

Research on the Application of Artificial Intelligence Technology in the Construction of Intelligent Literature Resources in University Libraries

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Abstract: With the rapid development of information technology, artificial intelligence technology has been applied more and more widely in various fields. As an important link in knowledge management and cultural dissemination, literature resource construction is also facing an unprecedented opportunity for transformation. This paper analyzes the applications of artificial intelligence technology in literature resource construction and the challenges it faces, puts forward corresponding countermeasures, and deepens and expands the future research directions, in the hope of providing a theoretical reference for literature resource construction in university libraries.

Keywords: artificial intelligence technology; literature resource construction; library

1 Introduction

With the rapid development of information technology, artificial intelligence (AI) technology has been applied more and more widely in various fields. As an important link in knowledge management and cultural dissemination, literature resource construction has also ushered in an unprecedented opportunity for transformation.

Literature resource construction not only includes traditional work such as the collection, arrangement, classification and cataloging of documents, but also covers digitalized and intelligent literature resource management and services. Artificial intelligence technology, especially natural language processing, machine learning and data mining, provides powerful technical support for literature resource construction, making literature resource management more efficient and services more personalized and intelligent.

Research on the application of artificial intelligence technology in literature resource construction not only helps to improve the efficiency and quality of literature resource management, but also promotes the in-depth utilization of literature resources, providing richer and more convenient knowledge services for scientific research, education and cultural inheritance. In addition, through the application of artificial intelligence technology, functions such as intelligent recommendation of literature resources and the construction of knowledge graphs can be realized, further promoting the dissemination and innovation of knowledge. Therefore, research in this field has important theoretical value and practical significance, and plays an irreplaceable role in promoting the modernization of literature resource management institutions such as libraries and archives.

2 Current Status and Challenges of Literature Resource Construction

As the foundation of academic research, literature resources are of great significance to the promotion of scientific research and knowledge dissemination. However, in the current era of information explosion, the construction of literature resources faces many challenges. First, massive amounts of literature data make the classification, arrangement and retrieval of resources extremely complex, and traditional literature management methods can hardly meet the needs of efficient utilization. Second, with the rapid development of artificial intelligence technology, how to apply these technologies to literature resource construction so as to improve the utilization efficiency of literature resources has become an urgent problem to be solved. For example, through natural language processing technology,

automatic summarization and classification of literature content can be realized; by using machine learning algorithms, the citation trends of literature can be predicted to provide decision support for researchers. In addition, data security and privacy protection are also issues that cannot be ignored in literature resource construction. When using artificial intelligence technology to carry out literature resource management, how to ensure the security and privacy of data and avoid information leakage is an aspect that requires key attention. In summary, research on the application of artificial intelligence technology in literature resource construction can not only effectively solve the existing problems in literature management, but also provide strong support for future academic research.

3 Development of Artificial Intelligence Technology and Its Application Prospects in Literature Resource Construction

The development of artificial intelligence technology and its application prospects in literature resource construction constitute a field full of potential. With the continuous progress of big data, machine learning and natural language processing technologies, artificial intelligence has shown great application value in the arrangement, classification, retrieval and analysis of literature resources. First, in terms of the arrangement of literature resources, artificial intelligence can quickly and accurately classify and archive massive amounts of literature in an automated manner, greatly improving the efficiency of literature management. Second, in terms of literature retrieval, intelligent algorithms can accurately match relevant literature according to users' query needs and provide personalized retrieval services, enabling users to find the information they need more quickly. In addition, artificial intelligence can also deeply analyze literature content through deep learning technology, tap potential knowledge associations, and provide strong support for academic research.

4 Overview of Artificial Intelligence Technology

4.1 Basic Concepts of Artificial Intelligence Technology

Artificial intelligence technology, abbreviated as AI, refers to the intelligent behavior exhibited by computer systems. It is an interdisciplinary and comprehensive technology that integrates knowledge from fields such as computer science, mathematics, psychology, neuroscience and linguistics. The core goal of artificial intelligence is to enable computers to simulate human intelligent behavior, including learning, reasoning, self-correction, perceiving the environment, understanding natural language, and recognizing images and sounds. In literature resource construction, the application of artificial intelligence technology is mainly reflected in the automatic classification of literature, subject identification, content abstract generation and knowledge graph construction. Through natural language processing technology, AI can automatically parse literature content, identify keywords and subjects, thereby achieving efficient classification and retrieval of literature. In addition, with the help of machine learning algorithms, AI can also extract valuable information from a large amount of literature and construct knowledge graphs, providing researchers with a more intuitive and comprehensive knowledge network.

4.2 Main Types and Characteristics of Artificial Intelligence Technology

Research on the application of artificial intelligence technology in literature resource construction is one of the hot topics of concern in the current academic and information science fields. Artificial intelligence technology is mainly divided into types such as machine learning, deep learning, natural language processing and computer vision. Among them, machine learning automatically analyzes and obtains rules from a large amount of data through algorithmic models, and uses these rules to predict unknown data. As a branch of machine learning, deep learning can process more complex data structures, such as images and speech recognition, by building multi-layer neural network models. Natural language processing technology focuses on understanding and generating human language, and plays an important role in the classification, retrieval and abstract generation of literature resources. Computer vision technology plays a key role in image recognition and chart analysis in literature. The characteristic of these

technologies lies in their ability to efficiently process large-scale data, improve the automation level and intelligence degree of literature resource construction, and thereby enhance the utilization efficiency and value of literature resources.

4.3 Application Potential of Artificial Intelligence Technology in Literature Resource Construction

Artificial intelligence technology has huge application potential in literature resource construction and can significantly improve the management and utilization efficiency of literature resources.

Automatic classification and arrangement. Through natural language processing technology, artificial intelligence can automatically identify and classify a large amount of literature, greatly reducing the workload of manual classification and improving the accuracy of classification. This not only helps to quickly locate the required information, but also facilitates subsequent retrieval and analysis.

Intelligent retrieval and recommendation. With the help of machine learning algorithms, AI can provide more accurate literature retrieval results and personalized recommendation services according to users' query habits and preferences. This intelligent service model can effectively shorten the time for users to find the materials they need and improve work efficiency.

Data mining and knowledge discovery. Using advanced technologies such as deep learning, valuable knowledge points and trends can be mined from massive amounts of literature to assist researchers in carrying out innovative research. For example, in the medical field, AI can help doctors discover new treatment methods by analyzing a large number of case materials.

Copyright protection and content review. AI technology can also be used to detect plagiarism in literature and protect the rights and interests of original authors. At the same time, through automatic review of uploaded content, the legitimacy and security of the literature resource database are ensured.

In summary, the application of artificial intelligence technology will greatly promote the development of literature resource construction in the direction of intelligence and high efficiency, injecting new vitality into academic research and social development.

5 Application of Artificial Intelligence Technology in Literature Resource Construction

5.1 Automatic Classification and Tagging of Literature Resources

Automatic classification and tagging of literature resources is a key link in using artificial intelligence technology to improve the efficiency of literature management. Through machine learning algorithms, rapid identification and categorization of massive amounts of literature can be achieved, thereby building an efficient and accurate literature retrieval system. Specifically, automatic classification technology can assign literature to corresponding categories according to the characteristics of its content, which not only helps to reduce the error rate of manual classification, but also significantly improves the classification speed. Tagging further refines the description of literature; by extracting keywords and subjects, multiple tags are attached to each piece of literature, enabling users to obtain the required information from multiple angles and at multiple levels. In addition, combined with natural language processing technology, semantic understanding of unstructured text data can be achieved, thereby improving the accuracy and relevance of tags. In summary, the application of artificial intelligence technology not only optimizes the management process of literature resources, but also greatly enriches the retrieval dimensions, providing strong support for academic research.

5.2 Intelligent Retrieval and Recommendation of Literature Resources

Against the background of the rapid development of artificial intelligence technology, intelligent retrieval and recommendation of literature resources has become a research hotspot. Through the application of technologies such as natural language processing and machine learning, the system can accurately understand user needs and achieve efficient retrieval of literature resources. At the same time, personalized recommendation algorithms based

on user behavior data can provide users with customized literature recommendation services, greatly improving the utilization efficiency of literature resources. In addition, the intelligent retrieval and recommendation system can also continuously improve the accuracy of retrieval and recommendation through continuous learning and optimization, providing strong support for academic research.

5.3 Automatic Summarization and Content Analysis of Literature Resources

Today, with the rapid development of artificial intelligence technology, its application research in literature resource construction has attracted increasing attention. Automatic summarization and content analysis of literature resources are important components of this field. Automatic summarization technology automatically extracts key information from literature through algorithms and generates concise and clear abstracts, greatly improving the efficiency of literature retrieval and reading. Content analysis uses natural language processing technology to deeply parse literature content and identify important information such as subjects, keywords and authors' viewpoints, providing researchers with a comprehensive overview of literature content.

In specific applications, automatic summarization technology can not only help researchers quickly understand the core content of literature, but also play an important role in large-scale literature retrieval, quickly screening studies related to a topic through the comparison of abstracts. Content analysis technology can deeply tap the potential value of literature; by identifying subjects and keywords in literature, it constructs knowledge graphs and provides strong support for interdisciplinary research.

In summary, the application of artificial intelligence technology in automatic summarization and content analysis of literature resources not only improves the efficiency of literature retrieval and reading, but also provides new tools and methods for academic research, with important academic value and application prospects.

5.4 Copyright Detection and Management of Literature Resources

The application of artificial intelligence technology can not only improve the efficiency of copyright detection, but also accurately identify infringement acts in massive data, providing strong technical support for copyright management. This paper aims to explore the application of artificial intelligence technology in the copyright detection and management of literature resources, and to propose effective strategies for improving the level of copyright protection by analyzing existing technical means.

First, artificial intelligence technology, especially machine learning and natural language processing technology, can automatically identify and extract key information in literature, such as authors, publication dates and cited references, thereby providing basic data for copyright detection. Second, through deep learning algorithms, a copyright detection model can be constructed. This model can automatically identify copyright information in literature and compare it with known copyright databases to quickly discover potential infringement acts. In addition, artificial intelligence technology can also be used for the intelligent upgrading of copyright management systems, reducing manual intervention through automated processes and improving management efficiency. However, the application of artificial intelligence technology in copyright detection and management also faces challenges, such as privacy protection, algorithm fairness and transparency. Therefore, future research needs to strengthen ethical and legal considerations while improving technical capabilities, so as to ensure the legitimacy and rationality of technology application. Through the comprehensive use of artificial intelligence technology, the copyright detection and management of literature resources will become more efficient and accurate, providing a safer environment for academic research and knowledge dissemination.

6 Challenges and Countermeasures of Artificial Intelligence Technology in Literature Resource Construction

6.1 Challenges and Countermeasures at the Technical Level

When discussing the application of artificial intelligence technology in literature resource construction, the

challenges and countermeasures at the technical level are the core of the research. First, data quality is one of the key challenges. The diversity and complexity of literature resources require continuous optimization of data cleaning and preprocessing technology to ensure the accuracy and consistency of data. The countermeasure is to adopt advanced natural language processing technology and machine learning algorithms to improve the automation level and precision of data processing. Second, the construction and application of knowledge graphs is another important challenge. Knowledge in literature resources often exists in an unstructured form; how to efficiently transform it into structured knowledge and form knowledge graphs is the key to improving the utilization efficiency of literature resources. The countermeasure is to use deep learning technology, especially graph neural networks, to automatically identify and construct knowledge graphs, and to enhance the retrievability and relevance of knowledge. Finally, privacy protection and data security are also issues that cannot be ignored. In the process of literature resource construction, how to ensure user privacy and data security while using artificial intelligence technology is a challenge that must be faced. The countermeasure is to adopt encryption technology and protection algorithms such as differential privacy technology to ensure that sensitive information is not leaked during data processing.

In summary, by optimizing data processing technology, building efficient knowledge graphs and strengthening data security protection, the technical challenges of artificial intelligence technology in literature resource construction can be effectively addressed, promoting the intelligent development of literature resource construction.

6.2 Challenges and Countermeasures in Human Resources and Training

The application of artificial intelligence technology has not only changed the storage and retrieval methods of literature resources, but also placed higher demands on human resource management. On the one hand, with the popularization of automation and intelligent tools, traditional human resource management positions are facing transformation, and employees need to master new skills and knowledge to adapt to the new demands brought about by technological change. On the other hand, the training system also needs to be adjusted accordingly to cultivate employees' artificial intelligence literacy and improve their working ability in an intelligent environment. Therefore, institutions should adopt targeted training strategies, such as introducing online learning platforms and carrying out training on the application of artificial intelligence technology, to ensure that employees can effectively use artificial intelligence technology and improve work efficiency and service quality.

7 Conclusion and Outlook

7.1 Research Summary

By analyzing the current application status of artificial intelligence technology in literature classification, retrieval and knowledge graph construction, the positive impact of artificial intelligence technology on literature resource construction is summarized. The study finds that artificial intelligence technology can significantly improve the management efficiency of literature resources. Through natural language processing technology, automatic classification and tag generation of literature are realized, greatly improving the accuracy and efficiency of literature retrieval.

7.2 Future Research Directions

According to the research on the application of artificial intelligence technology in literature resource construction, future research directions can be further deepened and expanded. First, the application of artificial intelligence technology in intelligent classification and indexing of literature resources can be explored. Through deep learning and natural language processing technology, automatic classification and tag generation of literature content can be realized, improving the retrieval efficiency and accuracy of literature resources. Second, using machine learning algorithms to carry out sentiment analysis and subject identification of literature resources helps to discover potential values and trends in literature and provides new perspectives and directions for academic research. In addition, the application of artificial intelligence in copyright protection and privacy protection of literature resources can also

be studied, ensuring the security and legitimacy of literature resources through data encryption and access control technology. Finally, combined with big data analysis technology, comprehensive analysis and mining of literature resources can discover intersection points and innovation points among different disciplines and promote the development of interdisciplinary research.

7.3 Suggestions for Literature Resource Construction

Based on the research on the application of artificial intelligence technology in literature resource construction, a series of specific suggestions can be put forward to improve the level of literature resource construction and management. First, using natural language processing technology, automatic classification and abstract extraction of a large number of literature can be realized, thereby improving literature retrieval efficiency and reducing the error rate of manual classification. Second, through machine learning algorithms, relevant literature materials can be recommended according to users' reading habits and preferences, enhancing user experience. In addition, artificial intelligence can also be used to detect plagiarism and misappropriation in literature and maintain academic integrity. In order to further optimize literature resource construction, data security and privacy protection measures should also be strengthened to ensure that all operations are carried out within a legal and compliant framework. At the same time, an open data sharing platform should be established to encourage cooperation and exchange among different institutions and jointly promote the enrichment and development of literature resources. Finally, the application effect of artificial intelligence technology in literature resource construction should be regularly evaluated, and strategies should be adjusted in a timely manner to ensure the effectiveness and advancement of the technology.

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