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Photonic Chips for Machine Learning

A photonic chip is a multi-layered information processing element. Through the silicon channel, the processing speed of the photonic chip is very fast. Therefore, extremely fast information processing technology can make photonic chips have a priority in data information and simulation of real-world problems. At the same time, when data transmission is performed in the transistor body, the data loss is very small. With this excellent performance, photonic chips are undoubtedly the most competitive information processing products.

In the information age, the ability to collect and process information means a product's excellent response mechanism. The huge information processing ability also enables the machine to have a certain learning ability. Although many technological products in the current market can meet people's speed requirements for information acquisition, faster processing speed will also enable better machines to be developed. As a new generation of information processing chips, photonic chips can further drive the development and upgrade of new-generation technology hardware due to their commercial value.

As people's research and use of artificial intelligence deepen, the information processing of artificial intelligence also increases. Although the current artificial intelligence is still in the framework of information processing, this does not mean that their processing speed of information is relatively low. For example, the automatic driving of a car, whether it is the collection of information on the road environment and the control of the car, the huge information processing depends on the processing power of the chip. With the upgrading of the automobile industry, a car with excellent self-driving capabilities is more attractive. When people start asking for autonomous driving to work in emergency situations, extremely fast information processing and system responses are very useful.

Meanwhile, excellent information processing ability can speed up AI's self-learning ability. The very famous AlphaGo is to use the huge Go information to digitize, and to learn Go ability by constantly playing against itself. The information processing capability of photonic chips can further accelerate the self-learning process. Not only the ability to speed up information collection, but the faster processing of self-battle, the faster the rate of information accumulation.

As an experimental product, most of its functions are implemented in the laboratory. However, in the scientific research stage, any function is obtained through a large number of experiments, which also means a lot of scientific research funds. When a photonic chip wants to be commercialized, it will face a lot of cost challenges. Price is always the ultimate test of a product for the masses. When companies want to promote photonic chips, reducing production costs may be the best choice. But silicon crystals are the basis of photonic chips, so considering synthetic materials can reduce manufacturing costs. However, the research and development costs of synthetic materials are also high. Therefore, the commercial use of photonic chips depends on whether the company can pass cost accounting and business value. In other words, if the buyer can show sufficient purchasing power, then the commercial value of the photonic chip will be revealed.

Photonic chips are a promising information processing technology. People expect to process information faster. Although this technology still faces high price and practicality test, better products are always worth looking forward to.

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Cites

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