

Application of Artificial Intelligence Algorithms in Special Scene Recognition

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Abstract: Artificial intelligence algorithm is very important for special scene recognition, so this paper analyses the types of artificial intelligence algorithm and special scene recognition, and explores the application mode of artificial intelligence in scene recognition, so as to promote the widening of the application field of artificial intelligence.

1. Introduction

With the increasing importance of special scene recognition, the application of more advanced technology has become the trend of the times. Artificial intelligence can play an important role at this time. Artificial intelligence (AI) can learn by algorithm, and gradually act like human beings. It can improve the efficiency in special scene recognition. Therefore, it is significant to explore the application of AI algorithm in special scene.

2. Artificial Intelligence Learning Method and Algorithms

2.1 Classification of Artificial Intelligence Deep Learning Styles

Artificial intelligence algorithm is characterized by its continuous learning. Supervised learning is one of the important learning methods. This learning method mainly makes the program infer hypothesis function based on labeled data, which is an important learning method of artificial intelligence. In this in-depth learning method, a large number of training samples need to be prepared to form a sample set, and each training contains input values and expected output values. Supervised learning mainly relies on in-depth learning algorithm to build a model to achieve its role. In the model, a prediction result will be produced. Then the prediction results will be compared with the final data processing results. By optimizing and adjusting the deviation, the accuracy of the model prediction results will be improved. Take Figure 1 as an example:

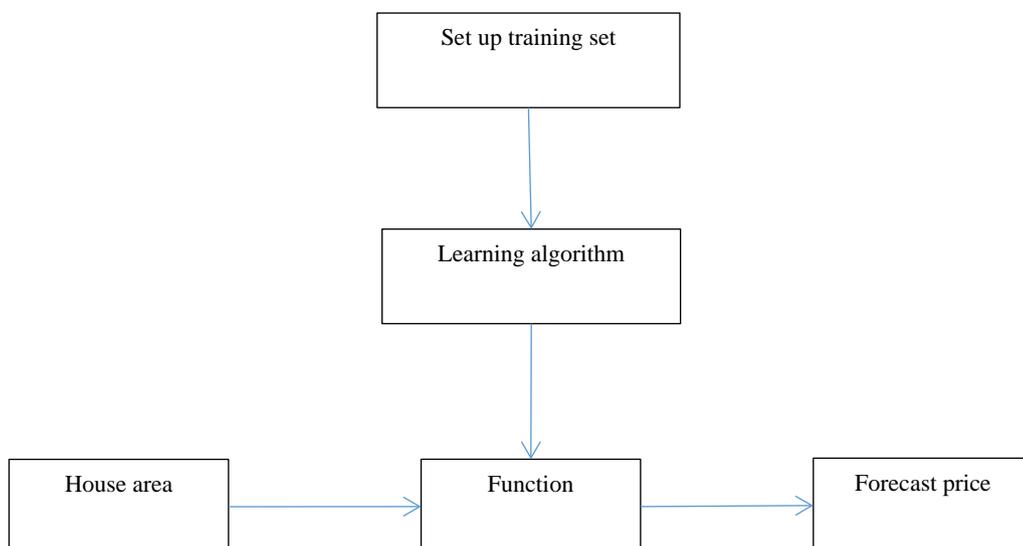


Figure 1 Supervised Learning Diagram

Fig. 1 is a learning process in which AI algorithm is applied to housing area and housing price. In this process, training assembly uses learning algorithm to establish a function, which is about housing area and price function. Thus, when new data need to be predicted, the housing area is directly input into the model. In general, this learning algorithm will be applied to classification and regression problems.

Among the deep learning methods of AI, there is also unsupervised learning, which eliminates manual input tags. The main purpose of unsupervised learning is to classify the original data according to certain scientific standards, so as to form a certain structure within the data, so as to have a better understanding of this. Therefore, non-supervised learning can not clearly express the results of data classification, nor can it judge its correctness. This method is mainly applied to rule classification and other aspects.

Semi-supervised learning is another in-depth learning mode between the two learning modes mentioned above. This learning mode is mainly used for predicting data types, and it is mostly exposed to diverse types of data, including identified data and unmarked data. At the same time, in order to achieve the prediction goal, it needs the internal structure of data. Learn and master first, then organize the data reasonably to predict. Semi-supervised learning is an extension of supervised learning, and its application scope is roughly the same. In semi-supervised learning, modeling is based on unlabeled data, and then the identified data is predicted.

2.2 Deep Learning Algorithms

The reason why AI can carry out autonomous learning is that it has deep learning algorithm, which is the core of it. Among all kinds of learning algorithms, regression algorithm is a common type of algorithm applied in the field of artificial intelligence. The regression algorithm mainly reflects the characteristics of data attributes, and at the same time, uses functional expressions to reflect the relationship between its various attributes. At present, regression algorithms are mostly used in statistical machine learning, mainly in data sequence prediction, but also in data function relationship exploration.

Case-based algorithm is also a kind of deep learning algorithm, which is mainly used to build or modify decision models. When building models, this algorithm first selects some sample data, and then compares the new data with the sample data according to the similarity characteristics of the data, so as to obtain a more efficient decision model. Type, thus having the best match.

The extension of regression algorithm makes the regularization algorithm come into being. The principle of regularization algorithm is to adjust the algorithm according to the complexity of data, so that the algorithm can be better used in building and applying models. This algorithm is mainly used in some training sets. The data in these training sets are over-fitted and the function is difficult to satisfy. Finally, the result error is too large. Therefore, the common regularization algorithms include elastic networks and so on.

Kernel-based algorithm is a reinforcement learning method, which classifies different parts of input data mapped into higher-order vector space and makes regression analysis. In this way, the function is generalized, and the reinforcement learning problem with continuous state space which can be dealt with directly is calculated off-line. Therefore, the value of scientific statistical processing can be realized based on this. This algorithm is usually applied to vector machines, radial basis functions, in addition to linear discriminant analysis and so on.

Clustering algorithm is an algorithm that takes clustering processing as the core. Clustering, as its name implies, is to take the technical content of the logical and physical connection among data as the research object. Under the clustering algorithm, the result of one can show the connection and difference between data, and can divide the data according to the law. Analytical method shows. Clustering algorithm mainly merges the input data. Its method is to find the center point and lay the data in order to achieve the maximum classification according to the inherent structure of the data. Artificial intelligence depth algorithm and other methods such as association rules learning can have a greater impact on artificial intelligence. According to Table 2, we can intuitively see the types of AI deep learning algorithms.

Table 2 Table of Artificial Intelligence Algorithms

Artificial Intelligence Algorithms				
Regression algorithm	Instance-based algorithm	Regularization algorithm	Kernel-based algorithm	Clustering Algorithm

3. Special Scene Recognition Types

At present, AI has been able to recognize some routine scenes in daily life, such as the face recognition function adopted by the popular intelligent beauties, and the face unlocking of mobile phones and the face recognition system of railway stations or payment places are also based on this. In addition, AI is also used in mobile phones. By constantly learning users' habits, AI can intelligently judge the time and frequency of users' use of applications, so as to make intelligent wake-up or clear instructions for applications, so as to improve the fluency of mobile phone systems, save electricity and enhance user experience. AI has accumulated considerable experience in conventional scenarios, and can provide analysis data for AI to recognize special scenarios. Special scene recognition is generally not involved in or touched with many scenes for AI. For example, in medicine, AI has not mature experience to be applied to clinical practice, but it is necessary to analyze it. Because AI has made breakthroughs in these special fields, it will also have a great positive impact on human beings. It brings many conveniences to mankind. In other special areas, such as in the fight against crime, artificial intelligence algorithm can be used to improve the attack rate of crime; at the same time, in China Skynet, artificial intelligence can also be used to classify and analyze pedestrian attributes, so as to achieve more accurate and non-dead-corner crime action. In addition, artificial intelligence can also be applied to natural scene recognition. Natural scene recognition is very simple for human beings. Human beings can quickly analyze natural scenes and extract and summarize the information therein, so that different natural scenes can be summarized or named, and they can have deep confidence in natural scenes. Information, scene function and social information are analyzed. This function is a great challenge to AI algorithm. However, by upgrading AI algorithm, applying AI to natural scene recognition can greatly facilitate human life and promote social progress. The above classification of scene recognition is shown in Table 3.

Table 3 Classification Table for Special Scene Recognition

Special scene recognition classification		
Medical field	Natural scene recognition	Social security field

4. Artificial Intelligence Algorithms for Special Scene Recognition

There are many attempts to apply artificial intelligence algorithm to special scene recognition. Taking natural scene recognition as an example, this paper explores the ways of applying artificial intelligence algorithm to other special scene recognition.

Artificial intelligence algorithm is generally applied to natural scene recognition from the perspective of human cognition and physiology, exploring the mechanism of scene recognition, and then compiling it into artificial intelligence algorithm. Artificial intelligence algorithms in natural scene recognition can be roughly divided into two categories: one is to assist in scene recognition for physiological research, to simulate and verify the operation process and mode of human brain in natural scene recognition; the other is to understand itself in the way of artificial intelligence itself from the perspective of artificial intelligence. However, the scene, thus forming a natural scene recognition that is no different from human beings. The second way requires AI to answer questions about natural scene pictures, and to have its own understanding and interpretation of the scene, just like human beings. In order to achieve this idea, many computer scholars constantly put forward artificial intelligence algorithm model, in order to extract effective features and attributes from scene images, and then make artificial intelligence study this model, such as clustering algorithm,

and finally form artificial intelligence which has the ability to recognize and classify unfamiliar natural scenes. Status. In this respect, many scientists are in favor of Bayesian probability model. According to Bayesian theory, when the posterior probability is set to the current visual input data D, the probability of hypothesis H is made for the scene. The algorithm is as follows:

$$P(H | D) = \frac{P(D | H)P(H)}{P(D)}$$

Among them, P (D) is the probability of visual input data, P (H) is the prior probability and P (H | D) is the similarity. Based on this, artificial intelligence algorithm for scene recognition is determined by knowledge and experience and scene information, so it is necessary to proceed with algorithm learning from this aspect.

5. Conclusion

In a word, AI algorithm has broad application prospects in special scene recognition, but at present AI is still in the development stage and related research is still in a deficient state, so it still needs time to apply AI in special scene recognition. Therefore, it needs the continuous efforts of relevant researchers to promote AI. Can develop.

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