

The Future Development Trend of Artificial Intelligence

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Abstract: Artificial intelligence, abbreviated as AI, is also called machine intelligence. In the last 10 years, the term "deep learning" has been proposed. Artificial intelligence has made a great breakthrough and is gradually changing our lives. Artificial intelligence involves statistics, probability theory, matrix, algorithm, programming, distributed computing and other fields. At present, the research of artificial intelligence has achieved good results from three aspects: mathematical model, calculation method and application driving.

1. Current Research

At present, artificial intelligence technology has made rapid development in foreign countries; similarly, in China, many large companies have joined in the research, such as Alibaba, Tencent, Baidu and other companies, increased their research investment. Both hope to make achievements in areas such as autonomous driving and cloud computing.

2. Technology Application

With the development of AI technology, many fields will change, such as:

2.1 Imitation game

I suggest thinking about the question: "can machines think?". To answer this question, we need to give the definitions of "machine" and "thinking". We can define these words as close as possible to their common usage. But this is dangerous. If we use this method, we will probably use the statistical method like Gallup survey to get the conclusion and significance of "can machines think?". Obviously, this is ridiculous. So instead of trying to give a definition, I asked another question. This problem is closely related to the original problem and is given in unambiguous terms.

This new problem can be described by a game, which may be called "imitation game". Three people are needed to play the game. A man (a), a woman (b) and a questioner (c) are available for both men and women. The questioner stayed in a room separate from the other two. The goal of the game is to ask people to judge who is a man and who is a woman. At the end of the game, he will say "x is a, y is B" or "x is B, y is a". Questioner C allows the following questions to be asked to a and B:

C: X, please tell me the length of your hair.

Now if x is actually a, then a must answer. A's goal in the game is to try to make C make a wrong judgment. His answer can be:

My hair is black and shiny. The longest strand is about nine inches long.

In order to exclude the voice and help the questioner to come to a conclusion, the answer to the question can be written and typed better. The ideal arrangement would be for two rooms to print and communicate remotely. You can also pass on the answer through an intermediary. B's task in this game is to help the questioner get the right answer. Her best strategy may be to give the right answer. She can add "I'm a woman. Don't listen to him." Such words. But men a can also make similar comments. So that doesn't help much.

Now let's ask the question, "what will happen if we use a machine to play the role of a?" does the frequency of the questioner's misjudgment change compared with that of two people playing the game?

This question replaces the question "can machines think?".

2.2 Comment on new problems

You may ask, "what's the answer to the new question?". It's also possible to ask, "does this new question really have research value?" We will solve the second problem first, so we will not enter an infinite cycle.

The advantage of this new problem is that it completely distinguishes one's physical strength from one's intelligence. No engineer or chemist claims to be able to produce exactly the same substance as human skin. One day in the future, it may become a reality. But while such an invention is possible, giving a "thinking machine" human skin doesn't help make it more human like. The way we set up the problem takes this into account. Because we make it impossible for inquirers to see, touch or hear other players. Other advantages of the new criteria are shown in the sample questions and answers below.

Q: please write a poem with the theme of Forth Bridge.

A: There's nothing I can do. I can never write poetry.

How much is 34957 plus 70764?

A: (pause for 30 seconds and give the answer) 105621.

Do you play chess?

A: play.

Q: my king is at K1, there is no other chess pieces. You only have king at K6 and car at R1. It's your turn. What's your turn?

A: (after a 15 second pause) the car moves to R8, general.

This form of question and answer is applicable to almost all forms of human behavior that we want to include. We don't want to think a machine is incompetent because it can't win a beauty contest, just as we can't think a person is incompetent because he can't win a race against an airplane. Our game settings make these incompetence irrelevant. Participants can boast as long as they think it's appropriate. You can describe yourself as charming, strong, brave and fearless. And the questioner can't ask them to make a real show.

The criticism of the game may be that machines account for too much of the success or failure of the game. If a man tries to pretend to be a machine, he must be a bad actor. He will be exposed immediately because of his slowness and inaccuracy in arithmetic. Does the machine solve some problems that should be thought, but its solution is far from that of human? This objection is really tricky. However, at least we can say that, in spite of this, the machine can be designed to play the imitator game well. We don't need to worry too much about it.

In one case, the best strategy for a machine to play a game of imitators is to do something else instead of imitating human behavior. This is possible. But I don't think it's going to take much effort. In any case, this paper does not attempt to study the theory of the game. We assume that the optimal strategy for machines is to try to provide the same answers as people.

2.3 Machines in the game

The question raised in 1 is only certain when we determine the meaning of the word "machine". Naturally, we hope that all engineering technologies will be allowed to be used on our machines. We also hope that there is a possibility that one or a group of engineers can make a working one, but its working way can not be described well by its builder, because they use a test-based method to design it. Finally, we want to exclude people born through childbirth from the concept of "machine". It is difficult for a definition to meet these three requirements at the same time. For example, you might ask these engineers to be of the same gender, but that's actually not enough. Because it is not impossible to produce a complete individual through a single skin cell. This will be an epoch-making breakthrough in biotechnology. But we don't want to make it "a thinking machine.". This requires us to abandon our intention to allow all technology. We prefer to do so,

because the current research focus of "thinking machine" focuses on a special kind of machine, usually called "electronic computer" or "digital computer". Therefore, we only allow "digital computers" to participate in our games.

At first glance, the restrictions seem too strict. This is not the case. First, we need to have a brief understanding of these computers and some of their properties.

You might say: if digital computers can't perform as I wish, that is, in games, it's just disappointing to replace them completely with digital computers, just like the criteria we set for thinking.

At present, there are many digital computers working. People may ask, "why not experiment with one directly? It's easy to meet the requirements of the game. At the same time, many questioners are used to participate in the game, and then the probability of correct judgment is calculated. The short answer to this question is: we don't want to ask whether all digital computers can perform well in the game, or whether any of the current computers can pass the experiment. It's about asking: is there an imaginary machine that can go through the game. This is just a brief answer, which will be considered from another perspective later.

Conclusion

Artificial intelligence has made a lot of achievements. The most typical one is the appearance of alpha dog, which has defeated many go world champions and achieved outstanding results. Its appearance has changed many ways of thinking of human beings. In recent years, major companies are constantly studying autonomous driving, which may change our way of travel in the future.

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