

The Evolution of Artificial Intelligence Then and Now: A Survey

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Abstract-Artificial intelligence is the science and engineering of intelligent technology that aims to create, identify and provide human information. AI research is based on tools and techniques in various disciplines such as legal logic, probability theory, decision theory, business science, linguistics, and philosophy. In this paper, we'll start with an introduction to the general field of artificial intelligence and then move on to the birth, history, and future technologies of artificial intelligence.

Index Terms-Artificial Intelligence, birth, and evolution of artificial intelligence, AI applications, and future technology.

I. INTRODUCTION

Artificial intelligence (AI) refers to simulating human intelligence with a machine that is programmed to think like a human and imitates behavior. The term also applies to all machines that exhibit properties related to the human mind, such as learning and troubleshooting.

Artificial intelligence (AI) is the ability of a computer or computer-controlled robot to perform tasks normally performed by humans because it requires human intelligence and discernment. No AI can perform a variety of tasks that ordinary humans can, but some AIs can match humans in certain tasks. The term is frequently applied to projects that develop systems with intellectual processes characteristic of humans, such as the ability to reason, discover meaning, generalize, or learn from experience. Since the development of digital computers in the 1940s, it has been shown that computers can be programmed to perform very complex tasks with great skill, such as discovering proofs of mathematical theorems and playing chess. Nevertheless, despite the continuous *A. Review Stage*

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improvement of the processing speed and memory capacity of computers, there is still no program comparable to human

flexibility in tasks that require a wider area and daily knowledge. Meanwhile, in this limited sense, artificial intelligence can be found in a variety of applications, such as diagnostic health care services, computer search engines, and speech or handwriting recognition. This is because some programs reach the performance levels of human experts and experts at certain runtimes. work.

According to John McCarthy, the father of artificial intelligence, "the science and engineering of creating intelligent machines, especially intelligent computer programs," is the definition of artificial intelligence.

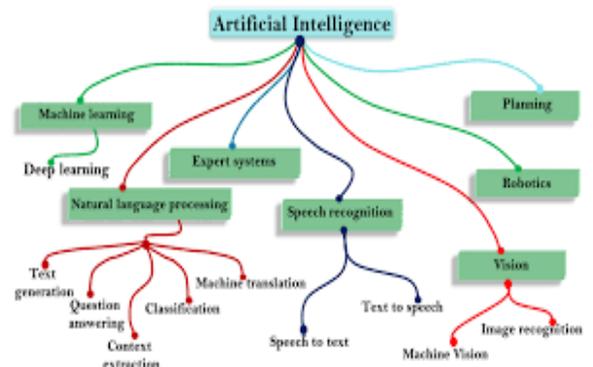


Figure :1 Subfield of Artificial Intelligence

II. LITERATURE REVIEW

THE BIRTH AND EVOLUTION OF AI

Artificial intelligence (AI) is a field of science, theory, and technology (including mathematical logic, statistics, probability, computational neurobiology, and computer science) that aims to mimic human cognitive abilities 60

years ago. The evolution of this technology, which began on the breath of World War II, is closely related to the evolution of computing, where computers perform increasingly complex tasks that were previously entrusted only to men.

However, since 2010, the field has experienced a new boom, mainly due to significant improvements in the computing power of computers and access to large amounts of data.

A. MATURITY OF ARTIFICIAL INTELLIGENCE (1943-1952)

1943: The first work now recognized as AI was done by Warren Sturgis and Walter Pitts in 1943. They came up with a model of artificial neurons.

1949: Donald Hebb presents a renewal rule to modify the strength of connections between neurons. His rule is now called Hebbian learning.

1950: Alan Turing, British mathematician and machine learning pioneer in 1950. Alan Turing publishes "Computing Machinery and Intelligence" which proposed the test. This test can confirm a machine's ability to exhibit intelligent movements equivalent to human intelligence, called the Turing test.

B. BIRTH OF ARTIFICIAL INTELLIGENCE (1952-1956)

1955: Alan Newell and Herbert A. Simon create the "First Artificial Intelligence Program" named "Logic Theorist". The program proved 38 out of 52 mathematical theorems and found new and elegant proofs of some theorems.

1956: The term "artificial intelligence" is first adopted by American computer scientist John McCarthy at the Dartmouth Conference. For the first time, AI was created in the academic field.

At that time, higher-level computer languages such as FORTRAN, LISP, or COBOL were invented. The enthusiasm for AI at that time was very high.

C. GOLDEN AGE - EARLY ENTHUSIASM (1956-1974)

1966: Researchers focus on developing algorithms to solve mathematical problems. Joseph Weizenbaum created the first chatbot in 1966 and named it ELIZA.

1972: Japan's first intelligent humanoid robot is manufactured & named WABOT-1.

D. FIRST AI WINTER (1974-1980)

The period from 1974 to 1980 was AI's first winter period. The AI winter is when computer scientists faced a severe shortage of public funding for AI research.

During the AI winter, public relations interest in AI plummeted.

E. AI BOOM (1980-1987)

1980: After the AI winter period, AI returns to the "expert system". The expert system is programmed to emulate the decision-making abilities of human experts.

In 1980, the first national conference of the Association for the Advancement of Artificial Intelligence was held at Stanford University.

F. THE 2ND WINTER OF THE AI (1987-1993)

The period from 1987 to 1993 was AI's second winter period. Again, investors and governments have stopped funding AI research because it is expensive but not effective. Expert systems like XCON were very profitable.

G. THE EMERGENCE OF INTELLIGENT AGENTS (1993-2011)

1997: In 1997, IBM Deep Blue became the first computer to beat world chess champion Gary Kasparov and defeat world chess champion

H. FROM 2010 TO THE PRESENT

The current decade is critical to AI innovation. Since 2010, artificial intelligence has been integrated into our daily life. We use smartphones with voice assistants and computers with the 'intelligent' features that most of us take for granted. AI was no longer a dream come true, and it hasn't been there for a while.

2010: ImageNet launched the annual AI object recognition Challenge Visual Recognition Challenge (ILSVRC) their annual AI object recognition competition.

2010: Microsoft introduced the Kinect for Xbox360, the first gaming device to track human movement using a 3D camera and infrared sensing.

2011: Watson, a natural language question-and-answer computer created by IBM, beats two former Jeopardy! TV game champions Ken Jennings and Brad Pitt.

2011: Apple launches Siri, a virtual assistant for the Apple iOS operating system. Siri uses a natural language user interface to guess, observe, answer, and recommend things to human users. Adapts to voice commands and projects a "personal environment" for each user.

2012: Jeff Dean and Andrew Ng (Google researchers) trained a large neural network of 16,000 processors to recognize images of cats (though without background information) and display 10 million unlabeled images from YouTube videos.

2013: A research team at Carnegie Mellon University launches Never Ending Image Learner (NEIL), a semantic machine learning system that can compare and analyze image relationships.

2014: Microsoft launched Cortana; a virtual assistant version like Siri on iOS.

2014: Amazon created Amazon Alexa; a home assistant that evolved into a smart speaker that acts as a personal assistant.

2016: A humanoid robot named Sophia is created by Hanson Robotics. She is known as her first 'robot citizen'. The difference between Sophia and the previous humanoids is that they resemble real humans. She can see (image recognition), make facial expressions, and communicate through artificial intelligence.

2016: Google launches Google Home. A smart speaker that uses AI to act as a 'personal assistant' and allows users to remember tasks, make appointments and retrieve information by voice.

2017: Facebook Artificial Intelligence Research lab trained two dialog boxes (chatbots) to communicate with each other to learn how to negotiate. But as chatbots conversed, they diverged from human language (programmed in English) and invented their own language to communicate with each other.

2018: Alibaba (Chinese Technology Group)'s language processing AI surpasses human intelligence in Stanford's reading comprehension test. Alibaba's language processing scored "82.44 against 82.30 with a set of 100,000 questions". This is a bit of a defeat, but still a defeat.

2018: Google developed BERT. This is the first "interactive, teacherless representation of language that can be used in a variety of natural language tasks using transfer learning".

2018: Samsung announced Bixby, a virtual assistant. Bixby's features include Voice, which allows users to speak, ask questions, make recommendations, and make suggestions. vision. Bixby's 'view' feature is built into the camera app to see what the user is looking at (i.e., identify objects, search, buy, translate, recognize landmarks). and Home. Bixby uses app-based information to assist users in using and interacting with (such as weather and fitness applications).

[AI] is going to change the world more than anything in the history of mankind. More than electricity."— AI oracle and venture capitalist Dr. Kai-Fu Lee, 2018

In the same era as today, the speed of evolution is faster than in the past. From Alexa and SIRI to autonomous vehicles, Alpha Zero, and Sofia, today's technology is evolving very rapidly.

AI APPLICATIONS AND FUTURE TECHNOLOGY

Artificial intelligence has been used in a variety of fields, including medical diagnostics, stock trading, robot control, law, remote sensing, scientific discovery, and toys. However, many AI applications are not recognized as AI. "A lot of cutting-edge AI isn't called AI, it's filtered out as a generic application because once something is useful enough and generalized, it won't be marked as AI," Nick Bostrom reports. "Thousands of AI applications are deeply integrated into the infrastructure of every industry." However, few recognized this success in this field.

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1. HEALTH INDUSTRY

India accounts for 17.7% of the world's population and is the second-largest country in terms of population in China. There are no health facilities for everyone in the country. Because there are no good doctors. There are still people who have difficulty accessing doctors and hospitals due to a lack of infrastructure. AI can provide symptom-based disease diagnosis facilities. Without a visit to the doctor, the AI reads an individual's fitness band/ medical history to analyze patterns and recommend appropriate medications. Or transfer via mobile phone at your fingertips Google's deep thoughts can already surpass doctors to detect deadly

illnesses such as breast cancer. It wasn't long before AI detected common illnesses and provided appropriate drug suggestions. The result is as follows: If you don't need a long-term doctor, you'll have less employment.

2. EDUCATIONAL AI

The development of the country depends on the quality of education that young people receive. You can see that there are many courses that can be taken with AI now. But in the future, AI will change existing teaching methods. In most cases, the world today does not require skilled workers in the manufacturing field to replace robots and automation. The education system is very efficient and can vary depending on the personality and abilities of the individual. This provides the smartest students with the opportunity to present and inspire better coping strategies.

3. FINANCIAL AI

Quantifying the growth of a country is directly related to its economic and financial situation. Artificial intelligence is widely used in almost every field and has great potential to support the financial health of individuals and countries. Manage your funds using current AI algorithms.

AI systems can consider many parameters while thinking about the best way to manage money. AI is more than a human administrator. AI-based financial strategies will change traditional trading and investment methods. For some fund management companies that cannot afford such facilities and can affect large companies, the decisions can be fatal because the decisions are quick and abrupt. Competition is always fierce and fierce.

4. MILITARY AND CYBERSECURITY AI

We built an autonomous weapon system with military technology utilizing AI. This is the surest way to increase national security without creating human needs. Soon, we will see a robot army that can perform tasks as intelligent as soldiers/commanders.

AI support strategies increase mission efficiency and provide the safest way to complete a mission. The problem with AI support systems is that they cannot completely explain how to execute the algorithm. Deep neural networks learn faster and learn more continuously.

III. CONCLUSION

Artificial intelligence is an interesting area to study. AI, like many other emerging technologies, is transforming our lives daily. Intelligent devices will very certainly appear soon, making our lives easier and more comfortable. AI devices, like all other machines, follow the instructions of a human programmer. In this article, we examine the evolution of AI during the last few years, as well as the technologies that will be available soon in fields such as health, education, financial services, security, transportation, and customer service.

Humans can benefit greatly from expert systems, yet some jobs are beyond the capabilities of today's expert systems. There are several places and systems that have yet to be investigated.

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