Machine Learning to Boost the Development of Artificial Intelligence

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Abstract

in recent years, our country has gradually increased input in the field of statistical modeling and chip design. At the same time, the progress of neuroscience is accelerating. All these have promoted the rapid development of the basic scientific research field of machine learning. What is basic learning? Under the guidance of experience, the computer can continuously improve the performance of the new discipline, but also in the case of without prior explicit programming, the computer can make a correct response in any case. Ten years ago, machine learning helped a lot of fields, such as practical speech recognition, human genome identification, autopilot and so on.

Keywords

Machine Learning; Artificial Intelligence; Development.

1. Development of Artificial Intelligence

At present, artificial intelligence has begun to popularize and ushered in the third wave. In the face of artificial intelligence, we should not confuse the two words of 'technological progress' and' social progress'. In 1956, the concept of artificial intelligence began to enter our life and then developed rapidly. By 1960s, the most amazing thing is that most of the theorems in the second chapter of mathematical principles can be proved in artificial intelligence programs. But at the end of 1970s, AI became a cold door and entered a cold winter. After that, we introduced new knowledge, and this once again promoted the development of human beings. At this time, the machine played its strength - quick reasoning. To 1990s, a new concept, machine learning, can be used to automatically extract knowledge from the data, and this time the peak of artificial intelligence has been fully ushered in. However, some scholars have suggested that we must not confuse the two terms of "technological progress" and "social progress". Although the industrial revolution originated from the promotion of steam engines, it also changed the society and increased productivity. But this great progress is not derived from the steam engine itself, but the process of the steam engine. This process has been constantly made by us, making it escalating, and this is "social progress". Technological progress refers to the development of technology itself.

2. Singularity

Let's take the steam engine as an example to see if there are any singularity in the development of technology. Yu Yang pointed out that as we began to refine the engineering process, the steam began to take great action, which was originally used to push the lid of the pot, and now the ship began to be driven by steam. However, in the process of development, due to the shortage of the steam engine itself, it is gradually replaced by the internal combustion engine. It is not difficult to draw the conclusion that "steam engine has been progressed in principle". This shows that technology is a little progress. From the point of view of Figure 1, the rough line is "S" type development. If we only observe the former part of development, this will lead us to the "singularity" theory.
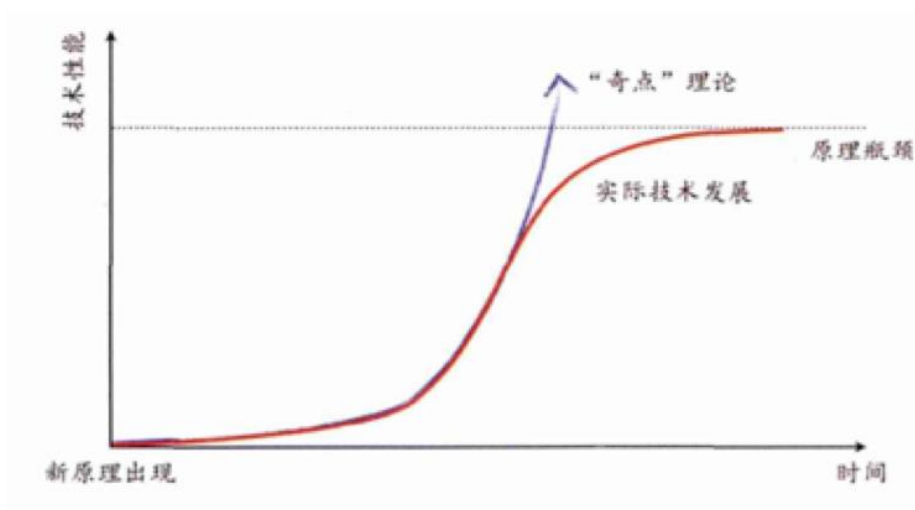
Figure 1. development of Technology

In the "Moore's law" of chip development, the theory of singularity is well proved. Gordon Moore predicts that transistors and resistances exist on semiconductor chips, and their number is expected to double every year, that is exponential growth. If we keep developing at such a speed, the "singularity" will come soon. But in practice, Moore has made a change to the earlier expectations in 1975, and this time he has "doubled every 2 years", and after this change, every chip factory is constantly trying to verify that the law is feasible. It was not until 2016 that the international semiconductor technology roadmap was released that it declared the failure of Moore's law.

Computer CPU's main frequency is beginning to step into the rapid growth phase from 1990s, which has changed from "high core" to "multi core" now, and now it is beginning to change towards "low energy". This phenomenon is a perfect demonstration of the development of S, which shows that "singularity" has never appeared before.

In the 2016.3 month, there was a shocking news: AlphaGo's victory over Li Shi, the news that we were full of expectations for artificial intelligence, which could drive our lives to a better development. However, we also need to make sure that the design of AlphaGo is based on the principle of 10 years ago.

3. Machine Learning to boost the Development of Artificial Intelligence

Artificial intelligence has 60 years of development. In this course, there is a good catalyst, machine learning, which belongs to the branch of artificial intelligence. It has been developed as the most active part of computer science. Under the function of the algorithm, the computer can find out from a large number of data, and finally find the information we want, and then explore the future from it, in order to realize the identification of the new samples, and have a certain prediction for the future. The speed of the development of machine learning is getting faster and faster with the development of our society. At this time, the scope of the machine learning is becoming more extensive, and the number of scholars in the field of machine learning has increased dramatically. The Turing Award winners in the computer field have studied machine learning.

According to different learning methods, machine learning has 4 main categories: machine learning, inductive learning, teaching learning, analogy learning. With the promotion of social development, we have increased the use and demand of data. At the same time, the induction of learning is also developing slowly. To 1980s, the status of inductive learning is becoming more and more important. Inductive learning is the abstraction of a case, abstracting its data, and then summarizing the rules behind it. There is a branch of inductive learning called supervised learning. Figure 2 is a schematic diagram of supervised learning. In the actual case of our life, when we buy watermelons, we buy a

curly watermelon with a curly root when we cut it, and the melon and fruit are very ripe after cutting it. The relationship is introduced into the machine learning model, which guides the choice of watermelon later.
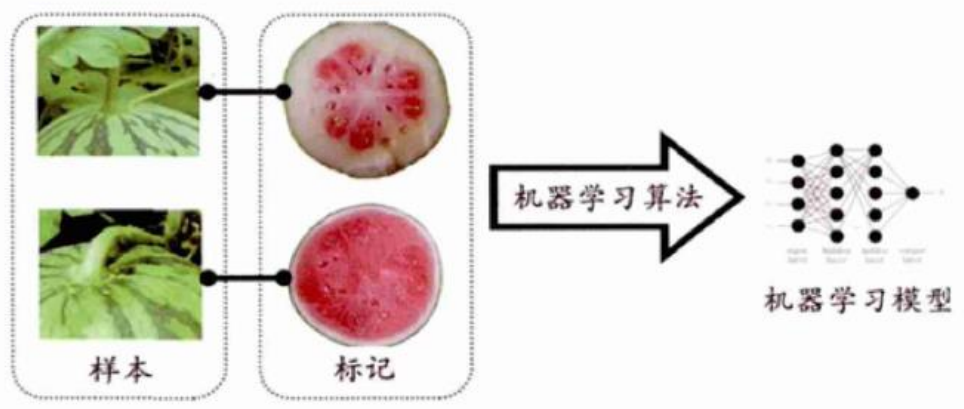

Figure 2. supervised learning schematic

Another branch of inductive learning is "unsupervised learning", which is a kind of learning for unlabeled samples. In addition, "weak supervised learning" is also a small branch, which is between supervised and unsupervised learning. Reinforcement learning is actually a weak supervised learning. We need to get data labels through our own exploration.

On machine learning, a large number of scholars have found that its application has not only been in the field of intelligence, in the "bottom" field of computer, but also began to gradually appear machine learning, many Internet Co have risk the prospect of machine learning, began to invest in machine learning, Google Corporation is the most For its success, the driverless and eyeglasses developed by it are the embodiment of machine learning.

4. Opportunities and Challenges Coexist

What is the purpose of "Internet +"? In my view, we can use the Internet to use it as a tool to get the specific needs of the user and to provide personalized services / products to him for his needs. In this view, AI is a crucial technology.

Some scholars have pointed out that to understand the user's tendencies, and to predict their needs, and to match the best solution to the needs of the user through our analysis, that is, to play a good role in the artificial intelligence technology in this process, which is a great opportunity to show its potential, and It is also a good opportunity to verify whether our technology is up to standard.

In recent years, the speed of the development and progress of artificial intelligence is quite fast. With the development of the social environment, the realization of the popularization of artificial intelligence is just around the corner. In our life, artificial intelligence will be used in all aspects. That is to say, we are moving towards the direction of "artificial intelligence +". Professor Yang Qiang, chairman of the International Joint Conference on artificial intelligence and the director of the computer department of Hong Kong University Science & Technology, said: "at present, the level of artificial intelligence in our country is equal to the international level, not below the international level. In the next development process, we will face the future of" human intelligence + "in the future. Continue to walk in the forefront, in the development and application of artificial intelligence in the field is absolutely not willing to be weak, to be able to play a leading role in the world and lead the whole international artificial intelligence forward.