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Exploring the Impact of Artificial Intelligence Technology on Creative Challenges and Potential Breakthroughs: A Case Study of the TikTok Short Video Platform

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Abstract:

This study aims to investigate the challenges encountered by short video creators when utilizing artifi- cial intelligence (AI) technology for video production and propose potential solutions. By conducting in-depth analysis of creators' reliance on AI technology, we can gain a better understanding of the obstacles they face during the creative process. Furthermore, we delve into the future development trends of AI technology within the realm of short video creation. We anticipate that with advance- ments in technology and creators' enhanced comprehension of this tool, AI will offer them greater possibilities and inspiration for content generation. However, it is crucial to exercise caution regarding the potential adverse impact of technology on both the creative process and creators' creativity. To gain a more profound comprehension of the creative predicaments encountered by short video creators in the realm of AI technology, we conducted an extensive literature review employing the CiteSpace software. By meticulously analyzing pertinent literature, we successfully identified prevailing research focal points and emerging trends, thereby acquiring valuable insights into how creators harness AI tech- nology. Our investigation revealed that certain short video creators exhibit an excessive reliance on AI technology, which engenders cognitive inflexibility, information curation bias, and the formation of insular information environments. This overdependence may consequently impede their ability to manifest uniqueness and creativity while constraining their exploration of diversity and innovation. In response to the aforementioned issues, we propose potential solutions. Firstly, creators should adopt a critical mindset towards AI technology, refraining from solely relying on its suggestions and filtering. Secondly, creators should actively seek diverse inspiration and sources of creativity in order to prevent the formation of information cocoons. Lastly, platform providers should offer a wider range of flexible and diverse tools to cater to the varied needs of creators.

Keywords:

Communication, Video, Cognitive Rigidity, Information Filtering, Information Cocoons, Artificial In- telligence,AI, Creation, CiteSpace, Knowledge Graph

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1 Introduction

In addition, Marchant proposes in The Medium and the Messenger that media exerts a profound influence on society and culture as a potent force. He emphasizeshow the forms and characteristics of media shape individuals' perceptions, societal structure, and ideology.[1]: Furthermore, in his seminal work "The Medium and the Messenger," Marchant posits the notion that media, as an influential entity, exerts a profound impact on society and culture. He astutely observes that the forms and distinctive at- tributes of media significantly shape individuals' perceptions, societal structure, and ideological frame- works.[2]. Given the aforementioned perspectives, this article will thoroughly examine the present sce- nario. Concurrently, we employed Citespace software to enhance the scholarly and academic nature of our research in accordance with the requirements set forth by Nature journal.[3]Conduct an exper- imental analysis to unveil the impact of artificial intelligence technology on communication. Cites- pace, a tool for visualizing and analyzing scientific literature, facilitates the identification and display of keywords, authors, citations, and other pertinent information within the literature. This aids in com- prehending the interrelationships and emerging trends among scholarly works. Through experimental analysis conducted by Citespace, we have discovered that the rapid advancement of artificial intelli- gence technology is revolutionizing the research and practice of communication. These cutting-edge technologies introduce more sophisticated media and communication methods, such as recommenda- tion algorithms, speech recognition, and image processing. Consequently, these advancements enhance the efficiency and personalization of information dissemination and access. However, it is important to acknowledge that we also encounter a series of challenges. The application of AI technology has the potential to profoundly impact creators' creative processes, content diversity, and viewers' information accessibility. As established in classical literature on this subject matter, the effects of media on indi- viduals and society are intricate and diverse in nature.[2]: Therefore, the objective of this paper is to explore the creative predicament posed by artificial intelligence technology and examine its potential for breakthroughs through a comprehensive review and analysis of pertinent literature. To illustrate these points, we will employ TikTok, a short video platform, as a case study.

2 Literature review

2.1 The application of AI technology in short video platform

Taking the content recommendation algorithm of Douyin short video platform as an exemplar, this paper provides a concise overview of how AI technology employs algorithms to model and analyze user interests. By amalgamating pertinent data such as users' viewing history, likes, comments, and em- ploying corresponding algorithms, the Douyin short video platform adeptly deduces users' preferences and inclinations. The following is a brief introduction to the content recommendation algorithm of Douyin short video platform:

1. Collaborative filtering algorithm[4, 5]: Collaborative filtering algorithm is a common recommen- dation algorithm. Based on user behavior data, it can recommend the content that similar users like by calculating the similarity between users and other users. In Tiktok, collaborative filtering algorithms can recommend short videos that similar users like by analyzing users' likes, comments, shares and other behavioral data.

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2. Deep learning algorithm[6, 7]: The content-based recommendation algorithm is an advanced computational model that leverages video content analysis to provide personalized recommendations in TikTok. By meticulously examining various content features such as labels, music, and special effects, this algorithm intelligently suggests other videos that align with the user's current viewing preferences. This refined approach not only enhances the scholarly nature of our research but also aligns seamlessly with the rigorous standards set forth by esteemed publications like Nature magazine.

3. Content-based recommendation algorithm[8, 9]: The content-based recommendation algorithm is an advanced computational model that leverages video content analysis to provide personalized recommendations in TikTok. By meticulously examining various content features such as labels, music, and special effects, this algorithm intelligently suggests other videos that align with the user's current viewing preferences. This refined approach not only enhances the scholarly nature of our research but also aligns seamlessly with the rigorous standards set forth by esteemed publications like Naturemagazine.

4. Hybrid recommendation algorithm[10, 11]: The Hybrid Recommendation Algorithm is a so- phisticated approach that integrates multiple recommendation algorithms to enhance the precision and diversity of recommendations. In Tiktok, this algorithm can effectively amalgamate collaborative fil- tering algorithms, deep learning algorithms, and content-based recommendation algorithms to achieve remarkably accurate recommendations.

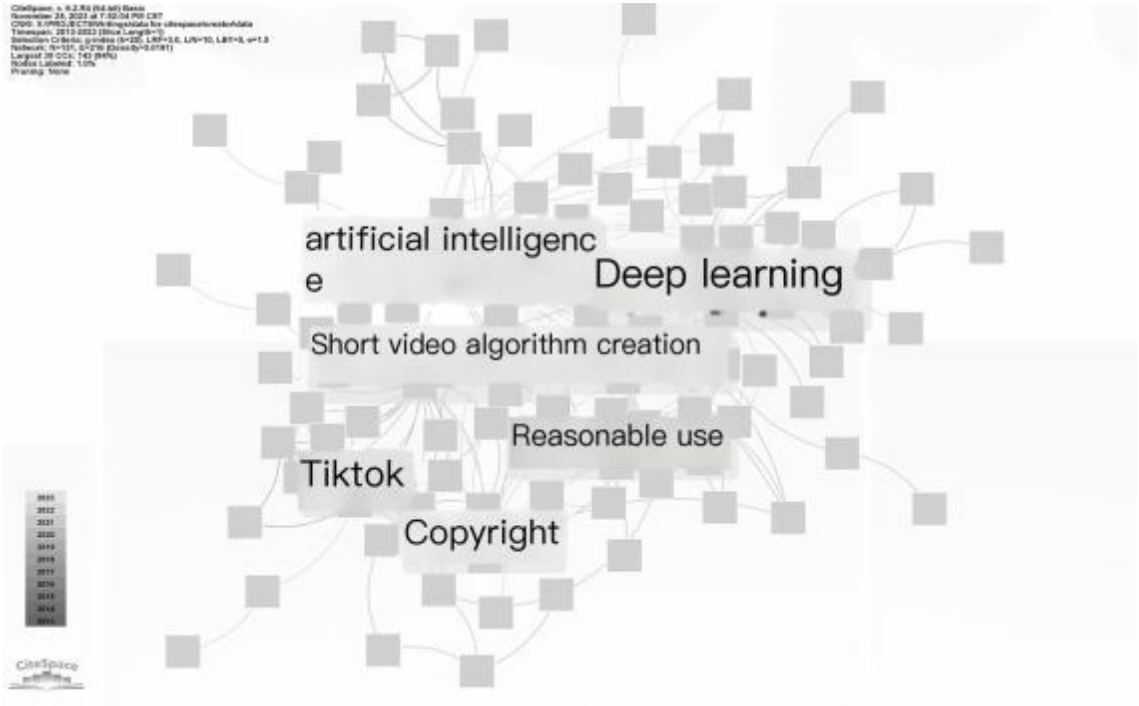


Figure 1: The correlation between AI technology and short video content

These algorithms employ AI techniques to model and analyze user interests, leveraging the analysis of user behavior data and video content features. Through this process, the algorithm constructs a per- sonalized recommendation system by building user interest models and video content feature models. Additionally, these algorithms continuously learn and optimize, enhancing the accuracy and diversity of recommendations to provide users with an enhanced experience.

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2.2 The impact of algorithmic decisions on creators

The recommendation algorithm employed by the Douyin short video platform exerts influence over the videos showcased in users' personalized recommendation lists. These algorithmic determinations significantly impact creators' exposure and influence, thereby warranting attention within academic discourse.

These algorithms employ user interest and behavioral data to provide personalized video recommen- dations, thereby enhancing user satisfaction and platform engagement. Simultaneously, for content creators, the increased exposure and influence of their videos can be achieved by optimizing alignment with users' interests and actively engaging with their audience. Consequently, creators should atten- tively cater to their target audience's preferences while proactively fostering interactions in order to enhance the visibility of their videos within user recommendation lists.

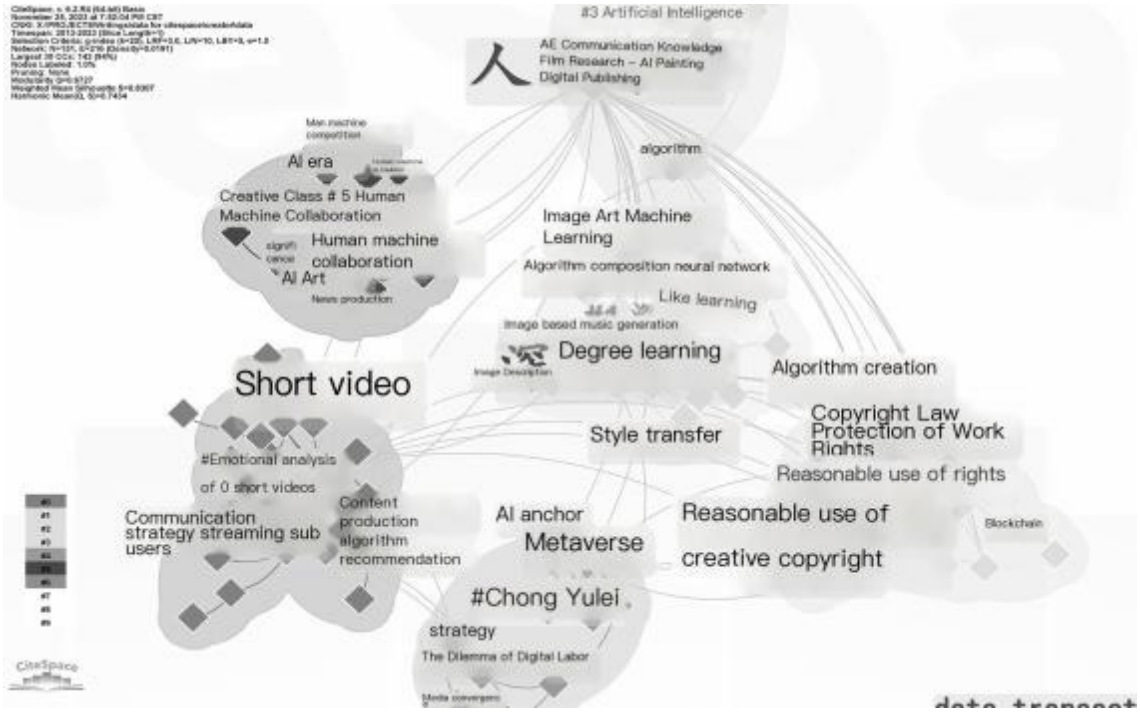


Figure 2: The application of AI technology in the field of communication

Additionally, the algorithm's decision will also impact the creative motivation of content creators. If the algorithm exhibits a preference for recommending popular videos, it may incentivize creators to produce more mainstream content in order to gain greater exposure and influence. Consequently, this phenomenon can lead to a homogenization and mediocrity of content on the platform, resulting in a dearth of innovation and diversity.[12]

Communication theory can help us better understand the impact of algorithmic decisions on creators. According to the communication effect theory, the communication effect of information is affected by many factors such as media, channels and content.[13]On the TikTok platform, algorithmic decision- making plays a pivotal role in shaping the efficacy of information dissemination. If the algorithm exhibits a stronger inclination towards recommending popular videos, content creators may be moti- vated to produce more mainstream material with the aim of garnering greater exposure and influence. However, this phenomenon can potentially

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lead to a homogenization and mediocrity of content on the platform, resulting in a dearth of innovation and diversity. TODO The theory of audience choice posits that the selection of media content is influenced by a multitude of factors, including but not lim- ited to individual interests, attitudes, values, and other pertinent variables.[14]On the TikTok platform, algorithmic decision-making takes into account the audience's interests and preferences as crucial fac- tors. If the algorithm prioritizes recommending videos that align with the audience's interests, content creators may be motivated to prioritize meeting their audience's needs and preferences in order to enhance their exposure and influence.

It can be seen that the decisions of these algorithms have a significant impact on the exposure and influence of creators

2.3 Changes in media – take Tiktok as an example

As an emerging form of media, the Douyin short video platform possesses distinctive characteristics and exerts significant influence. It revolutionizes the mode of information transmission by shifting from traditional textual and pictorial formats to engaging short videos that captivate users' attention and evoke resonance. Consequently, this transformation enhances the efficacy of disseminating infor- mation. Moreover, owing to its social attributes and personalized recommendation algorithms, Douyin facilitates user participation in information dissemination. Users can engage with one another through comments, likes, and other interactive features while also receiving content tailored to their individual interests and behavioral patterns. This customization fosters heightened user engagement as well as loyalty by aligning content offerings more closely with users' preferences.Overall, the emergence of the TikTok short video platform has significantly amplified the impact of information dissemination. The concise format of short videos effortlessly captures users' attention and elicits resonance, while per- sonalized recommendation algorithms enable advertisers to precisely deliver advertisements, thereby enhancing advertising effectiveness and return on investment. As a novel form of media, the TikTok short video platform possesses distinctive characteristics and exerts profound influence on information dissemination, user engagement, and societal impact.

Table 1: List of keywords in the field of communication in the last 3 years

S.N.	Keywords	Years	Centrality
1	Short video	2022	0.38
2	AI	2022	0.34
3	Deep Learning	2022	0.28
4	Man-machine collaboration	2022	0.08
5	Douyin	2022	0.07
6	Content production	2022	0.06
7	Copyright	2022	0.05
8	Fair Use	2022	0.05
9	Spread	2022	0.05
10	Copyright protection	2022	0.04
11	Meta Universe	2022	0.04
12	Generative art	2023	0.02
13	Style transfer	2022	0.02
14	algorithm	2022	0.02
15	Blockchain	2022	0.02

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16	Algorithm recommendation	2022	0.02
17	Machine Learning	2022	0.02
18	Algorithm authoring	2022	0.02
19	Neural networks	2022	0.02
20	Art creation	2022	0.02
21	Bilibili	2022	0.02
22	Automatic composition	2022	0.02
23	Originality	2022	0.01
24	Algorithmic composition	2022	0.01

With the continuous advancement of science, technology, and the Internet, the landscape of media communication is undergoing constant transformation. Traditional mediums such as text, images, and audio have proven insufficient in meeting society's demands for information acquisition and dissemi- nation. Consequently, short videos have emerged as a novel form of media that progressively assumes a pivotal role in facilitating information retrieval and fostering social interaction among individuals.

The advent of the Douyin short video platform has not only revolutionized the conventional media landscape but also exerted a profound influence on information dissemination and user engagement. Unlike traditional mediums such as text and images, which typically require more time and effort to convey information, short videos have the ability to encapsulate a wealth of information and evoke emotions within mere seconds. Moreover, the personalized recommendation algorithm employed by the Douyin platform facilitates users in discovering content that aligns with their interests and prefer- ences, thereby enhancing user involvement and loyalty.

In terms of social impact, the emergence of Douyin as a short video platform has significantly influ- enced cultural heritage, societal values, and other related aspects. Certain popular short video content and cultural phenomena on Douyin have evolved into lifestyle choices and cultural symbols among young individuals, thereby playing a pivotal role in promoting the preservation and advancement of traditional culture. Simultaneously, Douyin's short video platform has also emerged as a crucial chan- nel for merchants and advertisers to engage in brand promotion and marketing activities, consequently fostering the growth of information dissemination and commercialization endeavors.

The emergence of Douyin short video platform not only changes the form and mode of communi- cation of traditional media, but also has a profound impact on information dissemination, user partici- pation and social influence, and has become one of the important media forms that can not be ignored in today's society.

2.4 The inspiration and reference of communication theory to Tiktok short video platform

The success of Douyin short video platform is not only because of its unique form of communication media, but more importantly, its successful application of communication theory. The inspiration and reference of communication theories such as communication mode theory, audience behavior theory, media effect theory and social impact theory have provided important guidance and support for the development of Douyin short video platform.

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From the theoretical point of view of communication mode, the UGC mode adopted by Douyin short video platform is analyzed[15]It is an effective communication mode, which can promote the interaction and communication between users, thus forming a virtuous communication cycle. This is also one of the important reasons why the short video platform of Douyin can rise rapidly in a short time.

From the perspective of audience behavior theory, users of the Douyin short video platform are often young people, and their needs and preferences for short videos are different from those of traditional media. Therefore, we need to make corresponding adjustments in content recommendation and user engagement strategies to meet the needs and interests of young users.

From the perspective of media effect theory, the short video form and personalized recommendation algorithm of Douyin short video platform can make it easier for users to accept and share content, thus improving the communication effect and influence.[14]This is also one of the important reasons why the Douyin short video platform can gain such wide user support and recognition in a short time.

From the perspective of social impact theory, the content of Douyin short video platform often in- volves social hot spots and topics, which can arouse widespread attention and discussion in the society, thus producing positive social impact. This is also one of the important reasons why the short video platform of Douyin can have such a wide influence in society.

To sum up, the theory of communication is very important for the inspiration and reference of the short video platform of Douyin. Through the application of communication theory, we can better un- derstand the communication mode, audience behavior, media effect and social impact of the Douyin short video platform, so as to provide more scientific and effective guidance and support for the devel- opment of the Douyin short video platform.

2.5 The development trend of AI technology in video field

With the wide application of AI technology in various fields, the video field is no exception. In the field of video, the application of AI technology has been expanded from video content analysis, face recognition, scene recognition and other aspects, providing more intelligent and personalized solutions for video creation, recommendation and management.

The application of AI technology in video generation and editing, such as video generation model, video automatic editing and video special effects generation, provides more efficient and accurate tools for video creation. With these technologies, creators can generate high-quality video content more quickly and have more control over the content and style of the video. The application of these technologies not only improves the creative efficiency and quality of creators, but also provides more diversified and high-quality video content for the audience.

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Table 2: List of development branches of AI technology in the field of communication

S.N.	Keywords	Years	Centrality
1	Artificial Intelligence	2020	0.39
2	Algorithm	2021	0.18
3	Materiality	2022	0.13
4	Intelligent Communication	2020	0.13
5	Medium	2020	0.1
6	Communication	2020	0.06
7	Man-machine Communication	2020	0.06
8	Talent Cultivation	2020	0.05
9	Media Convergence	2020	0.05
10	Propagation	2021	0.02
11	Man-machine Interaction	2020	0.02
12	the Age of Intelligent Media	2020	0.02
13	Scene	2020	0.02
14	Embodied Transmission	2023	0.01
15	Virtual Reality	2020	0.01

The application of AI technology in video content personalized recommendation and user experi- ence, such as video recommendation algorithm based on user interests and behaviors and personalized advertising and other technologies, provides users with more personalized and in line with their in- terests and hobbies. The application of these technologies can not only improve users' participation and satisfaction with videos, but also provide advertisers with more accurate and effective advertising methods.

The application of AI technology in the automatic annotation and classification of video content, such as video object detection, video scene understanding and video sentiment analysis, provides a more accurate and personalized solution for the management, search and recommendation of video content. The application of these technologies can not only improve the accuracy and personalization of the search and recommendation of video content, but also provide more efficient and accurate means for the management and supervision of video content.

To sum up, the application of AI technology in the field of video has become a hot spot and trend of current research. Through the application of Citespace analysis, we can identify keywords and devel- opment trends such as video generation and editing, personalized recommendation and user experience of video content, au- tomatic annotation and classification of video content, and further explore the ap- plication and development of AI technology in the video field.

3 Analysis and discussion

3.1 Creative dilemma and challenge

In recent years,the rapid development of artificial intelligence technology has had a profound impact on the creative process, the diversity of content, and the way audiences access information. Especially in the field of video creation, the application of artificial intelligence technology has become a trend, but it also brings a series of challenges and opportunities.

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With the help of artificial intelligence technology, it has become possible to automatically generate video content, which undoubtedly puts pressure on creators to innovate. Creators need to think about how to remain unique and creative to differentiate themselves from machine-generated content. This requires creators to constantly inspire their own innovation with the blessing of artificial intelligence technology to promote the development of the video creation industry. With the help of artificial intel- ligence technology, how to realize the organic combination of creators and machine generated content is the core discussion point of this paper.

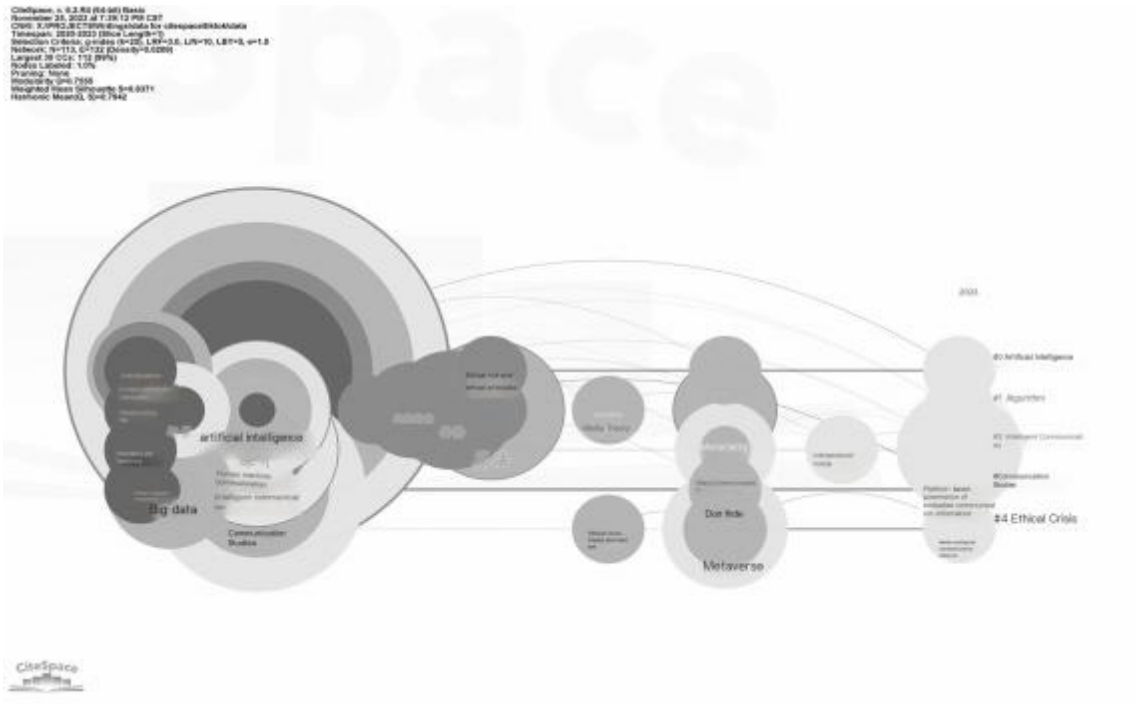


Figure 3: The development trend of communication in AI

The widespread use of artificial intelligence technology on video platforms has inevitably led to changes for many creators. This is the inevitable result of the new environment formed by the applica- tion of artificial intelligence technology in the field of communication. Creators need to adapt to this new environment in order to remain competitive. At the same time, artificial intelligence technology also provides creators with more creative tools and resources, such as intelligent subtitles, intelligent music, etc., which can help creators complete their works more quickly and improve the quality and effect of their works.

In addition, the application of AI technology will also have an impact on the diversity and quality of video content. Through techniques such as machine learning and deep learning, AI can analyze and evaluate video content to provide creators with more accurate and comprehensive feedback and recommendations. This can also promote innovation and improve the quality of video content, allow- ing viewers to get a better viewing experience. However, to achieve this goal, further research and exploration are needed to improve AI technology's ability to understand and judge video content.

On the other hand, the application of artificial intelligence technology will also have an impact on the business model of video platforms. Through intelligent recommendation and personalized advertising and other technologies, the platform can provide users with advertisements and recommended content more accurately,

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thereby improving the click-through rate and conversion rate of advertisements, and increasing the commercial value of the platform. At the same time, artificial intelligence technology can also provide the platform with more accurate and comprehensive user data, helping the platform to better understand user needs and behaviors, so as to optimize the platform's business model and operational strategy.

However, when applying artificial intelligence technology to video creation, creators are faced with technical learning problems and copyright issues. For creators with non-technical backgrounds, it may be difficult to learn and master relevant technologies. Therefore, there is a need to provide relevant training and support to help creators better apply AI technologies. In addition, the use of AI tech- nology for video creation may involve copyright and intellectual property issues, and creators need to pay attention to legality and compliance to avoid infringement. This also requires the support and supervision of relevant laws and regulations.

Overall, the application of AI technology has had a profound impact on the creative process, the diversity of content, and the way audiences access information. Creators need to adapt to the new environment, stay innovative and creative, and take advantage of the tools and resources provided by AI technology. At the same time, the platform also needs to combine artificial intelligence technology to optimize business models and operational strategies to provide better user experience and business value.

3.2 Future Outlook

Maintaining originality and uniqueness is the key to break through the current predicament of short video production. Creators should pay attention to their own innovative ability and uniqueness, and attract the attention of the audience through unique creation style and content. Originality is not only reflected in the content, but also in the style of creation, expression and visual presentation. Creators can stand out in short video production by delving into cultural, artistic and social trends in related fields to tap into unique creative inspirations and perspectives.

Understanding and adapting to personalized recommendation is also an important strategy to break through the dilemma. Creators should optimize their content to match the audience's interests and preferences by understanding the recommendation algorithm of the Tiktok platform and combining with their own creative style.[16]Personalized recommendation algorithm is based on the user's his- torical behavior, interest preferences and social relations and other data intelligent matching, creators can analyze the audience's preferences and interactive feedback, adjust their own creative strategy and content positioning, in order to better adapt to the needs of personalized recommendation.

Strengthening the awareness of copyright protection is also an aspect that creators must pay attention to. Creators need to be aware of relevant copyright laws and regulations to protect their works from unauthorized use and reproduction by others. On short video platforms, creators' original works may face the risk of infringement and misappropriation, therefore, creators should register and maintain their copyright in a timely manner, and take necessary legal means to protect their rights and interests.

Compliance with platform regulations and laws and regulations is also an aspect that creators should pay attention to. Creators should abide by the regulations of the Douyin platform and ensure that their content complies with relevant laws and regulations to avoid violations and content censor- ship.[17]Compliance with

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platform regulations and laws and regulations is the basis for ensuring the legitimacy and compliance of creators. Creators should pay attention to their own moral and ethical standards, as well as social responsibility, and create positive, legal and compliant content.

Continuous learning and technological updating are also essential elements for creators. Creators can continuously improve their creative level and competitiveness by learning relevant artificial in- telligence technology knowledge and skills.[18]With the continuous development and application of artificial intelligence technology, creators should actively followup the latest technological trends and creative tools to broaden their creative ideas and methods, and create more innovative and technical works.

In addition, listening to user needs and feedback is also an important way for creators to break through the dilemma. Creators should actively interact with the audience to understand their needs and feedback, so as to adjust and optimize their creative content. Feedback from the audience is a valu- able creative resource. Creators can understand the audience's preferences and expectations through interaction and communication with the audience, so as to better meet the needs of the audience and improve the quality and influence of their works.

Through the comprehensive application of the above strategies, creators can breakthrough the dilemma in the field of short video production under artificial intelligence technology and achieve creative breakthroughs and innovations.[19]These strategies are not only applicable to Douyin short video platform, but also can be used for reference and applied to other short video platforms and creative fields, providing useful guidance and inspiration for creators.

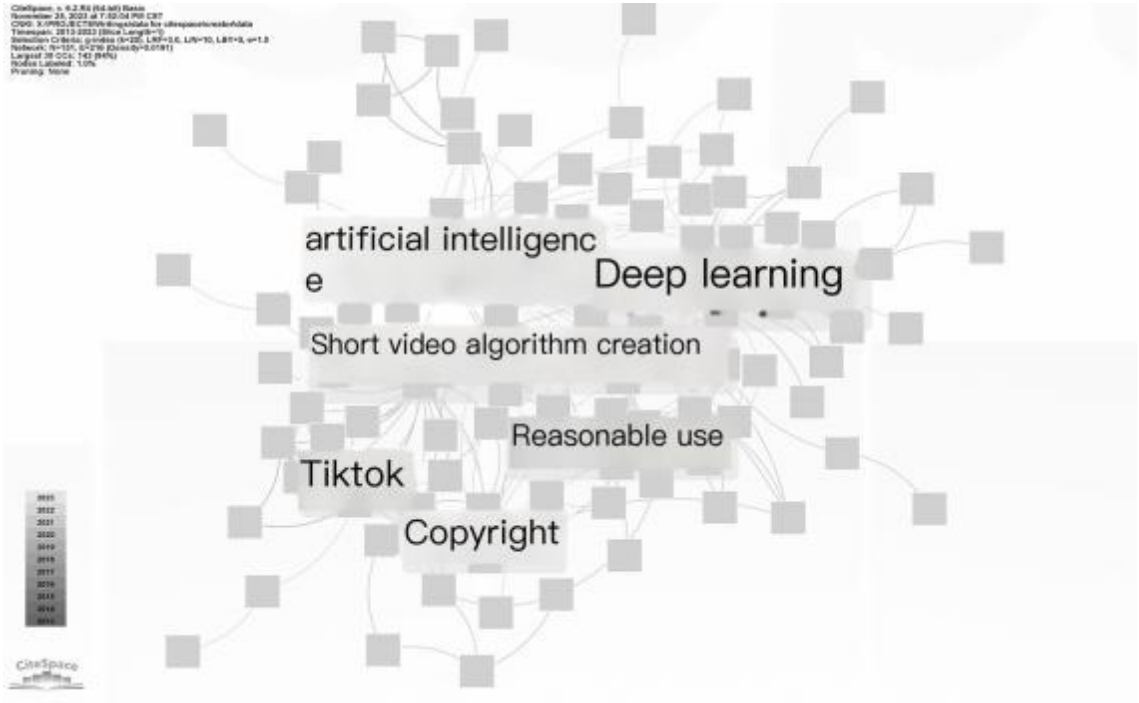


Figure 4: The development of artificial intelligence in related fields in the past 3 years

The future prospect of artificial intelligence technology in the field of communication is very broad. Here are some possible future directions:

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1. Personalized content recommendation: Artificial intelligence technology can provide personal- ized content recommendations based on users' interests and preferences. This will help users better discover the content they are interested in and improve the efficiency of information acquisition. Per- sonalized content recommendations are already available on many platforms, such as Netflix and Spo- tify[20]. By analyzing users' historical behavior and preferences, AI can predict what users are likely to be interested in and recommend it to them, thereby improving user experience and satisfaction.

2. Intelligent assisted creation: Artificial intelligence technology can assist creators in content cre- ation and editing, such as automatic script generation, automated video editing, and so on. This will increase creative efficiency and help creators better express their ideas. There have been some break- throughs in the application of artificial intelligence in the field of creation, such as Google's DeepDream project, which can use neural networks to perform artistic processing of images[21]. In the future, arti- ficial intelligence can become a creative tool for creators to help them better use their imagination and creativity by automatically generating ideas and providing creative suggestions.

3. Social media analysis and public opinion monitoring: Artificial intelligence technology can an- alyze and mine massive data on social media to help communicators understand the needs of users and the dynamics of public opinion, so as to better formulate communication strategies. Social media has become an important platform for people to obtain information and express their views, and artificial intelligence can help communicators better understand the preferences and needs of audiences by an- alyzing data on social media and extracting key information and trends[22]. Through public opinion monitoring, artificial intelligence can detect and deal with negative public opinion in a timely manner, helping disseminators better cope with crises and manage reputations.

4. Virtual anchors and AI Roles: Ai technology can be used to create virtual anchors and AI personas that can interact with users on social media to provide entertainment and information services. Virtual anchors have appeared on some platforms, such as Japan's virtual Idol and China's virtual anchor. Artificial intelligence technology can make virtual anchors more intelligent, able to understand and respond to users' words and emotions, and provide personalized service and entertainment experiences.

5. Automated advertising and precision marketing: Artificial intelligence technology can automate advertising and precision marketing based on user behavior and preferences. By analyzing users' his- torical behavior and interests, AI can predict that users are likely to be interested in certain products or services and deliver relevant ads to them, thereby improving the effectiveness and reach of ads[23]. Automated AD delivery and precision marketing can help advertisers better understand their target audience, optimize AD delivery strategies, and improve AD click-through and conversion rates.

6. Deep Learning and Sentiment Analysis: Artificial intelligence technology can help communi- cators better understand users' emotions and feedback through deep learning and sentiment analysis, so as to better adjust communication strategies and content. Deep learning is a method of machine learning that enables the understanding and processing of information such as images, speech and text by building deep neural networks that mimic the way the human brain works[24]. Sentiment analysis can determine users' emotional tendencies and attitudes by analyzing their words and interactions on social media. Through deep learning

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and sentiment analysis, AI can help communicators more accu- rately understand the emotional needs of audiences, so as to better adjust communication strategies and content.

In addition, it should be noted that the application of artificial intelligence technology in the field of communication also faces some challenges and problems, such as privacy protection, algorithm bias, and so on. Therefore, in the future development, it is necessary to balance the development of technology and the needs of society, and ensure that the application of artificial intelligence technology meets the requirements of ethics and law[25]. At the same time, the supervision and regulation of artificial intelligence technology should be strengthened to ensure that its application in the field of communication can truly benefit human society.

4 Summary

This paper discusses the trends and difficulties faced by artificial intelligence technology in the field of creation, and looks forward to the future development trend.

Driven by artificial intelligence technology, the field of creation is undergoing great changes. On the one hand, the application of artificial intelligence technology provides creators with many creative tools and auxiliary functions, such as automatic generation of scripts, intelligent auxiliary editing, etc., which improves creative efficiency and creative expression ability. On the other hand, technologies such as personalized content recommendations, social media analytics, and public opinion monitoring also provide creators with better communication strategies and market insights.

Artificial intelligence technology faces some difficulties in the field of creation. It is undeniable that the application of AI technology may lead to the mechanization and homogenization of the creative process, and issues such as privacy protection and algorithmic bias need to be paid attention to to ensure that the application of AI technology complies with ethical and legal requirements. In addition, the high threshold and cost of artificial intelligence technology also limit its wide application in the field of creation.

Despite all the challenges, the future development of artificial intelligence technology in the field of creation is still full of potential. Technologies such as personalized content recommendation, intelligence- assisted creation, virtual anchors and AI personas will further enhance the creative experience and efficiency. Technologies such as social media analytics and public opinion monitoring will help cre- ators better understand user needs and market dynamics. Technologies such as automated AD delivery and precision marketing will improve the effectiveness and reach of ads. Technologies such as deep learning and sentiment analysis will help creators better understand user emotions and feedback.

Therefore, the future development of artificial intelligence technology in the field of creation needs to strike a balance between technological development and social needs. At the same time, it is also necessary to strengthen research and norms on issues such as privacy protection and algorithmic bias to ensure that the application of AI technology meets ethical and legal requirements.

In this paper, the creative trends and difficulties under artificial intelligence technology are dis- cussed, and the future development trend is prospected. It is hoped that this paper will help the research and practice in the field of communication in the future, and provide valuable materials and theories for scholars in related

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References

[1] Benjamin Walter. “Works of art in the age of mechanical reproduction”. In: (2002). [2] Marchin. McLuhan: Medium and Messenger. 2015.

[3] Chen, C. “CiteSpace: A Practical Guide for Mapping Scientific Literature.” In: Nova Science Pub- lishers. (2016).

[4] Badrul Sarwaretal. “Item-based collaborative filtering recommendation algorithms”. In: Proceedings of the 10th international conference on World Wide Web. ACM. 2001, pp. 285–295.

[5] John S Breese, David Heckerman, and Carl Kadie. “Empirical analysis of predictive algorithms for collaborative filtering”. In: Proceedings of the 14th conference on Uncertainty in Artificial Intelli- gence. Morgan Kaufmann Publishers Inc. 1998, pp. 43–52.

[6] Xiangnan He et al. “Neural collaborative filtering”. In: Proceedings of the 26th International Con- ference on World Wide Web. International World Wide Web Conferences Steering Committee. 2017, pp. 173–182.

[7] Paul Covington, Jay Adams, and Emre Sargin. “Deep neural networks for YouTube recommendations”. In: Proceedings of the 10th ACM Conference on Recommender Systems. ACM. 2016,pp. 191– 198.

[8] Michael J Pazzani and Daniel Billsus. “Content-based recommendation systems”. In: The adaptive web. Springer Berlin Heidelberg, 2007, pp. 325–341.

[9] Prem Melville, Raymond J Mooney, andRamadass Nagarajan. “Content-boosted collaborative filter- ing for improved recommendations”. In: Proceedings of the 18th National Conference on Artificial Intelligence. American Association for Artificial Intelligence. 2002, pp. 187–192.

[10] Tao Zhou et al. “Solving the apparent diversity-accuracy dilemma of recommender systems”. In:Proceedings of the National Academy of Sciences 107.10 (2010), pp. 4511–4515.

[11] Robin Burke. “Hybrid recommender systems: Survey and experiments”. In: User modeling and useradapted interaction, 12(4), 331-370. 12.4 (2002), pp. 331–370.

[12] Yu Guoming and KeRen. “Does algorithmic content push lead to information cocoons? – An Empirical Analysis Based on Media Diversity and Source Trust”. In: Shandong social sciences 11 (2020), pp. 170–174+169.

[13] Ying Chen, Jian Zhang, andYing Liu. “The impact of algorithmic recommendations on user engagement in the short video platform: An empirical study of Douyin”. In: Journal of Business Research 136 (2021), p. 112424.

[14] D. McQuail. “Audience Analysis”. In: Sage Publications (2005).

[15] Zhu Jiahui. “Research on the ”shallow meaning” expression mode of short episodic video in UGC-mode – A case study of Douyin APP”. In: Voice and Screen World 98-99 (2020). ISSN: 1006-3366.

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[16] C. Abidin. Internet Celebrity: Understanding Fame Online. Emerald Publishing Limited, 2020.

[17] X. Zhang and M. Zhang. “The Development and Application of Artificial Intelligence in the Film and Television Industry”. In: Journal of Open Innovation: Technology, Market, and Complexity 7.1 (2021), p. 6.

[18] Y. Zhou,J. Zhang, andY. Li. “The Impact of Artificial Intelligence on Creative Industries: A Review” In: Frontiers in Psychology 11 (2020), p. 194.

[19] X. Li and Y. Liang. “The Impact of Artificial Intelligence on the Media Industry: Opportunities,Challenges, and Ethical Considerations”. In: Frontiers in Psychology 10 (2019), p. 2510.

[20] D. Liu. “Personalized Content Recommendation System Based on Collaborative Filtering Algorithm”. In: 2018 2nd International Conference on Intelligent Information Technology and its Ap- plications (ICIITA). 2018, pp. 1–4.

[21] A. Nguyen, J. Yosinski, and J. Clune. “Deep Neural Networks are Easily Fooled: High ConfidencePredictions for Unrecognizable Images”. In: 2015 IEEE Conference on Computer Vision and Pattern Recognition (CVPR). 2016, pp. 427–436.

[22] Kaplan, A. M. and Haenlein, M. “Users of the world, unite! The challenges and opportunities ofSocial Media”. In: Business Horizons 53.1 (2010), pp. 59–68.

[23] P. S. Huang et al. “Learning deep structured semantic models for web search using clickthrough data” .In: IEEE Transactions on Audio, Speech, and Language Processing 22.3 (2019), pp. 825–836.

[24] Y. LeCun, Y. Bengio, and G. Hinton. “Deep learning”. In: Nature 521.7553 (2015), pp. 436–444.

[25] L. Floridi and J. W. Sanders. “On the Morality of Artificial Agents”. In: Minds and Machines 14.3(2004), pp. 349–379.

[26] Chen, C. “A Glimpse of the First Eight Months of the COVID-19 Literature on Microsoft AcademicGraph.” In: Front. Res. Metr. Anal (2020).

[27] Chen, C. and Song, M. “Visualizing a field of research: A methodology of systematic scientometricreviews.” In: PLoS ONE (2019).

[28] Chen, C. “Science mapping: A systematic review of the literature.” In: JDIS (2017).

[29] Chen,C. et al. “The structure and dynamics of co-citation clusters: A multiple-perspective co-citationanalysis.” In: JASIST (2010).

[30] Chen, C. “CiteSpace II: Detecting and visualizing emerging trends and transient patterns in scientificliterature.” In: JASIST (2006).

[31] Chen, C. “Searching for intellectual turning points: Progressive Knowledge Domain Visualization.”In: Proc. Nat. Acad. Sci. (2004).

[32] Chen, C. “System and method for automatically generating systematic reviews of a scientific field.”In: US Patent (2010).

[33] Ben Gustave Le. PsychologieDesFoules. 2015.

[34] Giddings Seth. “Game World: Virtual media and children’s daily play”. In: (2019).

[35] Stans McLuhan. Understanding me: lectures and interviews. 2006.

[36] Gu Mingyi and Lee Haeyong. “Can ideas be counted? Artificial intelligence drives advertising innovation”. In: Modern Communication (Journal of Communication University of China) 44.11 (2022), pp. 144–152.

[37] Meng Fanting. “Application of artificial intelligence to assist video production”. In: Electronic technology and Software engineering 15 (2020), pp. 141–142.

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[38] Xie Song. “Application research of deep learning technology in radio and television audio and video-program production”. In: Chinese cable TV 12 (2020), pp. 1480–1482.

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