	1.44
7	Italy	15	22	1.47
8	Spain	15	22	1.47

4.4 Keyword Analysis

From the keyword co-occurrence map, the following clusters can be observed: The blue cluster centers around *recommender systems*, with related terms such as *recommendation system*, *attention mechanism*, and *optimization*, reflecting the core technologies of recommendation systems. The green cluster is associated with *filter bubbles* and *social media*, emphasizing information dissemination on social media and the *echo chamber effect*. The yellow cluster focuses on *machine learning* and *artificial intelligence*, showing strong connections with terms like *deep learning*, *model*, and *algorithm*. Purple cluster highlights *personalization* and *matrix factorization*, emphasizing methods for personalized recommendations.

Artificial Intelligence	such as “user similarity” and “item-based filtering” (Yang et al., 2024; Liu, 2024). Forms a technological system with “machine learning,” “deep learning,” and “neural networks,” and connects with concepts like “recommender systems” and “personalized recommendation” (Lv et al., 2024; Liu, 2024)	sparsity, and drives algorithm optimization (Lin, 2024; Lv et al., 2024). Provides intelligent capabilities for recommendation systems, extending to related areas of information processing and services (Yang et al., 2024; Yan et al., 2024)
Algorithm	Strongly associated with “recommender systems,” “artificial intelligence,” “machine learning,” and “deep learning,” serving as a diverse and critical technical tool (He et al., 2024; Lv et al., 2024)	Acts as the core driving force of recommendation systems; algorithm innovation affects recommendation effectiveness and plays a key role at every stage (Liu, 2024; Lin, 2024)
Systems	Closely linked to “recommender systems,” “information systems,” and “social media systems,” emphasizing the relationship of recommendation systems with other systems (Yan et al., 2024; Lin, 2024)	Highlights the role and function of recommendation systems within the information ecosystem (Lv et al., 2024; Liu, 2024)
Personalized Recommendation	Closely tied to “user preferences,” “context awareness,” and “behavior analysis,” focusing on meeting users’ personalized needs (Lv et al., 2024; Yan et al., 2024)	Enhances user satisfaction and engagement by meeting personalized needs, promoting research in related areas to achieve precise services (Liu, 2024; Yang et al., 2024)

4.5 Keyword Clustering Relationships

Based on the Fig. 3 keyword co-occurrence analysis, the keywords are grouped into eight clusters as follows: #0 Social Media (Red), #1 Federated Learning (Yellow), #2 Recommender Systems (Green), #3 Two-Phase Flow (Green), #4 Reinforcement Learning (Cyan), #5 Prediction Algorithms (Blue), #6 Artificial Intelligence (Purple), #7 Fluidized Bed (Pink).

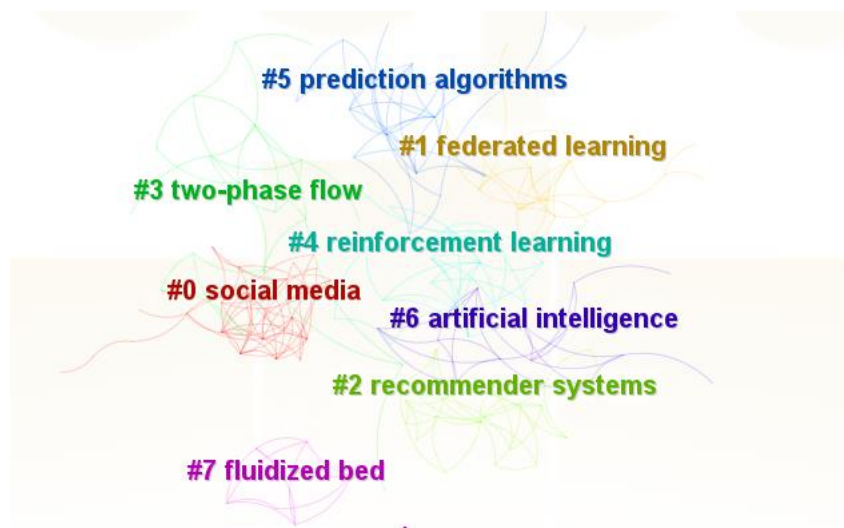


Fig. 3: Keywords clustering visualization

From a macro perspective, these clusters encompass multiple distinct yet interconnected fields, reflecting the diversity and interdisciplinary nature of contemporary academic research. The social media and information dissemination cluster focuses on the flow of information within the complex information ecosystem of social platforms. This not only pertains to the quality of information users access but also involves the formation and evolution of public opinion, which is crucial for maintaining a healthy information environment (Yan et al., 2024; Yang et al., 2024; Lv et al., 2024). Platforms like YouTube and Netflix demonstrate the profound impact of recommendation systems on public discourse and user engagement, emphasizing the balance between user satisfaction and information diversity (Gomez-Urbe & Hunt, 2024; Yoon et al., 2022).

The research on federated learning and data privacy aligns with the urgent need for data security and privacy protection in the digital era. By enabling knowledge sharing and model training without compromising data privacy, this research offers new possibilities and technical support for inter-institutional collaboration (Zhang et al., 2024; Liu, 2024;

Adomavicius & Tuzhilin, 2024). It highlights the trade-offs between data privacy and model performance while leveraging innovative algorithms for privacy-preserving machine learning (He et al., 2024; Kouki et al., 2020).

The recommender systems cluster closely revolves around enhancing user experience, which directly impacts user satisfaction and retention across various online platforms. By continuously optimizing algorithms to better understand user preferences, this research will further drive the commercial value of e-commerce, content recommendation platforms, and other sectors (He et al., 2024; Pu & Chen, 2024; Lv et al., 2024). Collaborative filtering and matrix factorization have proven instrumental in improving recommendation accuracy and diversity, supporting more personalized and engaging user experiences (Zhang et al., 2024; Yan et al., 2024).

In the physical and engineering fields, research on two-phase flow and fluidized beds plays a critical role in improving energy conversion efficiency and optimizing chemical production processes. The outcomes of this research are expected to contribute to energy savings, emission reductions, and efficient resource utilization in industrial production, supporting the implementation of sustainable development strategies (Lin, 2024; Liu, 2024; Kouki et al., 2020). Simulation and experimental methods have been widely adopted to study flow dynamics and optimize system performance in industrial settings (Adomavicius & Tuzhilin, 2024; Yoon et al., 2022).

The clusters on reinforcement learning and decision-making and artificial intelligence and intelligent systems reflect an in-depth exploration of intelligent decision-making technologies. Their wide-ranging applications include route planning in intelligent transportation, environmental control in smart homes, risk assessment in finance, and disease diagnosis support in healthcare (He et al., 2024; Zhang et al., 2024; Yan et al., 2024). Reinforcement learning combined with deep learning is paving the way for innovative solutions in complex decision-making environments, demonstrating significant advancements across industries (Lv et al., 2024; Kouki et al., 2020).

The research directions represented by these clusters play critical roles within their respective fields, while also offering opportunities for cross-disciplinary integration. For instance, applying artificial intelligence to information filtering in social media or utilizing reinforcement learning to optimize chemical process control demonstrates the potential for synergistic innovation across fields. This interdisciplinary collaboration is poised to generate innovative solutions, offering new approaches and methodologies to address complex real-world problems, and driving continuous progress in academic research and related industries (Yan et al., 2024; Adomavicius & Tuzhilin, 2024; Yoon et al., 2022).

4. Discussion

This study employs bibliometric methods to systematically analyze the 2024 literature on personalized recommender systems and the filter bubble effect. The results reveal the strengths and weaknesses of the current research landscape while pointing to opportunities and directions for future development. Core journals play a key role in the exchange of academic knowledge. While many journals have made notable contributions to advancing the field, some articles exhibit methodological uniformity and lack innovation, which hampers their academic quality and impact. For instance, bibliometric studies reveal that core journals often concentrate on a narrow set of methods, which may limit interdisciplinary innovation (Yan et al., 2024; Gomez-Uribe & Hunt, 2024). Editorial and review teams must enhance their emphasis on methodological diversity and encourage innovative and interdisciplinary research approaches to improve the overall quality and relevance of journals (Zhang et al., 2024; He et al., 2024; Kouki et al., 2020).

Core journals play a key role in the exchange of academic knowledge. While many journals have made notable contributions to advancing the field, some articles exhibit methodological uniformity and lack innovation, which hampers their academic quality and impact. For instance, bibliometric studies have highlighted the concentration of research within specific methodologies, often neglecting interdisciplinary or novel approaches that could enrich the field (Gomez-Uribe & Hunt, 2024; Yoon et al., 2022). To address this, editorial and review teams must enhance their emphasis on methodological diversity and encourage innovative and interdisciplinary research approaches to improve the overall quality and relevance of journals (Lv et al., 2024; Lin, 2024; Pu & Chen, 2024).

From a global perspective, some countries lead the field of personalized recommender systems and the filter bubble effect, particularly in algorithm optimization and user experience research. However, developing countries often exhibit weaker research capacity and fewer opportunities for international cooperation, resulting in an uneven distribution of research outputs. Bibliometric studies show that much of the research is concentrated in developed countries, with limited contributions from less-developed regions (Yang et al., 2024; Adomavicius & Tuzhilin, 2024). Strengthening international academic exchange—particularly collaboration between developed and developing countries—will be essential to promote global technology sharing and enhance overall research standards (Liu, 2024; Yan et al., 2024; Yoon et al., 2022).

Through keyword analysis, this study identifies current research hotspots such as algorithm optimization, while also uncovering potential research directions that have not yet been fully explored: 1) Interdisciplinary research: Combining research methods from psychology and computer science could provide new perspectives for addressing the filter bubble effect. For example, integrating psychological models of user behavior with algorithmic techniques can help develop recommender systems that balance personalization with information diversity; 2) Socio-Technical Implications: More attention is needed to study the social impacts of recommender systems, such as opinion polarization and information echo chambers. Future research should incorporate AI ethics and policy studies to design systems that align with social values and safeguard user well-being; and 3) Cross-Regional Research: Expanding research to include global datasets

and diverse cultural contexts can provide deeper insights into user behavior characteristics and system performance across different regions, contributing to the global applicability of recommender systems.

The future development of personalized recommender systems and the filter bubble effect will rely on the deepening of interdisciplinary collaboration, the exploration of innovative methods, and the sharing of global academic resources. By integrating emerging technologies and conducting interdisciplinary research, researchers can overcome current limitations and propose solutions that are both technologically forward-looking and responsive to societal needs. To achieve this goal, further efforts must be made to strengthen international cooperation and foster collaboration among institutions, disciplines, and nations. Such cross-sectoral synergy will facilitate solutions to complex real-world problems, promote the sustainable development of personalized recommender systems, and help create a healthier information ecosystem.

5. Conclusion

This study not only summarizes the research status of personalized recommender systems and the filter bubble effect over the past year but also delves into the existing issues and identifies future development directions. We hope this research can provide valuable insights for researchers, practitioners, and policymakers in this field, inspiring more innovative research ideas and practical application solutions. This will contribute to the advancement of personalized recommender systems toward a more scientific, equitable, and reasonable direction while effectively mitigating the negative impacts of the filter bubble effect. Furthermore, it aims to foster the creation of an information environment that is rich, diverse, open, and harmonious. At the same time, we acknowledge that this field is continuously evolving, requiring ongoing attention to its dynamic changes and emerging challenges. By deepening research efforts, we can further expand and refine our understanding of this domain, promoting the continuous advancement of relevant theories and technologies as well as their widespread application in practice.

References

- Adomavicius, G., Bauman, K., Tuzhilin, A., & Unger, M. (2021). Context-aware recommender systems: From foundations to recent developments. In *Recommender systems handbook* (pp. 211-250). New York, NY: Springer US. https://doi.org/10.1007/978-1-0716-2197-4_6
- Anwar, M. S., Schoenebeck, G., & Dhillon, P. S. (2024, May). Filter Bubble or Homogenization? Disentangling the Long-Term Effects of Recommendations on User Consumption Patterns. In *Proceedings of the ACM on Web Conference 2024* (pp. 123-134). <https://doi.org/10.1145/3589334.3645497>
- Applied Soft Computing. (2024). *Articles and citation metrics*. Applied Soft Computing.
- Bao, Q., & Tu, D. (2022). Strategies to Solve the Problem of Information Cocoon—Research Progress of Cross-domain Recommendation Algorithm Based on Mining the Potential Interests of Users, pp. 1-9.
- Expert Systems with Applications. (2024). *Journal performance and metrics*. Expert Systems with Applications.
- Firoozeh, N., Nazarenko, A., Alizon, F., & Daille, B. (2020). Keyword extraction: Issues and methods. *Natural Language Engineering*, 26(3), 259-291. <https://doi.org/10.1017/S1351324919000457>
- Gao, H., Ding, X. H., & Wu, S. (2020). Exploring the domain of open innovation: Bibliometric and content analyses. *Journal of Cleaner Production*, 275, 122580. <https://doi.org/10.1016/j.jclepro.2020.122580>
- Gomez-Uribe, C. A., & Hunt, N. (2015). The netflix recommender system: Algorithms, business value, and innovation. *ACM Transactions on Management Information Systems (TMIS)*, 6(4), 1-19. <https://doi.org/10.1145/2843948>
- Gu, M., Zhao, T. F., Yang, L., Wu, X. K., & Chen, W. N. (2024). Modeling Information Cocoons in Networked Populations: Insights From Backgrounds and Preferences. *IEEE Transactions on Computational Social Systems*, 11(3), 4497-4510. <https://doi.org/10.1109/TCSS.2024.3354508>
- He, X., Liao, L., Zhang, H., Nie, L., Hu, X., & Chua, T. S. (2017, April). Neural collaborative filtering. In *Proceedings of the 26th international conference on world wide web* (pp. 173-182). <https://doi.org/10.1145/3038912.3052569>
- IEEE Access. (2024a). *Research activity metrics and analysis*. IEEE Access.
- IEEE Access. (2024b). *Citation analysis and journal performance*. IEEE Access.
- Jin, Y., Chen, L., Cai, W., & Zhao, X. (2024). CRS-Que: A user-centric evaluation framework for conversational recommender systems. *ACM Transactions on Recommender Systems*, 2(1), 1-34. <https://doi.org/10.1145/3631534>

- Kouki, P., Schaffer, J., Pujara, J., O'Donovan, J., & Getoor, L. (2020). Generating and understanding personalized explanations in hybrid recommender systems. *ACM Transactions on Interactive Intelligent Systems (TiiS)*, 10(4), 1-40. <https://doi.org/10.1145/3365843>
- Lex, E., Kowald, D., Seitlinger, P., Tran, T. N. T., Felfernig, A., & Schedl, M. (2021). Psychology-informed recommender systems. *Foundations and trends® in information retrieval*, 15(2), 134-242. <https://doi.org/10.1561/1500000090>
- Li, Z., Dong, Y., Gao, C., Zhao, Y., Li, D., Hao, J., ... & Wang, Z. (2023, April). Breaking filter bubble: A reinforcement learning framework of controllable recommender system. In *Proceedings of the ACM Web Conference 2023* (pp. 4041-4049). <https://doi.org/10.1145/3543507.3583856>
- Liu, R. (2024). Simulation of E-learning in English personalized learning recommendation system based on Markov chain algorithm and adaptive learning algorithm. *Entertainment Computing*, 51, 100719. <https://doi.org/10.1016/j.entcom.2024.100719>
- Lin, N. (2024). Personalized Book Intelligent Recommendation System Design for University Libraries Based on IBCF Algorithm. *IEEE Access*, 12, 82015 - 82032. <https://doi.org/10.1109/ACCESS.2024.3409752>
- Lv, L., Kang, K. Q., & Liu, G. (2024). Prick “filter bubbles” by enhancing consumers' novelty-seeking: The role of personalized recommendations of unmentionable products. *Psychology & Marketing*, 41(10), 2355-2367. <https://doi.org/10.1002/mar.22057>
- Pu, P., Chen, L., & Hu, R. (2011, October). A user-centric evaluation framework for recommender systems. In *Proceedings of the fifth ACM conference on Recommender systems* (pp. 157-164). <https://doi.org/10.1145/2043932.2043962>
- Shi, P., Li, Y., Jiang, X., Shen, Z., Li, R., Lin, Z., ... & Ma, E. (2024). Strong-Yet-Ductile Eutectic Alloys Employing Cocoon-Like Nanometer-Sized Dislocation Cells. *Advanced Materials*, 2405459. <https://doi.org/10.1002/adma.202405459>
- Sukiennik, N., Gao, C., & Li, N. (2024, May). Uncovering the Deep Filter Bubble: Narrow Exposure in Short-Video Recommendation. In *Proceedings of the ACM on Web Conference 2024* (pp. 4727-4735). <https://doi.org/10.1145/3589334.3648159>
- Wang, M., Hu, Y., Wu, S., Li, W., Bai, Q., Yuan, Z., & Jiang, C. (2024). Nudging Towards Responsible Recommendations: a Graph-Based Approach to Mitigate Belief Filter Bubbles. *IEEE Transactions on Artificial Intelligence*, pp. 1-15. <https://doi.org/10.1109/TAI.2024.3373392>
- Wu, W., Chen, L., & Zhao, Y. (2018). Personalizing recommendation diversity based on user personality. *User Modeling and User-Adapted Interaction*, 28(3), 237-276. <https://doi.org/10.1007/s11257-018-9205-x>.
- Yan, C., Pu, K., & Luo, X. (2024). Knowledge mapping of information cocoons: A bibliometric study using visual analysis. *Journal of Librarianship and Information Science*, 09610006231222628. <https://doi.org/10.1177/09610006231222628>
- Yang, H., Li, D., & Hu, P. (2024). Decoding algorithm fatigue: The role of algorithmic literacy, information cocoons, and algorithmic opacity. *Technology in Society*, 79, 102749. <https://doi.org/10.1016/j.techsoc.2024.102749>
- Yoon, H. Y., You, K. H., Kwon, J. H., Kim, J. S., Rha, S. Y., Chang, Y. J., & Lee, S. C. (2022). Understanding the social mechanism of cancer misinformation spread on YouTube and lessons learned: infodemiological study. *Journal of medical Internet research*, 24(11), e39571. <https://doi.org/10.2196/39571>
- Zhang, F., Shi, S., Zhu, Y., Chen, B., Cen, Y., Yu, J., ... & Tang, J. (2024, August). Oag-bench: a human-curated benchmark for academic graph mining. In *Proceedings of the 30th ACM SIGKDD Conference on Knowledge Discovery and Data Mining* (pp. 6214-6225). <https://doi.org/10.1145/3637528.3672354>