

Research on the Development Trend of Artificial Intelligence Led by ChatGPT

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Abstract. The technological growth of artificial intelligence (AI) generally presents the characteristics from simple linearity to complex system. In the early days of AI, its basic idea was simple imperative programming. However, people soon found that it could not complete complex thinking work and could only be used in simple scenes such as data processing, video games and industrial automatic control. ChatGPT, which was born, opened the era of universal AI, which indicates that AI has extensive learning ability and reaches or exceeds the level of ordinary human beings in most fields. ChatGPT, as a new generation of AI technology, will profoundly affect human economic and social development. In the future, AI will almost bring changes and reconstruction to all walks of life. Under the background of deepening the supply-side structural reform, it is of great significance to promote the practical application of AI and continuously provide new kinetic energy for economic development. This paper analyzes the development opportunities and challenges of ChatGPT in AI industry, labor and employment, education, scientific research and other fields, and explores the development trend of AI led by ChatGPT.

Key words: Artificial intelligence; ChatGPT; Industry change.

1. Introduction

Since the 21st century, especially in recent years, AI technology and applications have developed rapidly. As a technology that can simulate and expand human intelligence, the growth of AI will have a great impact on productivity development, labor mode, resource allocation mode, production relations, distribution system, social structure, people's ideas, etc., and its impact on economy and society may be more extensive and far-reaching than any previous technology [1]. ChatGPT is a chat robot program launched by OpenAI, which has a language interaction mode that is highly close to human beings, and can chat almost the same as real human beings [2]. ChatGPT can not only interact with users according to the context, but also complete many things that humans can do before, such as writing papers, copywriting and emails, making video scripts, making codes and translating [3]. The safe application of these new technologies plays a more obvious role in promoting social development. Therefore, the AI industry has great development potential. As the core driving force in industrial transformation, AI has a wide range of applications, which contributes to the reconstruction and integration of all links in economic activities and promotes the emergence and evolution of new technologies, new products and new models [4]. The breakthrough of general cognitive intelligence technology is likely to become the biggest technological leap in the growth of AI technology, which significantly increases the empowerment of AI to all walks of life [5].

In the future, AI will almost bring changes and reconstruction to all walks of life. The first possible fields include but are not limited to security, manufacturing, service, education, media, medical care, agriculture and so on. AI itself is a cross-border and interdisciplinary scientific exploration project [6]. It is pushing human cognition to the starting point of "faster, higher and stronger", and it is bound to bring people an unprecedented technological and industrial revolution. AI industrial chain structure is divided into basic layer, technical layer and application layer [7]. Although China has become one of the global AI centers, the lack of data environment, professionals and underlying hardware, especially the immaturity of chips, CPU and other industries, restricts the in-depth growth of AI in China [8]. As time goes by, ChatGPT will not only be a conversational robot, but also an AI assistant that will bring subversion to all walks of life. ChatGPT is essentially the latest application result of AI-generated content. Facing this new communication paradigm, it is urgent to study its risk cognition and governance strategy [9]. This paper analyzes the development opportunities and challenges of

ChatGPT in AI industry, labor and employment, education, scientific research and other fields, and explores the development trend of AI led by ChatGPT.

2. Overview of AI industry

2.1 Connotation and characteristics

AI is a branch of computer science, and it is a new technical science to research and develop theories, methods, technologies and application systems for simulating, extending and expanding human intelligence. The essence of AI is to construct an artificial system with certain intelligence through the research and simulation of human intelligence activities, and to study the basic theories, methods and technologies of how to apply computer software and hardware to simulate, extend and expand some intelligent behaviors of human beings. China has a huge population base, so there is a great demand in various fields. Under the pressure of such a realistic situation, it is conducive to forcing enterprises to transform [10]. As far as the current transformation methods are concerned, the most efficient and meaningful transformation is the integration of various industries and AI fields. According to the industry classification standard of the National Bureau of Statistics, the AI industry covers the manufacturing of intelligent lighting appliances under the manufacturing of electrical machinery and equipment, and the manufacturing of intelligent consumer equipment under the manufacturing of computers, communications and other electronic equipment. With the trend of human-computer interconnection, the explosive growth of data not only provides a good soil for training AI based on deep learning, but also becomes the strategic competitive advantage of AI enterprises. AI enterprises in China need to realize the difficulty and strategic significance of the development and innovation of AI industry, and need to comprehensively lay out and innovate from all aspects of the AI industry chain, so as to realize the cornering overtaking of AI development.

2.2 Industrial chain analysis

In China, the huge population, complex social environment and imperfect infrastructure are all disadvantages, but these disadvantages also give the AI field a chance to develop. Only by applying technology to practice and solving practical problems can such technology be the real technology. The AI industrial chain can be roughly divided into three parts: the underlying support level, the technical level and the application level [11]. The underlying support level mainly includes big data and cloud computing. The technical level can be divided into basic support technology and core technology. In the late 1980s, the biological neural network model imitating the human brain began to appear, but its development was slow because of its simple model setting, insufficient computer computing power and lack of sufficient data materials. ChatGPT, on the one hand, adopts large parameter neural network, on the other hand, it introduces attention-based model, so that semantic analysis and output imitate human association and attention mechanism.

In recent years, the AI industrial chain has basically taken shape. With the maturity of technology and application, it has continuously driven the transformation and upgrading of the real economy. The appearance of ChatGPT may profoundly change the employment structure of the labor market, lead to great changes in the number and proportion of different skilled jobs, and make it more and more important for workers to update their skills and knowledge. China's current development planning just needs the assistance of AI, and the assistance and application in practice can promote the improvement and growth of AI technology. From the perspective of horizontal development, from consumption to production, AI has accelerated the pace of digitalization, networking and intelligent transformation and upgrading of the real economy. From a vertical perspective, AI promotes the deep integration of all levels of the industrial chain, and the ICT supply capacity has made a qualitative leap.

3. ChatGPT-led AI development strategy

3.1 Strengthen the construction of AI open source platform

Most ordinary individuals in human beings think that the arrival of the high-performance AI era is still very far away and unfamiliar. However, the practicality and popularization of ChatGPT will inevitably form a profound shock and change in the concept of the whole society, and human beings will really begin to face the acceptance of new intelligent bodies. ChatGPT has achieved three basic functions that previous AI could not accomplish, so its impact on society will be enormous and far-reaching. Reinforcement learning and deep learning are the core of current AI technology, and the future development will also focus on these two directions [12]. ChatGPT is an intelligent knowledge engine far superior to all previous search engines. In the past, the human knowledge engine could only recommend pages according to the number of page references or content relevance at most, but ChatGPT can summarize and output the pages according to the vast amount of knowledge it inherited, which greatly improves the ability of human beings to obtain information. The cooperation between AI and human beings will be closer, and the future AI technology will pay more attention to the interaction and collaboration with human beings. The cloud service platform based on AI is shown in Figure 1.

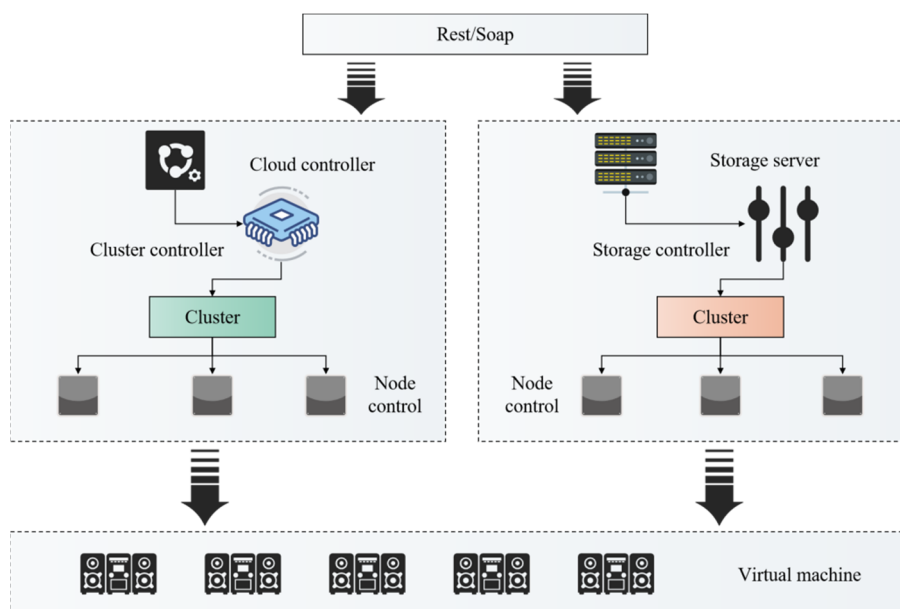


Figure 1. AI-based cloud service platform

ChatGPT shows not only the simulation output of human language, but also the ability to understand human complex language, which can grasp key meanings and logic in the complex human language and execute various commands and feedback. Compared with traditional AI technology, ChatGPT represents the development trend of AI in the future. It can generate its own content based on large data sets, which endows a new generation of AI technology with distinctive features in language ability, language style, argumentation effectiveness and ideological depth. With the growth of AI technology, the future AI will pay more attention to the integration of multiple sensing methods, so as to realize more comprehensive and comprehensive intelligent applications. Strengthening the construction of China AI autonomous and controllable open source platform can promote the understanding of AI by R&D institutions in various regions, promote the full-stack product R&D system from intelligent hardware to intelligent software platform, support more application and mode innovation space, and build an open, collaborative and international domestic intelligent independent innovation ecosystem conducive to innovation.

3.2 Pay attention to AI and data security

Data privacy and security issues will attract more attention. With the application and popularization of AI technology, data privacy and security issues will become more and more important. The problem of AI data security is currently a difficult problem facing the whole world. Doing a good job in AI data security protection can promote the growth of AI. ChatGPT can not only talk to people, but also have the ability of complex intelligent work, such as editing charts, recognizing images, generating pictures, analyzing data, writing papers or novels, and even automatically generating codes according to instructions. These are all complex working abilities that only humans can have traditionally. The growth of AI, clear application scenarios is the key. The existing application scenarios continue to expand in depth, but the focus of value creation is still in the field of technological breakthroughs. Figure 2 shows the hierarchical model of AI data security.

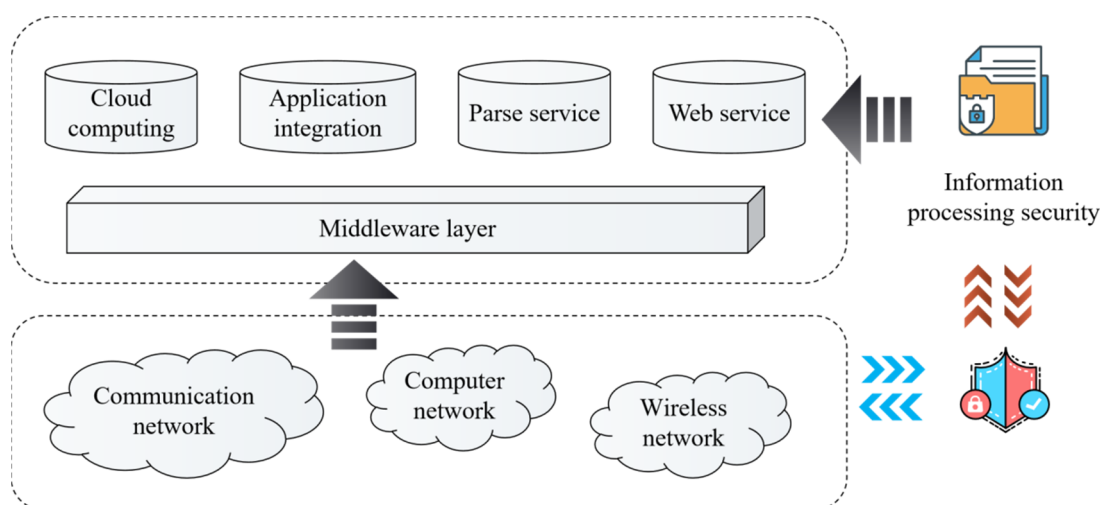


Figure 2. AI data security hierarchy model

What AI needs is data construction. The growth of AI must do a good job in privacy service, so that people can trust AI and actively help data construction. The growth of AI has come to this day, mainly relying on the Internet and data construction. Through the way of network construction, we must do a good job in security and privacy protection. To truly establish a reliable ChatGPT for governance, it is necessary to strictly limit the training data, strictly limit the external interface, and undergo long-term repeated training, observation and evaluation. At present, all AI models used for governance need to be built on the premise of strict manual audit, and only engage in a little auxiliary knowledge provision. Future AI technology will pay more attention to data security and privacy protection, thus ensuring the security and privacy of user data.

4. Conclusion

At present, the AI field has become the commanding height of global competition in the field of science and technology. Intelligentization is an important development direction seized by all countries in the world. Accelerating the growth of the AI industry is conducive to the formation of new advantages in industrial competition and a new driving force to promote the upgrading of manufacturing industries. The progress and application of AI technology show more possibilities, and also reflect the uncontrollable and dynamic nature of technology. The wide application of AI will become an important link in the future economic and social development, and the accompanying industry standard-setting power and market share head effect will also become the key factors affecting the competition among countries in the AI field. ChatGPT-like software can be used as a tool for the research and growth of AI technology, helping researchers and technicians to carry out experiments and simulations, thus accelerating the development and application of AI technology.

Timely follow-up to adapt to the social changes brought about by the impact of the new generation of AI technology, reasonably balance the relationship between technology application and social ethics, encourage innovation while improving supervision, and actively welcome and lay out the AI era, which is still a problem that we need to think carefully and the direction of our efforts in the future.

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