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A Comprehensive Evaluation Method for Cultural Value of Literary Works Based on Artificial Intelligence Technology

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Abstract: *The development of artificial intelligence technology has brought new ideas and methods to the research and evaluation of literary works. This paper will introduce a comprehensive evaluation method of cultural value of literary works based on artificial intelligence technology. This method combines traditional research methods of humanities and modern computer science and technology, and analyzes and evaluates various aspects of literary works through intelligent algorithms, including text content, emotional color, text style, etc. The experiment proves that the results of feature extraction and emotion analysis of four famous works and three hundred lines of Tang poetry are summarized, and data visualization is used. Finally, this article will provide a detailed introduction to the implementation process and specific practical effects of this method, and explore its application prospects in the research and evaluation of literary works. In artificial intelligence, three technologies are used to analyze the comprehensive evaluation results data visualization and conduct comprehensive evaluation through data preprocessing feature extraction and aesthetic standards. The experimental results demonstrate that the average comprehensive evaluation of literary works' cultural value by artificial intelligence is 8% longer.*

Keywords: *Cultural Value of Literary Works, Comprehensive Evaluation, Artificial Intelligence, Data Mining*

1. Introduction

Throughout ancient China, whether it is clothing or artifacts, they all have special cultural values. However, it should be noted that different material artistic senses have different artistic characteristics. However, ancient Chinese literary works are an integration of cultural values and are a budget and valuation for comprehensively evaluating the cultural value of ancient Chinese literary works based on modernization [1-2]. In intelligent algorithms, literary works have unique artistic and distinctive features, as well as strong literary value [3-4]. Through modern artificial intelligence, it is advantageous to evaluate the cultural value and other meanings of ancient Chinese literary works [5].

The main purpose of our research is to analyse the impact of artificial intelligence (AI) on enterprise performance, especially by establishing the commercial value of AI based transformation projects. Wamba Taguimdje S L adopts a four step sequential method for: (1) analysis of artificial intelligence and its concepts/technologies; (2) Conduct in-depth exploration of case studies in a large number of industrial sectors; (3) Collect data from databases (websites) of artificial intelligence based solution providers; And (4) a review of artificial intelligence literature to determine its impact on organizational performance, while emphasizing the commercial value of transforming artificial intelligence projects within the organization. Design/Methodology/Methodology This study calls for IT capability theory to capture the impact of artificial intelligence business value on enterprise performance (at the organizational and process levels) [6]. Demchenko I, Maksymchuk B contain rich cultural value in ancient Chinese literary works. The literary works of ancient China are the essence of the creation of the literati in the past dynasties, including poetry, prose, novels, operas and other literary forms. These works reflect the thoughts and traditions of the Chinese nation in terms of history, philosophy, morality, aesthetics, and other aspects, and have extremely high cultural value [7]. For example, works such as "The Analects", "Tao Te Ching", and "Dream of the Red Chamber" are not only important representatives of Chinese culture, but also classic works in the history of world literature. They not only inherit the cultural genes of the Chinese nation, but also provide profound

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ideological inspiration and spiritual nourishment for future generations. Demchenko I has rich cultural value and profound modern significance in ancient Chinese literary works. They are an important component of Chinese culture and one of the treasures of human cultural heritage. We should conduct in-depth research and inheritance of these works to better explore their cultural value and modern significance [8].

The ancient Chinese cultural works can be said to have a long history, extensive and profound. In the historical development, they have the continuation of essence, but also the abandonment of bad dross. It is an extremely complicated task to summarize and analyse their artistic characteristics. The comprehensive evaluation of literary works through artificial intelligence contains profound cultural value, which is recognized and applied by the Chinese people in the current critical stage of social and cultural construction, playing a role in evaluating cultural value and strengthening protection of literary works.

2. Related Research

2.1. Artificial Intelligence

Artificial intelligence was put forward in 1956. At the beginning of the invention of artificial intelligence technology, a large number of scholars proposed how high level computer language algorithms to solve the cultural value evaluation needs of literary works developed by human beings. Although there were many major breakthroughs in theory, the performance of computer hardware was relatively backward at that time, and various algorithms could not be tested in practice and applied for development. Nowadays, the world has undergone generations of scientific and technological innovation, and the development of computer hardware has rapidly improved, especially the computing power of chips, which has made a qualitative leap. In addition, the popularity of the Internet has laid a good foundation for the research and development of artificial intelligence technology. With the practical application and utilization of intelligent algorithms, artificial intelligence science and technology have also been further innovated and developed, more and more people are applying it to the field of artificial intelligence. In 2022, artificial intelligence technology has been closely linked to various industries and has a wide range of applications in the field of comprehensive evaluation of cultural value of human literary works. Its integration with literature has brought huge economic benefits to society and greatly improved the evaluation and budgeting of cultural value [9-10]. As shown in Figure 1, the overall structure of artificial intelligence is as follows:

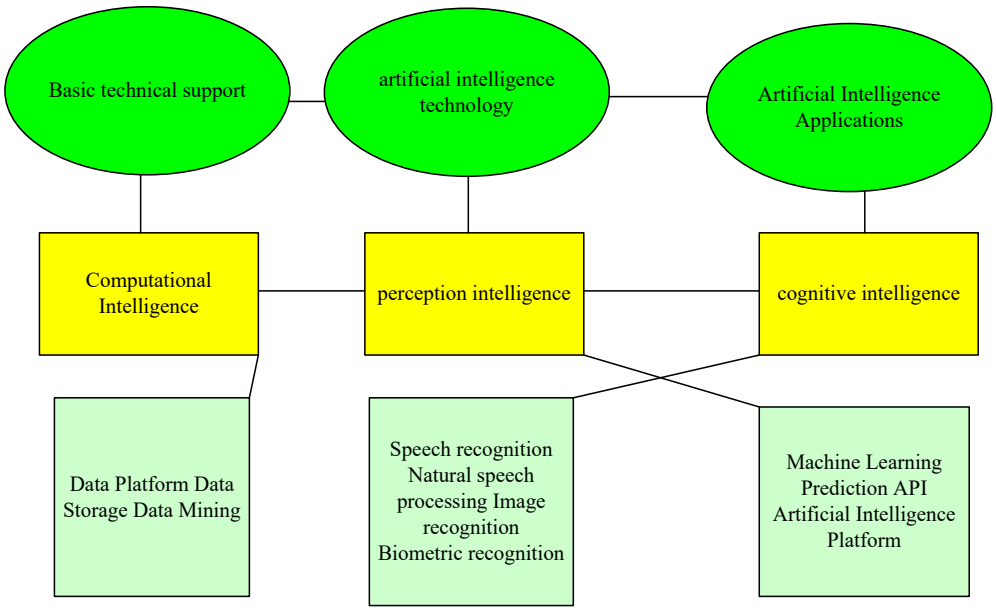

Figure 1: Artificial Intelligence Structure Diagram

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2.2. Comprehensive Evaluation

Since it is a comprehensive evaluation of the cultural value of literary works, it is necessary to understand and thoroughly read the content of the works. I believe that before evaluating, it is necessary to carefully read the work, preferably several times. If you just read the work in a hurry like "ten lines at a glance" or "swallow the whole thing", I don't think you can understand the work itself very well, or even remember the complete content. In the process of reading, there needs to be a framework in the brain, which includes who, when, where, the reasons, process results, and a specific understanding of events. During the reading process, readers should also have their own understanding when experiencing the feelings of the characters in the story.

2.3. Data Mining

Data mining is a non-trivial process of extracting hidden, effective, novel, potentially useful, and ultimately understandable patterns from a large amount of incomplete, noisy, fuzzy, and random data. Through statistical analysis, the function of data mining is used to specify the type of pattern to be found in data mining tasks. The two basic tasks of data mining are prediction and description. Forecasting involves using some variables or domains in the dataset to predict unknown or future values of other variables of concern to us; Description is to find out the cultural value that can be used in literary works in the data set. Data visualization will help. Therefore, data mining activities can be divided into two basic categories: descriptive data mining: generating new and unusual information based on available datasets [11]. Predictive data mining: Generate system models described by known datasets, attempting to predict the behavior of new datasets. The following formula is used to calculate the cultural value of data mining in literary works:

To ensure the calculation effect, the continuous power flow method is generally used for calculation. The following is the calculation process:

The problem of using data mining to transform statistics into plane solution:

$$R(\beta)=\sum_{j=1}^{p}\beta_j-\frac{1}{2_k}\sum_{k=1}^{p}\beta\ \beta_k Z_k Z_j\left(y_k * y_j\right) \tag{1}$$

Where, $R(\beta)$ is the quadratic data discriminant function $\mathrm{y}_j * y_k$ is the dot product of two vectors; Z is the classification threshold Z_j; And Z_{k} respectively represent the classification threshold β of β and $\mathrm{y_j}$ vectors as the weight vector $\mathrm{y_j}$; And $\mathrm{y_j}$: $\mathrm{y_j}$; The weight p of the two vectors and LLLL is the maximum vector. The optimal classification data algorithm must meet the following requirements:

$$\begin{cases}\sum_{j=1}^{p}Z_j\beta_j=0\\ \beta_j\geq 0\ j=1,2\end{cases} \tag{2}$$

Assuming that the features in the data set in the calculation data generate nonlinear transformation, the inner product $L\left(\mathrm{y}_j,y_k\right)$ should be used to replace the dot product in the variable function. Then the converted results can be obtained from the data plane solution problem. The classification calculation data set solution problem must meet the following requirements:

$$\mathrm{L}(y)=\mathrm{sgn}\left(\sum_{j=1}^{p}\beta,Z_j L\left(y_j * y_k\right)+c\right) \tag{3}$$

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3. Comprehensive Evaluation Experiment on the Cultural Value of Ancient Chinese Literary Works

3.1 Introduction

Firstly, ancient Chinese literary works contain rich cultural value. The literary works of ancient China are the essence of the creation of the literati in the past dynasties, including poetry, prose, novels, operas and other literary forms. These works reflect the thoughts and traditions of the Chinese nation in terms of history, philosophy, morality, aesthetics, and other aspects, and have extremely high cultural value. For example, works such as "Dream of the Red Chamber", "Journey to the West", "Water Margin", "Romance of the Three Kingdoms", and "Three Hundred Tang Poems" are not only important representatives of Chinese culture, but also classic works in the history of world literature. They not only inherit the cultural genes of the Chinese nation, but also provide profound ideological inspiration and spiritual nourishment for future generations. Then, by combining computer technology with literary research, a comprehensive evaluation of the cultural value of ancient Chinese literary works is conducted. Natural language processing technology and emotion analysis algorithm are used to analyze literary works, and the results are data visualization. Further explore the evaluation methods and applications of artificial intelligence for the cultural value of literary works.

3.2 Analysis and Results

(1) Data collection

Select classic Chinese literary works such as "Dream of the Red Chamber", "Journey to the West", "Water Margin", "Romance of the Three Kingdoms", and "Three Hundred Tang Poems" from artificial intelligence as experimental data.

(2) Data preprocessing

Artificial intelligence cleans and processes collected literary works to remove useless information. At the same time, natural language processing technology is used to process text data such as word segmentation and de stop words.

(3) Feature extraction and sentiment analysis

Using artificial intelligence natural language processing technology, we can extract information about common structural features, emotional colors and other aspects of literary works. At the same time, emotional analysis algorithms are used to evaluate the polarity of emotions in literary works and determine the overall emotional tendencies of the works.

(4) Comprehensive Evaluation Results Data Visualization

Summarize various feature extraction results and emotion analysis results, and display them through data visualization, as shown in Table 1.

3.3 Results

Table 1: Result characteristics of literary works

literature	Important structural features
The Dream of Red Mansion	Family disputes, love stories between Jia Baoyu and Lin Daiyu, garden culture, etc
Journey to the West	The growth process of Sun Wukong, the adventures of the four masters and disciples, the two Buddhist and Taoist families, etc
All Men Are Brothers	Rescue Miao Su, Song Jiang Uprising, Heroes and Heroes, etc
Romance of the Three Kingdoms	Historical events during the Three Kingdoms period, the ups and downs of various forces, and intellectual struggles
Three Hundred Tang Poems	Common themes and emotions such as women's embroidery, nature, concern for the country and the people, and homesickness

As shown in Table 1, a preliminary evaluation of emotional polarity in literary works was conducted using sentiment analysis algorithms. The experimental results show that literary works such as "Dream of the Red Chamber" and "Journey to the West" have a positive overall emotional tendency,

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while "Water Margin" and "Romance of the Three Kingdoms" have a certain tragic color. In AI, the results of various feature extraction and emotional analysis are summarized and data visualization is carried out, which can intuitively reflect the cultural value of ancient Chinese literature.

4. The Results of the Comprehensive Evaluation of the Cultural Value of Ancient Chinese Literary Works

4.1. Introduction and Analysis

Ancient Chinese literary works are also drawn from social life in various eras. Authors obtain creative inspiration through observation of social activities, and even use their own experiences as inspiration to create excellent works. Firstly, artificial intelligence evaluates the cultural value and aesthetic standards of the four major masterpieces. The first analysis is the evaluation of "Journey to the West". "Journey to the West" is a divine and magical novel set against the backdrop of Tang Dynasty monks traveling westward in mysterious attire to obtain scriptures. Its characteristics are rich plot imagination and profound content meaning. Some people believe that Journey to the West is one of the greatest works in Chinese literature because it not only has entertainment, but also conveys important life philosophies. On the other hand, artificial intelligence believes that "Journey to the West" reflects the superstition of religion and mythology in ancient Chinese society, lacking the aesthetic standards of modern literature, and therefore its value should not be excessively exaggerated. The second analysis of the evaluation of "Dream of the Red Chamber" shows that "Dream of the Red Chamber" is known as the pinnacle of Chinese classical literature history, and is known as a model of Chinese culture due to its unique construction, diverse characters, delicate environmental descriptions, and ideas that transcend the times. However, the evaluation of "Dream of the Red Chamber" by artificial intelligence is too complex and difficult to understand, and the value it brings is too high, suitable for modern aesthetic standards. The third analysis is the evaluation of "Romance of the Three Kingdoms". "Romance of the Three Kingdoms" is a novel that describes the history of the Three Kingdoms period. It has rich historical background knowledge, many heroic characters, and exciting combat scenes, and its literary value is high. But some artificial intelligence believes that the historical and literary value of "Romance of the Three Kingdoms" has been questioned, and it tends to be popular, reflecting to some extent the limitations of Chinese classical thought and aesthetic standards. Fourth analysis: Evaluation of "Water Margin". "Water Margin" is a novel that depicts the uprising of 108 heroic characters. It is characterized by vivid character portrayal and intense conflicts, and is deeply loved by readers. Artificial intelligence experts believe that the cultural value of "Water Margin" lies in its depiction of the unique group psychology of that era, as well as showcasing the charm of anger and inner power in Chinese literature, as well as the standard aesthetic values in modern society.

4.2. And Results

Through the above introduction and analysis, it is preferred to use artificial intelligence technology to analyze the cultural values and aesthetic standards of literary works in the four major masterpieces. The following three technologies are used:

(1) Data preprocessing: Using artificial intelligence language processing technology to segment and remove stop words from the four famous works.

(2) Feature extraction and aesthetic standard analysis: Utilizing artificial intelligence language processing technology to extract information on common structural features, cultural values, and aesthetic standards of literary works. At the same time, intelligent algorithms are used to evaluate the culture and aesthetics in literary works, and the overall standard tendency of the works is obtained.

(3) Data visualization of comprehensive evaluation results: summarize the results of cultural values and aesthetic standards extracted from various features, and display them through data visualization. The results obtained from the comprehensive evaluation of literary works through the three technologies of artificial intelligence are shown in the figure below

As shown in Figure 2: DIndividual cultural score

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Figure 2: Cultural Value Scoring of Human Resources

From Figure 2, it can be seen that ancient Chinese literary works undergo a comprehensive evaluation of cultural value and aesthetic standards. This experiment reveals the profound humanistic connotations and cultural values contained in these classic works. At the same time, this experiment also proves the application prospects of artificial intelligence technology in the field of literary research, providing reference significance for subsequent related research. From the chart, it can be seen that literary works such as "Dream of the Red Chamber", "Journey to the West", "Romance of the Three Kingdoms", and "Water Margin" have cultural value scores.

5. Conclusion

This paper combines a comprehensive evaluation method of cultural value of literary works based on artificial intelligence technology, combining traditional research methods of humanities with modern computer science and technology. Through intelligent algorithms, analyze and evaluate various aspects of literary works, including text content, emotional color, and writing style. This method provides a new approach and tool for the research and evaluation of literary works, and has broad application prospects in the field of literary research. The proposed method can effectively extract and analyze important features of literary works, comprehensively evaluate the cultural value of literary works, and gain insight into the historical, cultural, and social context of the works.

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