

Artificial Intelligence

In computer science, the term artificial intelligence (AI) refers to any human-like intelligence exhibited by a computer, robot, or other machine. In popular usage, artificial intelligence refers to the ability of a computer or machine to mimic the capabilities of the human mind—learning from examples and experience, recognizing objects, understanding and responding to language, making decisions, solving problems—and combining these and other capabilities to perform functions a human might perform, such as greeting a hotel guest or driving a car.

After decades of being relegated to science fiction, today, AI is part of our everyday lives. The surge in AI development is made possible by the sudden availability of large amounts of data and the corresponding development and wide availability of computer systems that can process all that data faster and more accurately than humans can. AI is completing our words as we type them, providing driving directions when we ask, vacuuming our floors, and recommending what we should buy or binge-watch next. And it's driving applications—such as

medical image analysis—that help skilled professionals do important work faster and with greater success.

1.Origin

It contains 4 parts including **The germ of the idea, The beginning, The precursor, First introduced as a discipline**

In the 17th century, Pascal and Leibniz had an early idea of intelligent machines.

In the 19th century, British mathematicians Boole and de Morgan developed the "laws of thought".

In the 1820s, the British scientist Babbage designed the first "computing machine."

In 1956,artificial intelligence was first introduced as a discipline at a conference held at Dartmouth University.

2. Development

2.1 Time Line

2.1.1 Initial Development :1956 to early 1960s

After the concept of artificial intelligence was put forward, a number of remarkable research results have been obtained, such as machine theorem proof, checkers program and so on, which set off the first climax of the development of artificial intelligence.

2.1.2 Rethinking Development Period :1960s to early 1970s

People began to try more challenging tasks and put forward some unrealistic R & D goals. However, successive failures and the failure of expectations have brought the development of artificial intelligence to a low point.

2.1.3 Application Period: early 1970s to mid-1980s

The expert system appeared in 1970s realized the artificial intelligence from the theory research to the practical application. The expert system has been successful in medical, chemical, geological and other fields, promoting artificial intelligence into a new high tide of application development.

2.1.4 Dull Development: mid-1980s to mid-1990s

With the increasing application scale of artificial intelligence, the problems and shortcomings of expert system are gradually exposed, and the development of artificial intelligence has encountered bottlenecks.

2.1.5 Steady Development: mid-1990s to 2010

Because of the development of network technology, especially Internet technology, the innovation research of artificial intelligence is accelerated, and the artificial intelligence technology is further applied.

2.1.6 Vigorous Period :2011 to date

With the development of information technology such as big data, cloud computing, Internet of things and so on, artificial intelligence technology has developed rapidly and crossed the "technological gap" between science and application. Artificial intelligence technology such as image classification, speech recognition, man-machine game, driverless technology and so on have achieved technological breakthroughs and ushered in a new climax of explosive growth.

2.2 Space Line

2.2.1 EU(European Union)

The EU is launching a number of initiatives to promote open data sharing. On the one hand, it encourages wider sharing of privately owned data and

provides legal and technical support for data sharing; on the other hand, it encourages the public sector to synchronize the opening of information and provide corresponding data acquisition and preservation advice to maximize data flow and sharing.

2.2.4 America

The United States has obvious advantages in the development of artificial intelligence. Scientific research institutions have brought continuous innovation to artificial intelligence. Rapid iteration of relevant innovative products.

Silicon Valley is the key area of artificial intelligence development. In the scale of artificial intelligence financing, the United States dominates the world, accounting for more than 60 percent.

2.2.5 Germany

The German government plays an important role in the primary stage of the development of industrial robots, leading the development of industrial robots to the direction of intelligence, lightweight, flexibility and high energy efficiency. Germany focuses on service robots to speed up the development and application of intelligent robots. Germany is in the forefront of the world in sensor, vehicle intelligent system and some other technical fields.

2.2.8 Chinese

On July 20,2017, the Chinese government suddenly announced that, by 2030, it must seize the global commanding heights of artificial intelligence! By 2030, the theory, technology and application of artificial intelligence will reach the world's leading level and become the world's leading innovation center of artificial intelligence.

2.3 Current Situation And Application

2.3.1 Current Situation

As the most promising technical field in the new era, artificial intelligence has been used and developed in many fields, such as man-machine war in go and Alpha Go. However, we have to admit that the development of artificial intelligence technology has not reached a very mature stage, and the artificial

neural network simulated by computer can not be compared with the real brain. Although artificial intelligence has made good achievements in image recognition and many mature products have appeared in industry, artificial intelligence is limited by the defects of the model in natural language processing and can not really achieve perfect machine translation, pattern recognition and other applications.

2.3.2 Application of Artificial Intelligence in Electrical Engineering

1. Electrical product design

Intelligent technology can realize the automatic establishment of design module, and help designers to find the loopholes in the design scheme, combined with scientific data to analyze and compare the design scheme, improve the reasonable design of electrical products.

2. Automatic control of electrical engineering

Neural network control is applied to electrical engineering, so that the machine has "human wisdom and perception ", can repeatedly remember and learn by itself. And through a series of data analysis to achieve the control of the machine, the machine can run accurately.

3. Strengthening etiological diagnosis of electrical engineering automation control

Artificial intelligence realizes real-time and omni-directional monitoring of mechanical equipment, prevents and reminds the occurrence of danger and fault, and can accurately analyze the root cause of fault after fault occurs.

3. Future

- Artificial intelligence will develop from dedicated intelligence to universal intelligence.
- Artificial intelligence will develop from artificial intelligence to human-machine hybrid intelligence.
- Artificial intelligence will develop from "artificial and intelligent" to autonomous intelligent system development.
- Artificial intelligence will accelerate cross-penetration with other disciplines.
- The artificial intelligence industry will flourish.
- Artificial intelligence will push humanity into a universal intelligent society.

- International competition in the field of artificial intelligence will become increasingly fierce.
- The sociology of artificial intelligence will be on the agenda.

参考网址：

<https://zhuanlan.zhihu.com/p/28992644>

https://www.sohu.com/a/344786658_719640

<https://baijiahao.baidu.com/s?id=1620709029262482231>

https://www.360kuai.com/pc/933d060cd1276cd09?cota=4&kuai_so=1&tj_url=so_rec&sign=36057c3bbd1&refer_scene=so_1

<https://zhuanlan.zhihu.com/p/117238935>

http://www.cac.gov.cn/2019-02/16/c_1124122584.htm

<https://kns.cnki.net/KXReader/Detail?TIMESTAMP=637473642865576171&DBC CODE=CJFD&TABLEName=CJFDAUTO&FileName=DZBH202102084&RESULT=1&SIGN=Uk6jNRjfVUC%2bTBSnQVQ1QoOTA0g%3d>