

EDITOR'S NOTE

ChatGPT is believed to have far-reaching implications for a wide range of industries. In particular, its creative destruction effects on the knowledge production industry might be remarkable. Therefore, its values including pros and cons need to be reviewed. The first article sheds light on the differences between generative AI and knowledge generation by humans. The second article evaluates ChatGPT's potential influence from multiple perspectives.

By XIAO FENG

ChatGPT, a new achievement in generative AI, differs significantly from analytical AI. It can synthesize new information from existing data.

The new functions of ChatGPT all relate to generation, demonstrating the significant characteristic of "intelligent generation."

Quality of generation

Once it possesses generative functions, is AI infinitely powerful? The answer is no. First, both generative AI and analytical AI have their own advantages and can be complementary. Second, the quality of generation is essential. As far as the "generativity" of intelligence is concerned, it is also multifaceted

ChatGPT and knowledge production

and multi-level. Compared to human intelligence, ChatGPT's generativity is still primitive, especially in terms of creativity.

First, strictly speaking, ChatGPT's output is merely information rather than knowledge. At its current level, the "work" of ChatGPT can only be described as the "processing of information." The generated "new information" cannot be counted as "true knowledge." In this sense, proclaiming that ChatGPT has brought about "a revolution of the means of knowledge production" is still too early. Perhaps it is more appropriate to see it as a step forward in aiding, motivating, or illuminating people in knowledge production.

Second, ChatGPT's generation is a generation "from existing to existing," meaning it transforms one type of "existing" data into another, rather than a generation "from nothing to existing." The most significant generation in the field of intelligence is the generation "from nothing to existing" (e.g., raising new thoughts). With minimal or no knowledge, human intelligence can generate brand new information or knowledge. This is true of "creative generation."

Third, ChatGPT's generation is that of "observing rules," rather

ChatGPT facilitates collaborative and interconnected knowledge production between human beings and machines.

than employing capabilities while not knowing what to do. On one hand, ChatGPT is a process of rational computing in a step-by-step way, which completes inductions and generates content through a generalized statistical process.

However, human knowledge creation is full of irrational processes such as inspiration. On the other hand, ChatGPT's output is defined by existing training datasets and by its algorithms. In a sense, it is also generated in a closed training system. In this sense, generative AI cannot cope with "unexpected" situations as human intelligence can, so it does not have the ability to generate creatively.

Fourth, the increasing generative capabilities of ChatGPT have not fundamentally changed the subject-object relationship between



humans and machines. Furthermore, people are constantly generating (including reshaping) self-consciousness in their intelligent activities to cope with the environment, which is the ontological root of "high-end generative ability," namely, creative ability. In essence, ChatGPT is still only a technology of pattern recognition, which is a leap in the application of models and scenarios within the scope of machine learning algorithms.

Hybrid intelligence

The significance of ChatGPT cannot be ignored. For example, it represents significant progress in natural language processing, an

upgrade over existing search engines, a more powerful intelligent auxiliary tool, and even the hallmark of entering the "AI-generated content (AIGC) era." It gives full play to the advantages of machine thinking, and facilitates collaborative and interconnected knowledge production between human beings and machines.

A new form of hybrid intelligence or brain-computer reciprocity can be created by employing ChatGPT. Therefore, we usher in a new stage of human-machine division of labor: intelligent systems can more efficiently complete instrumental intelligent work, and human beings can more fully play their role as subjects.

In view of this, on one hand, ChatGPT demonstrates new capabilities due to the advancement and application of machine intelligence generation. On the other hand, we should also recognize that this generation is not knowledge generation in the sense of "knowledge innovation." Thus, we need to maintain a balanced perspective when evaluating its significance.

Xiao Feng is a professor from the Department of Philosophy at Shanghai University.

Reviewing ChatGPT from multiple perspectives

By XIONG MINGHUI

On November 30, 2022, OpenAI officially released ChatGPT, an online chat bot that can not only chat, but also write code and translate in real time. It is yet unclear whether this represents a "secret weapon for work" or a "fierce competitor." Whether you love it or hate it, you can't ignore it. In business terms, it is a miracle; in technological terms, it is a major innovation. At the social level, it may trigger social changes.

Technological innovations

Artificial intelligence is a technical science that studies the theory and technology used to simulate, extend and expand human intelligence and develops relevant application systems, involving philosophy, logic, computer science, psychology, linguistics and many other disciplines, covering natural language processing, language recognition, image recognition, robotics, and many other fields.

The development process of AI is often described as having three stages: the first stage is Artificial Narrow Intelligence (ANI); the second stage is Artificial General Intelligence (AGI); and the third stage is Artificial Super Intelligence

ChatGPT's technological innovations and applications demonstrate significant progress in artificial intelligence, which could potentially trigger social transformations.

(ASI). At present, the development of AI is still at the stage of Artificial Narrow Intelligence.

ChatGPT is a qualitative leap in the development of AI. Compared with previous AI products, ChatGPT's most significant feature is that it can generate text. This is a major innovation in the natural language processing (NLP) technology.

NLP studies various theories and methods to achieve effective human-computer dialogue, and ChatGPT is an optimized dialogue language model. The main applications of NLP include machine translation, automatic summarization, opinion extraction, question



answering, etc. ChatGPT is a comprehensive integration of these applications. Among them, machine translation is the key to the effective realization of human-computer dialogue, and is also a bottleneck in moving towards general artificial intelligence.

As far as NLP is concerned, the method used in the first stage is the logical method, and that employed in the second stage is the statistical method.

By organically integrating the two methods, ChatGPT has been considered as a hallmark of entering a new stage, the third stage of NLP. At this point, the bottleneck problem of marching towards general AI seems to be at least

partially solved.

Social transformations

ChatGPT's technological innovations and applications demonstrate significant progress in artificial intelligence, which could potentially trigger social transformations. ChatGPT also has implications for transforming educational methods.

Compared with traditional search engines, ChatGPT is able to achieve genuine human-computer dialogue. It can "understand" questions and give instant answers. For students, ChatGPT means that teachers are no longer the main source of knowledge.

It might even be said that as an educational goal, acquiring systematic knowledge is now subordinate to developing problem solving skills. The ability to use knowledge to solve problems may be the focus of future education. For example, cultivating critical and innovative thinking ability should become more important goals for students.

What occupations will AI replace? With the development of AI, the answer to this question has been dynamically updated. Tool iteration has occurred throughout human history, and technological revolutions will always bring social changes. Looking back on the

course of social development, the progress of human society is not merely a result of social and professional changes caused by technological innovations.

Some occupations that were once extremely prosperous later became minor, while others that were once minor prospered, which is the reality of social development.

Ethical challenges

Philosophers focus on the essence of things. So, what is the essence of ChatGPT? Renowned American linguist Noam Chomsky believes that ChatGPT is essentially a high-tech plagiarism system.

In the process of research and development, the OpenAI team has made every effort to pay attention to the training of moral standards, and has designed many moral principles to teach robots to say "no" to all kinds of hostile questions and requests.

ChatGPT presupposes the principle of answering as many questions as possible, that is, it doesn't usually say "I don't know." At the same time, it cannot identify deceptive problems.

Xiong Minghui is a professor from Guanghua Law School at Zhejiang University.