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EDITORIAL

Artificial intelligence, reality or imagination?

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ABSTRACT

The surprising results of recent developments in various fields of artificial intelligence application have caused people to have a feeling of amazement combined with fear of the category of artificial intelligence. In many of since filed the data play a main role for development the sciences. Meanwhile data mining is one of the main subjects in artificial intelligence. In this editorial, brief and useful explanations about artificial intelligence, artificial neural networks, machine learning and deep learning are given, which help the reader to get a correct and clear understanding of the category of artificial intelligence.

Keywords: artificial intelligence; artificial neural networks; machine learning; deep learning

Introduction & observation

Many people or even some specialists do not have a correct understanding of artificial intelligence. Of course, some exaggerations and scientific imaginations have fueled this fear mixed with astonishment. One of the reasons for the popularity of this scientific branch is the creation of effective communication between machines and humans through artificial intelligence [1]. After the invention of the computer in the early 1940s, computers solved problems through a series of logical functions (if-then) and algorithms such as the decision tree[2]. In the next step, artificial neural networks are introduced for solving problems using computers. Artificial neural network is a mathematical model of the human nervous system [3]. The human nervous system assigns a weight coefficient to each of the sensory data such as Eyesight, sense of touch, hearing and other data that human receives from his environment. These coefficients are determined in the human learning process and depend on the environment and other parameters[4]. The mathematical model of the human nervous system was used as an artificial neural network by different researchers [5]. As in the human nervous system, training plays an essential role in determining the weight coefficients of the received data, how to determine the weight coefficients of the artificial neural network in the computer is the next important issue, which is called machine learning. In traditional machine learning methods, the features of the problem that an artificial neural network must identify and which are addressed in the process of training the artificial neural network

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are determined by humans via a feature engineer [6]. A fundamental and important development in machine learning methods took place functionally in 2012 and called deep learning [7]. The main advantage of the deep learning method compared to the traditional methods, in addition to increasing the number of neural network training layers, is the unique advantage of extracting the features by the computer without the need to interact with humans to identify the required features. An example of how to extract the features automatically by using deep learning method is illustrated in Ref [8]. What has been said so far about concepts such as artificial neural network, machine learning and deep learning can be extended to all scientific fields such as medicine, industry, social and any other subjects. If we want to use these concepts to solve issues that humans deal with, we use the term artificial intelligence. Therefore, artificial intelligence is nothing but the application of mathematical relationships of artificial neural network by computers using machine learning and deep learning methods. In the all concepts expressed in this editorial, data has a central and essential role, so data mining is one of the important topics of artificial intelligence networks, which has many applications in all of the scientific fields. Considering that data mining techniques by artificial intelligence networks have made great progress in recent years, the use of artificial intelligence for data analysis has expanded greatly in other scientific fields, and one of the main reasons for the use of artificial intelligence in all of the sciences.

Conflict of interest

The authors declare no conflict of interest.

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