Analysis on ChatGPT Technology Ethics Governance

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Abstract: *Recently, ChatGPT, a popular "new species", has subverted the relationship between humans and technology, and its "autonomous learning" characteristic has caused various concerns among scholars. While the development of artificial intelligence brings convenience to humans, it also faces technological and ethical issues caused by technological uncertainty. Therefore, in order to fully utilize the advantages brought by ChatGPT and prevent the risks it may cause, this article concludes with conclusions and recommendations through research.*

Keywords: *Artificial intelligence; Science and technology ethics; Risk; Supervision; ChatGPT*

1. Introduction

In recent years, artificial intelligence technology has continuously subverted the original production processes and operating modes of various industries, promoting the accelerated transformation of the industrial structure of the world economy. On November 30, 2022, the American artificial intelligence company OpenAI released ChatGPT, with its "conversational" direct interaction method and "personalized" language and text services, to further experience the charm of artificial intelligence, breaking the traditional perception of generative artificial intelligence technology. Just two months after its launch, ChatGPT has reached 100 million monthly active users, making it the fastest growing consumer app in history. The emergence of ChatGPT has set off a wave of investment and development in artificial intelligence technology, changed the existing industrial pattern, and brought strong impact and significant development opportunities to traditional industries. As a new generation of artificial intelligence technology that widely affects human economic life, what policies should be adopted to regulate and guide ChatGPT is gradually becoming an important research issue [1].

2. Opportunities and challenges brought by ChatGPT

2.1. ChatGPT and Research Progress

The application of artificial intelligence is a "double-edged sword", which can empower economic and social development while also potentially triggering risks. From the existing research results, domestic and foreign scholars have explored the impact of ChatGPT on scientific research. Bert Gordijn et al. (2023) believe that the invention of ChatGPT may improve the work efficiency of researchers. For example, when scholars run out of ideas, they can use ChatGPT as a tool or a search engine, or even let ChatGPT join the brainstorming as a discussant, generating new ideas in the collision and improving the efficiency of scientific research. Further, Eva et al. (2023) found that researchers have used this conversational artificial intelligence to conduct statistical analysis, summarize literature content, and write papers and speeches, accelerating the innovation process, shortening publication time, and helping people write more fluently. However, while ChatGPT brings opportunities, it also exposes humanity to many dangers and challenges. As a "non human", ChatGPT cannot possess the thinking ability and moral and ethical concepts. What it needs is the "nourishment" of a continuous stream of big data, and then "digestion and absorption". In the process of constantly reading data, it trains its ability to deeply learn. On the one hand, the text content generated by ChatGPT is prone to errors. For example, it may fabricate documents that do not exist, and the output content is lengthy and repetitive (Gordijn&Have, 2023), which can reduce the quality and transparency of research, fundamentally changing the autonomy of researchers (Eva et al., 2023), making scientific research results no longer reliable. On the other hand, the text content output by ChatGPT is difficult to recognize. When researchers submit abstracts generated by ChatGPT for review, only 63% of the content is recognized by reviewers (Thorp, 2023), which inevitably affects the scientificity and fairness of the published article. At the same time, will ChatGPT violate the rights of the author of the cited article when citing the article to answer user questions? Can

ChatGPT be used as a tool for article writing? If the author uses ChatGPT, does it need to annotate the generated content, etc? These are issues that require further in-depth consideration. In addition, ChatGPT's "explosive popularity" has great potential to change or even subvert people's way of survival and communication, reshaping the way society allocates resources. However, due to the relatively short launch time of ChatGPT, few studies have systematically analyzed the impact of ChatGPT on economic and social development, let alone systematically discussed the potential threats of ChatGPT and the regulatory countermeasures that the government should take[2-5].

In this context, based on the impact of ChatGPT technology as a starting point, this article explores the impact of the development of the new generation of artificial intelligence technology on the economy and society from the perspective of science and technology ethics. According to this study, ChatGPT accelerates the layout of generative AI, but it may also impact the survival of the traditional artificial intelligence industry and trigger ethical and security challenges. ChatGPT is prone to raise technical and academic ethical issues

2.2. Faced with "pollution" and blind obedience of scientific and technological ethics

The question of the completeness of artificial intelligence involves the measurement of human morality in the ethics of science and technology. ChatGPT initially has moral judgment, focusing on political correctness and moral and ethical dignity (Ling Xiaoxiong et al., 2023). ChatGPT utilizes its learned ethical values to verify whether users' questions are legitimate, compliant, or in accordance with ethical rules, and sometimes even directly refuses to answer certain ethically biased questions. The evolution of artificial intelligence technology represented by ChatGPT is also the follow-up and continuous improvement of technological ethics itself. Due to the huge cost of ethical learning, once ChatGPT is "ethically contaminated" or "poisoned" in the corpus, it will take a long process to re recognize new ethical judgments. Although ChatGPT strives to maintain a rationalistic attitude towards ethical practice in most cases, with various language threats such as questioning and intimidation from poor testers and trainers, ChatGPT is at some times unable to determine what is truly the correct ethics.

The emergence of artificial intelligence has gradually brought people's ideological ability to a standstill, and technology is monopolized in the hands of a few "absolutely powerful", resulting in serious class solidification and technical barriers. When artificial intelligence represented by ChatGPT blindly obeys commands without questioning its ethical bias or does not have the correct orientation of preset moral ethics, it will create a technological ethical dilemma. People's conformity psychology will be transformed into a shift from AI psychology, which is considered to be a personalized narrative style in a broad social context and is subtly changed by AI. Long-term changes in language will permeate their emotional cognition, ethical behavior, and overall behavior, and have an important impact on people's values, attitudes, and behaviors. This is not only a philosophical issue of science and technology that deserves attention, but also an ethical issue (Ling Xiaoxiong et al., 2023)[6-9].

2.3. Initiation of new academic ethics proposition

ChatGPT itself does have a progressive aspect, which can assist scholars in better completing their daily work (Gordijn&Have, 2023). However, as a research tool, it has an obvious disadvantage, especially in terms of scientific integrity. Overreliance on ChatGPT generated content can lead to risks of plagiarism, fraud, and copyright infringement. Ling Xiaoxiong (2023) pointed out that if ChatGPT were to write a poem in the style of poet Li Bai. Although ChatGPT can generate a new poem, the sentences in it are similar to existing ancient poems, which may bear traces of "academic ethics" or "plagiarism.". At the same time, students may use ChatGPT to create works that do not belong to them, resulting in unethical behaviors such as plagiarism and plagiarism, which can affect the educational and academic ecology. This behavior will result in outcomes that do not reflect students' abilities and knowledge, but only the processing capabilities of language models. This will create an unequal competitive environment, leading to some students having an unfair competitive advantage in evaluation. In addition, Else (2023) believes that ChatGPT is trained based on past information, while social and scientific progress often comes from different or open thinking than in the past. Excessive use will lead to a lack of critical thinking and innovation abilities. The more profound issue of academic ethics is the ability of ChatGPT to write peer-reviewed papers in authoritative journals. In the long run, AI driven systems may even completely take over the entire field of scientific research. AlphaGo is a typical example in the field of chess. In addition, some authors have attempted to use ChatGPT as a co author to avoid the above academic ethical issues. Among the published papers, ChatGPT has received at least four author signatures (Stokel-Walker, 2023). However, journals including Nature have stated that this

practice is not acceptable because any author's signature indicates that he or she is responsible for the work, and artificial intelligence cannot bear such responsibility.

In response to the above academic and ethical issues, Van et al. (2023) believe that the use of this technology is inevitable. Therefore, "prohibition" is not feasible, and the academic community should discuss strategies to address the impact of this potentially disruptive technology. First, adhere to worker inspection: experts promote the process of factual verification and verification; The second is to increase the transparency of LLM. Firstly, in academic research papers, the author's contribution statement and acknowledgement should clearly and specifically indicate whether and to what extent the author has used LLM related artificial intelligence technology; Secondly, in the field of LLM development, almost all the most advanced conversational AI technologies are patented products of a few large technology companies with development resources (Rudin, 2019). Given that a few technology companies have near monopolies in the fields of search, word processing, and information acquisition, the development and implementation of open source AI technologies should be considered; Thirdly, exchanges between academia should be strengthened, calling for the convening of an international forum on the development and responsible use of LLM for research. LLM can be a double-edged sword. They can help create a level playing field, such as removing language barriers and enabling more people to write high-quality texts. However, it is likely that, as with most innovations, high-income countries and privileged researchers will soon find ways to utilize LLM, thereby accelerating domestic research and expanding inequality[10-13].

3. Prevention and Suggestions on Artificial Intelligence

3.1. Standardization and guidance on the correct development of artificial intelligence

In terms of regulatory strategies, both regulation and protection should be emphasized. It is difficult to avoid risks arising from the development of a new technology, its entry into the market, and its integration into social production and life. The development and application of new technology cannot be abandoned due to risks. The ideal goal should be to minimize risks and maximize the benefits of technology. This requires both regulation and protection in laws and policies. Solve the risks caused by artificial intelligence through legal and policy measures to achieve orderly development; At the same time, it is necessary to ensure the innovative development of artificial intelligence and better empower the economy and society. However, there may be a value conflict between regulation and protection, and improper regulation may stifle the innovative development of artificial intelligence. The relationship between the two must be carefully handled.

In terms of normative means, attention should be paid to the simultaneous development of soft guidance and hard constraints. Different regulatory measures should be targeted based on the reasons for risks arising from AI applications. The risks caused by imperfect technology in artificial intelligence mainly rely on soft specifications. Soft norms have the characteristics of advocacy and strong flexibility. It is possible to guide technology towards the good and prevent potential risks by formulating guidelines or industry self-discipline. This is an indispensable means of preventing AI risks.

In terms of standardized methods, strengthen the coordination between government and corporate governance, complement each other and ensure each other. Specifically, the government should play a role as a maker of AI development policies, a setter of governance agendas, and a supervisor of the implementation of laws and regulations. Enterprises are the subject of research, development, and use of artificial intelligence technologies, products, or services, and are also responsible for the development of artificial intelligence. They must shoulder the social responsibility of risk prevention in artificial intelligence. Cooperation between AI technology enterprises should be strengthened to rely on technical means to prevent AI risks[14-16].

3.2. Supervision of artificial intelligence

The risks caused by the misuse of artificial intelligence technology rely on hard constraints. Hard constraints are clearly defined, highly operational, and can provide specific guidance on how people behave, with a mandatory guarantee. With the widespread application of artificial intelligence in various industries, the abuse of artificial intelligence technology is frequent, which requires rigid constraints to regulate the governance of artificial intelligence abuse. At present, China has issued a small number of laws specifically aimed at the abuse of artificial intelligence technology, and the level is low. Therefore, it is urgent to increase the pace of legislation.

4. Conclusion

It should be pointed out that we should promptly follow up on the social changes and explore effective regulatory mechanisms. It is still a question that we need to ponder carefully and the direction of our efforts in the future.

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