Optimizing Search Algorithm Models for Upgrading the Tourism Industry

Duan Fugui
Henan University of Technology
Jiaozuo
454000, Henan, China
aozhuo6324009oube@163.com

ABSTRACT: *With the continuous development of Internet technology, the application of search algorithms in the tourism economy is becoming increasingly widespread. This article aims to explore the development strategies of the tourism economy under search algorithms and research on market resource integration. Firstly, this article analyzes the importance of search algorithms in developing the tourism economy, including improving the visibility of tourism destinations, promoting the upgrading of the tourism industry, and optimizing the supply structure of tourism products. Then, from the perspective of market resource integration, this article explores how search algorithms integrate tourism market resources, including resource integration in tourist attractions, hotels, catering, transportation, and other aspects. Finally, this article proposes strategies for developing the tourism economy based on search algorithms, including optimizing search algorithms, strengthening supervision of the tourism market, promoting the upgrading of the tourism industry, and strengthening innovation of tourism products.*

Keywords: Sports Tourism, Search Algorithm, Tourism System, System Industry

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1. Introduction

German research scientist John Toffler proposed the tourism economy, which first appeared in the wave of social progress. He believed that several important technological revolutions in the progress and development of our human society include the Industrial Revolution, the revolution in information technology, and the Network Technology Revolution [1]. Nowadays, tourism has become a more important way of travelling. With the rapid economic development and progress, China's tourism industry has also developed rapidly. People's demands for daily life are getting higher and higher. The main contradictions in our country have been transformed into the contradiction between the growing desire for a better life and the unevenly underdeveloped development [2]. People's demand for mass sports also stimulates the advancement and development of the sports industry [3].

At the national level, with the vigorous development of the socialist market economy, the State Sports General Administration clearly states that physical exercise should be a top priority in strengthening people's physical fitness. The National Tourism Administration also sets up a special tourism and leisure vacation to stimulate people's enthusiasm for tourism. Still, the creative integration of physical exercise and the tourism industry as an organic whole is a great creation of the new era [4]. On this basis, China's sports tourism industry has been booming in progress and development. Various tourism information and ideas flow well [5]. On the other hand, promoting China's stable economic transformation and progress is of great significance. On the other hand, integrating sports and tourism will be conducive to raising the general health of all people.

2. State of the Art

The meaning of the sports tourism industry can be considered to meet the needs of people's sports activities and to set physical exercise, tourism, and leisure as one. Various physical exercise is used to achieve the goal of physical exercise and leisure and entertainment so that tourists feel physically and mentally comfortable [6]. Thus, the three civilizations are promoted: spiritual civilization, material civilization and political civilization, which make progress together. With various sports activities, we give full play to its various functions and roles and enrich the spiritual and cultural life of the public and the pursuit of the basic spirit [7]. Its unique characteristics are accepted and recognized by the people. It is the perfect combination of sports and tourism. With the rapid development of industrial technology, human beings are accustomed to the convenience of advanced technology and have neglected their health and physical exercise [8].

Combining physical exercise with leisure and entertainment has broad prospects for development and real economic benefits [9]. It is also possible to exercise the participants' bodies with physical exercise so that they can also satisfy their mental and physical aspirations. Second, people can meet the spiritual consumption to maintain good health. In the community, there is a trend of exercising a healthy body, which complements the sports industry, tourism, and leisure [10]. The second can also meet the individual needs of the heart. In today's society, the development is very rapid. Everyone has a different pursuit. Each person meets different spiritual and material needs through personalised design. We set other targets for different levels of consumer groups, which promote our country's sports, leisure and entertainment industry a big stride forward.

3. Methodology

3.1. Search Algorithm Research

The search algorithm is a computer and Internet technology to enumerate all possible solutions to the problem, and then it is filtered out by computer programs. This method of computer hardware requirements is very high, and you need to have a high-

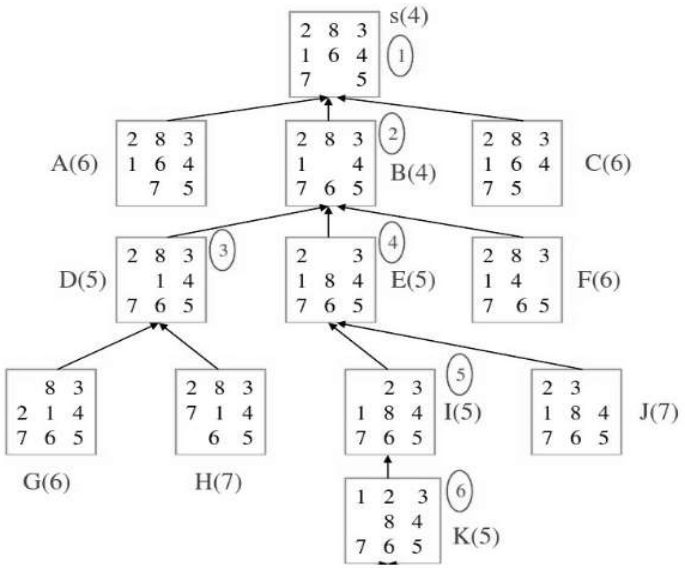

Figure 1. The Computational Theory Diagram of Search Algorithm

performance computer to be able to operate. There are many main methods, such as enumeration search algorithm, hash function search algorithm, depth-first search algorithm, breadth-first search algorithm, *A** search algorithm, backtracking search algorithm, etc. This article mainly introduces the hash function search algorithm, which is a way to calculate using a linear number of tables. In the tree calculation, all the positions recorded are randomly generated in the record of different keywords and keywords. There is a variety of other relationships, so in the choice of structure to find such records, we need to record the different keywords and statements of the differences between the different contrasts. We can greatly improve the search and search efficiency, and the most convenient result is to find the data information and the corresponding information record you need when searching for the first time. It is shown below:

Therefore, under the influence of this relationship, we need to design a new relationship *f*, which is a comparison application. We transform the data between each correspondence and then map them to the previous input and output locations. The hash function search process is as follows: The main expression formula is:

$$Addr = H(key) \tag{1}$$

The hash function determines the hash table elements. The data element's key *K* is used as an argument. We calculate the value by a certain function (called a hash function). This element is the storage address. The problem before designing and building this formula is how to set up a hash function that fits our needs and to get the resulting values of *H* (*key*) evenly distributed across our hash table in order to improve our operation and search speed to solve our problems and difficulties. However, the hash table also has some numerical representations of conflicts. For example: we find the keywords and key sentences where there is a conflict.

$$K_1 \neq K_2 \quad H(K_1) = H(K_2) \tag{2}$$

For example, in an open numerical calculation method, if the calculation with the same different numerical value is recorded in the tree group of the same hash table, the method of taking the remainder is not selected. Using a different sequence to view the combination of methods such as the following search method sequence, can greatly save search space and time to facilitate people to use for those who need is a straightforward way. This way, we can accurately find the information search results we need.

$$h(k) = p(i) + (-1)^n \tag{3}$$

Each of these data has a different meaning. $h(k)$ is the main search function, he is the main component of the hash function and $p(i)$ is the search function. The added value is the number of searches. If there is a conflict during the search, then a second search is conducted based on the feedback. The search stops until all the search targets are completed. The method of secondary exploration mainly includes finding the hash target of exploration according to the different changes in the random number table. For example, the different number of exploration to determine the results of the second exploration is valid, and the search algorithm can achieve the desired goal. The secondary exploration method of calculation and calculation formula is:

$$p(i) = (-1)^2 (i-1) * (i+1)/2 \tag{4}$$

Under the influence of sufficient playing space, if every address needed is already filled, more addresses are opened to provide searching algorithms to discover the difficulties we need to overcome. At different points in the diagram, while each of us addresses the linear exploration method, the problem of conflict also needs to be solved individually. It does not mean that all the search methods are perfect. Each search method has its advantages and disadvantages. For us, it is to choose a more excellent search method to solve many difficult aspects of our actual operation.

We then analysed the program's pros and cons based on the analysis at all levels and presented them in tabular form as shown in Table 1 below.

These algorithms use heuristic functions but have different strategies when choosing the best search node. Like the local optimal search method, it is to select the "best node" in the search process after discarding other sibling nodes, and father nodes, and we

Tourist factors(%)	Intuitive performance	Degree of comfort	Easy search	Acceptability	Achievements
Team(1)	32.7	76.3	54.1	78.2	66.5
Team(2)	38.2	79.6	55.0	70.5	70.7
Team(3)	31.2	85.2	59.4	68.2	73.2
Team(4)	10.3	82.1	66.5	69.2	63.1

Table 1. The optimized Algorithm Compares the Test Results

continue to search. The result of this search is evident. Since the other nodes are discarded, the best nodes may also be discarded because the best node to solve is only the best one at this stage, which can effectively prevent the "best node" from losing.

3.2. Based on the Search Algorithm of Sports Tourism Status Quo and Development Strategies

All of the search algorithms can be divided into two parts, which are the control structure and the production system, from the point of view of the final algorithm. As we said before, the search algorithm, in a nutshell, is to exhaustively find all the possible conditions and find the right answer. So, the basic problem is to list all the possible situations. This is a production system.

If the different problems we need to solve use different methods to classify them into different categories to consider. In the last stage of the work, it can be done smoothly. We tend to have more choices. We list these choices in different kinds of situations. Examining these possible consequences in these different situations is an easy solution. The other way is to start controlling from the bottom, find the bottom control node, and return different ways to control different ways the search software continues to work. Under the influence of all the different preceding situations, we can cite different development solutions. In a list of other solutions, all solutions are constituted. We choose the content we need from these collections, which often solves the search problems we face more quickly. In the beginning of the root calculation, we cannot solve the problem of returning to the previous node to continue working, which is reverse thinking. In this guidance, the search algorithm can better help us solve the actual problems and lead us to achieve the desired goal.

The results of each parameter are weighted, and the three-dimensional structures in all directions are arranged. *Var* represents the average value, x_i, y_i represents the horizontal and vertical tourist base, *k, p* represents the horizontal and vertical tourists, gj ,βj represents. Its integration coefficient, *i, j* represents the number of all levels, and represents the horizontal base. We will combine them with the portfolio structure and weighted integration, and then take the average. The calculation results are as follows:

$$Var(x_i) = \sum_{j-1}^{k} g_j^2 + \sum_{i-1}^{p} \beta_i^2 \tag{5}$$

$$Var(yi) = \sum_{j-1}^{k} gj^2 + \sum_{i-1}^{p} \beta j^2 \tag{6}$$

If you have questions about the above, you can do the search algorithm. In the process of practice, we understand it more in-depth to carry out the next part of the work to make the work goal complete more smoothly. Carrying out the tourism demand plan based on the analysis model of influencing factors, it is possible to set up a tourist demand plan suitable for the travel agency's own system so that tourists' travel experience will be upgraded generally. The design background of the influencing factor analysis model originates from computer technology and can be adjusted adaptively based on the tourists' travel needs and psychological needs. From the mathematical point of view of each factor to evaluate, we try to ensure the scientific results of the whole. The entire model program is shown below:

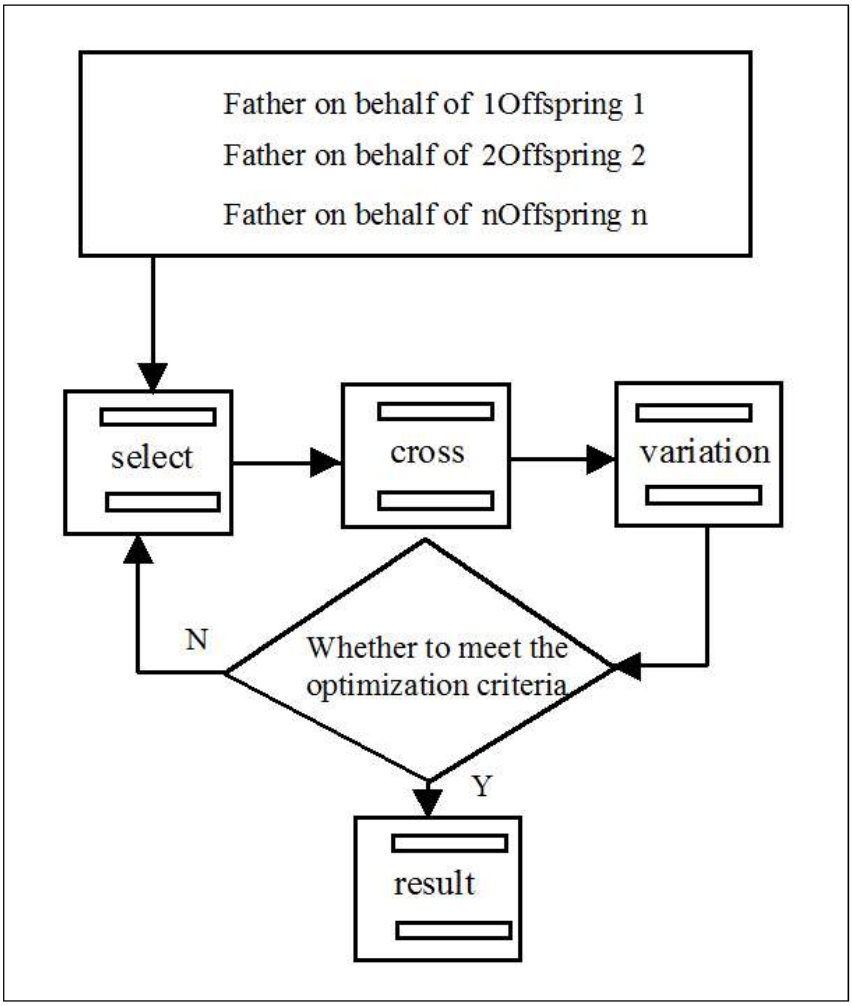

Figure 2. Reliability analysis of tourism online evaluation

4. Result Analysis and Discussion

After the algorithm research is completed, it is the next algorithm test, which randomly selects the initial data node from the database as the test number. It has been tested before the performance of the algorithm can be said to be more ideal. At the same time, in the weighted distance algorithm, we compare it with the previous one. To make a search based on the status quo and the development of sports tourism research, we will give a set of initial data to facilitate the start of the algorithm model to solve this problem. Of course, they are taken into account. Therefore, we use the common decision tree technology. Based on its improvement and improvement, we make it more compatible with the algorithm of search algorithm and use it in it. And through the test, we are satisfied with the results it presents. After the algorithm of the search algorithm is decentralized, it will not affect the use of each function of the search algorithm model. We set the number of data sets to observe the final gap between the data and the real situation to determine the level of credibility. We set 50000 tasks, 100000 tasks, 150000 tasks, and 200000 tasks for data processing. We then judge the credibility according to the processing result and the real situation and verify the feasibility of the evaluation system based on the search algorithm.

From the above table, we can see that the data model we designed is very good in accuracy. There is not much difference between the calculated data node value and the real value, which shows that this algorithm has small and stable fluctuation. This error value is considered by people at the beginning of design. Some subjective factors in the credibility evaluation are beyond our control and acceptable. The side effect tests whether our algorithm model can be calculated quickly.

Project	50000	100000	150000	200000
Data mining algorithm result ratio	47655	86231	113422	144871
Real situation	50000	100000	150000	200000
Reliability	0.94	0.86	0.75	0.72

Table 2. Model evaluation model test result table

The testing process of the algorithm is as follows: The first is to adjust the parameters of the algorithm. We find the relative optimal data set within the maximum number of cycles and nearest the central cluster as the ending limit conditions and then treat these data sets as optimal data nodes. The data obtained from these nodes and run-time comparison can be seen as the advantages of this model. We conduct a series of tests on the convergence of the algorithm. Convergence is very important for the search algorithm. If the convergence is too fast, the algorithm cannot calculate the final optimal result. If the convergence is too slow, it may lead to a long calculation result. Instead of the rapid processing of the past technology, passing the test helps us adjust the algorithm steps. In the overall performance of the algorithm for the test, we make statistics according to the score. According to 1000 to 6000 cycles of data involved in the test, the results are shown below:

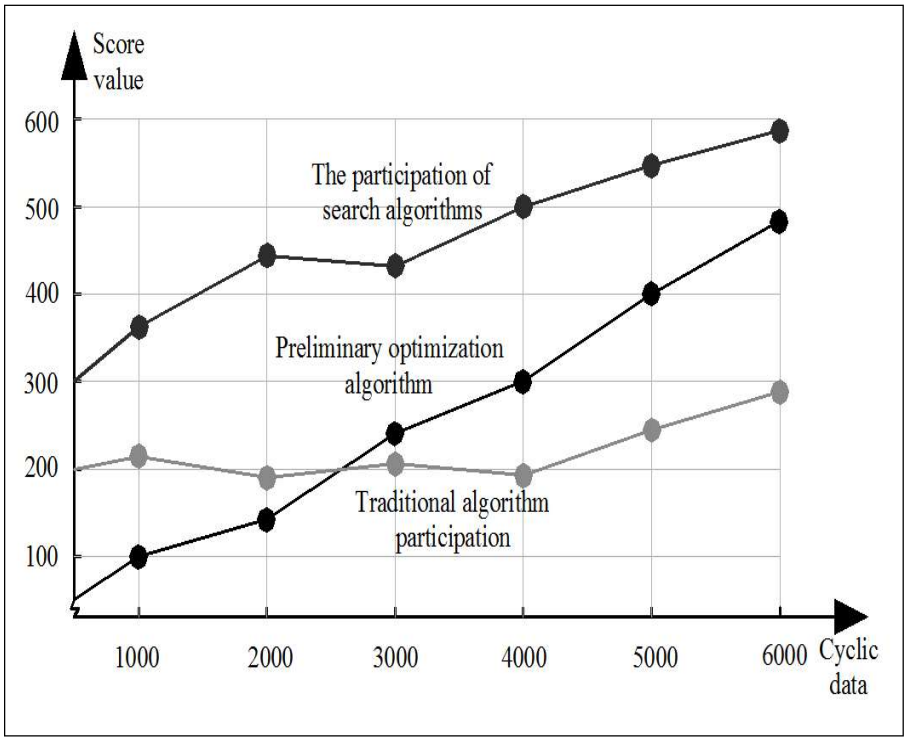

Figure 3. Comparison diagram of true value and calculated value

For the observation of this experiment, we can find out the overall satisfaction of tourists' tourism needs and the feedback from the questionnaires that tourists are involved in. We will ensure the satisfaction of tourist demand at the root of the results. In the process of further determining the accuracy of the pose of the parameter, the reference to the three-line translation theory is used to calculate the optimal value by using the three-line translation theory. That is to be completed for the final calculation of tourist travel needs of the task. The resulting computational efficiency results are shown below:

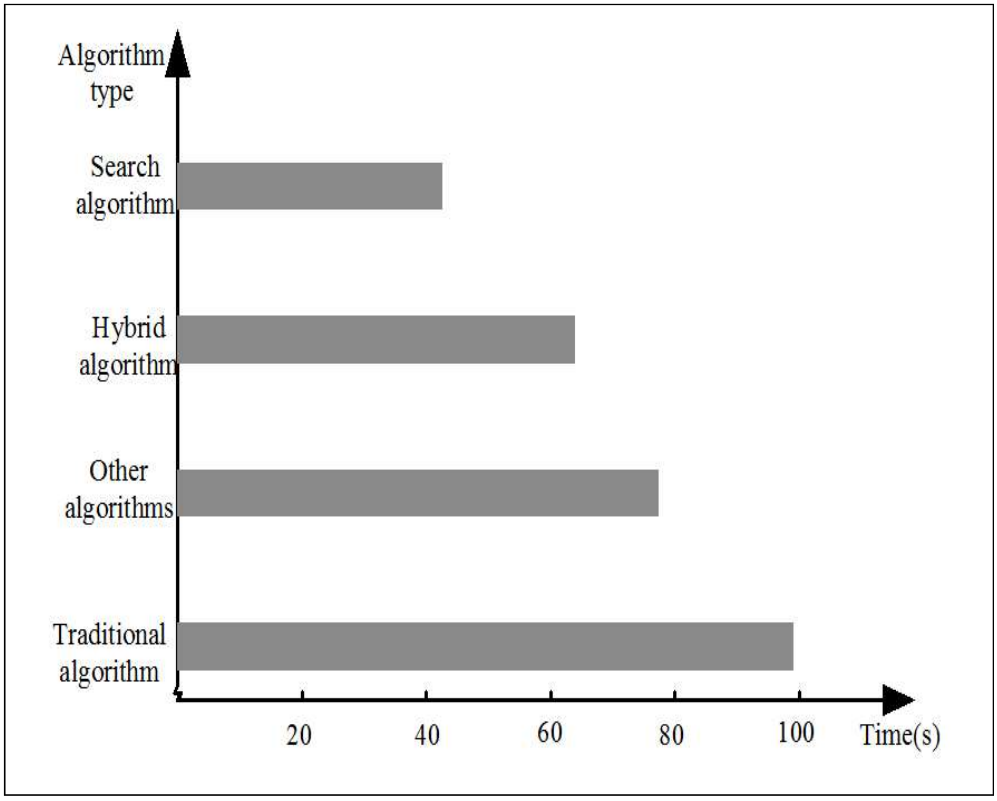

Figure 4. Efficiency comparison Test of search algorithm

As shown in the figure above, after we choose 3000 complex data, the computation time of our optimized calculation is reduced from 100 seconds to 30 seconds. The optimized search algorithm has less initial calculation time than the traditional algorithm and speed is also a lot smaller. By comparing the calculated slope of the above figure. it can be seen.

5. Conclusion

With the continuous improvement of people's living standards, new ways for sports tourism can be continuously developed, but for the moment, there is a lack of corresponding countermeasure research models. Therefore, this paper presented a search algorithm based on the status of our sports tourism and development strategies. In the research of this paper, we first made an in-depth theoretical understanding of the search algorithm. In the application of the search algorithm, we could provide a variety of choices for tourists. To carry out the travel demand plan based on the search algorithm influencing factor analysis model, we could set up the travel demand plan suitable for the travel agency's system, and we made the tourism experience of tourists a general improvement. In the test for the search algorithm, first of all, according to the research on the credibility of the algorithm, we set the data of 50000, 100000, 150000 and 200000 to determine the credibility by setting multiple sets of data to observe the difference between the finally obtained data and the real situation. We made a process evaluation and came to our design data algorithm model, which was very accurate. In the efficiency test, after selecting 3000 complex data numbers, the computation time of our optimized calculation was reduced from 100 seconds to 30 seconds. The initial calculation time of the optimized search algorithm was much less than the traditional algorithm, which proved the superiority of our algorithm. The overall test shows that our research is feasible, but the study of this paper lacks the test of adaptability to the algorithm.

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