The change and disadvantage brought about by the generation of artificial intelligence

Ruizhu Li*, Yucheng Gong, Yuanyuan Ye

School of Information Science and Technology, Xiamen University Tan Kah Kee College, Zhangzhou, 363105, China

*Corresponding author: liruizhi@xujc.com

Abstract. This article mainly explores the theory, utility, current status and future of generating artificial intelligence, and analyzes and explains its important application areas. Generating artificial intelligence is an important milestone in the field of artificial intelligence, which shows that "creative behavior" of human-like in the AI field. This article aims to allow readers to better understand the basic concepts and important applications of generating artificial intelligence through extensive discussions.

Keywords: Generate artificial intelligence, ChatGPT, industry upgrade, legal risks, intellectual property disputes, data leakage.

1   Introduction

The term artificial intelligence is not new, as the internet is so advanced today. Even for those who have not delved into the field of computer science, they must have heard of it. Whether it is carried away by news science popularization or by the supernatural omnipotence boasted by the official account, it shows its unprecedented popularity. The transition from "analytical artificial intelligence" to "generative artificial intelligence" is a historic step, indicating the first emergence of human like "creative behavior" in the field of AI. This article also elaborates on this topic. This paper excels in breadth and the main purpose is express the understanding of the course content, integration of my professional knowledge and literature review, and to briefly discuss the theory, utility, current situation, and future of generative artificial intelligence, and to analyze and explain important application areas.

2   Origins - Milestones in the Field of Artificial Intelligence

2.1   What is Generative Artificial Intelligence

An artificial intelligence that can be used to create new content and ideas, including conversations, stories, images, videos, and music. It attempts to mimic human intelligence in non-traditional computing tasks such as image recognition, natural language

processing, and translation. It can be trained to learn human language, programming language, art, chemistry, biology, or any complex topic. Training data can be reused to solve new problems.

2.2   The milestone position of generative artificial intelligence

Generative artificial intelligence allows users to fully unleash their imagination, re-shape the vast majority of customer experiences and applications, and assist users in achieving new and unprecedented levels of work efficiency.

2.3   How Generative Artificial Intelligence Works

Like previous artificial intelligence, generative artificial intelligence requires the use of machine learning models, namely ultra large models (LLMs) pre trained on large datasets. The same goes for GPT, which has over a billion parameter settings and can be likened to neurons in the human brain, generating content with only a small amount of input. LLM learned to apply their knowledge in a variety of environments because of exposure to various forms and modes of Internet scale data in pre training.

3   Transformation - The Impact and Innovation of Generative Artificial Intelligence on Human Society

Due to the emergence of generative artificial intelligence, the term "creation" is no longer exclusively owned by humans. The milestone breakthrough from "arrangement and combination" to "understanding and creation" has amazed humanity, while also beginning to face the widespread social impact of generative artificial intelligence.

3.1   Disruption of Mindset

Taking search engines as an example, compared to traditional search engines, the social impact of the language "understanding" and generation ability of generative artificial intelligence is stronger[1].

Traditional search engines have affected the deep thinking ability of some people, and even gradually lost the basic pursuit of cross validation, multi-party investigation, and realistic verification. Mainstream generative artificial intelligence does not list various possible answers for users to choose from like traditional search engines, but directly presents what it considers to be the "best answer".

Many people believe that the answer derived from generative artificial intelligence is "reasonable", but there is no clear and direct basis for rationality[2]. The emergence of generative artificial intelligence has led people to discover some kind of "shortcut" - from this perspective, generative artificial intelligence seems to be nurturing a thinking revolution.

Generative AI subverts the past Internet application model based on open or semi open information and content, and moves towards a new model driven by data and

algorithms, becoming a "black box market" that is no longer open to the public and cannot capture content through search engines. This model will start from the bottom level and bring new changes and challenges to various levels and fields of society. This is a fairly thorough "reconstruction" that has a profound impact on human thinking patterns.

3.2   Integrated Upgrading and Productivity Liberation of Traditional Industries

Taking ChatGPT as an example, it relies on the outstanding performance of the underlying model and has varying degrees of substitution effects on various industries.

Firstly, the large parameter model has strong computational performance, improves the accuracy of function mapping within the model, and has a leveling effect on human capital for predictive analysis and language output tasks. Secondly, generative artificial intelligence utilizes generative pre training Practice, supervised learning, and human feedback reinforcement learning enhance human-computer interaction capabilities, and have partial substitution effects on news dissemination, consumer retail, and the financial industry. Finally, ChatGPT's multimodal large model breaks down language barriers and text to image barriers, allowing for mutual conversion between different types of text, images, and videos, enabling future literary creation, image drawing, video production, and game content generation to be implemented using AI. The impact on existing industries has only changed the proportion of human-machine labor in the workforce, without breaking through the functional boundaries of the industry itself.

Work in areas such as product design, sales consulting, and customer service. Generative artificial intelligence has a strong substitutive effect, and at the same time, it greatly reduces the threshold for the use of professional software tools. Users only need to issue instructions, and it can help them perform precise drawing and correction.

Integrating the research and development design of ChatGPT with 3D printing technology, for example, can truly achieve the integration of artificial intelligence from design to manufacturing. The appearance of buildings in the construction industry, as well as related industries such as interior decoration, clothing, electronic equipment, furniture production, etc., which are closely related to human life, can be quickly presented according to consumer needs.

Not only that, it can also break through the physiological limits of humans, achieving 24-hour online replies and answering user questions at any time. Avoiding the oversights caused by emotional and low-level errors, a more free creative approach can enable humans to focus their energy on more focused areas that require attention.

This relies on data analysis to predict market trends. ChatGPT relies on the powerful data analysis and prediction capabilities of large models, which can effectively replace professions in the financial industry such as market analysis, credit quality assessment, risk management, and insurance sales.

Firstly, ChatGPT utilizes natural language processing technology to monitor market trends in real-time, follow up on dynamic market information, predict stock trends

and the profit prospects of financial products, and provide decision-making recommendations for financial institutions to maximize profits; Secondly, applying relevant technologies such as deep learning to collect data on the borrowing, repayment amount, and time of different users, comprehensively evaluating the borrower's repayment ability and repayment risk, and providing reference for financial institutions' lending decisions; Thirdly, ChatGPT can provide comprehensive and timely information follow-up on market risks by analyzing and modeling complex financial markets and a large amount of financial data, thereby achieving comprehensive risk capture and prediction; Fourthly, purchasing suggestions can be proposed based on the different needs of financial product buyers, and product planning can be provided to users through language processing technology in a conversational manner, making it easier to understand the specific meaning of financial products.

Due to its lack of subjective stance in artificial intelligence, it can to some extent dispel users' doubts about marketers seeking personal gain and enhance the trust of product purchases.

3.3   Provide Technical Assistance for The Realism of the Metaverse and Virtual Reality

Taking ChatGPT as an example, its integration with industries is also reflected in emerging fields such as the metaverse[3]. The metaverse is a virtual world that is mapped from the real world and can interact with reality. As a new technology that is still in its early stages of development, there are still many limitations.

As a virtual space, the development and improvement of the metaverse cannot be separated from human interaction and participation. The emergence of ChatGPT enables real people to create virtual identities in the metaverse, and with its language translation function, it enables people from various countries to break language barriers and communicate smoothly. Even conversations with virtual characters in the virtual world can create more realistic social situations. Overall, ChatGPT itself, as the latest artificial intelligence technology, can collide with innovation that breaks through existing cognition while integrating with another emerging industry to make up for its shortcomings.

Translation is just an example of a link in the metaverse, while other aspects are intertwined to promote the development of the metaverse process. The ability to understand and create in generative artificial intelligence is undoubtedly one of its important means of implementation.

4   Impact - the Hidden Risks of Generative Artificial Intelligence at the Legal Level

Due to the fact that "generative artificial intelligence" is different from traditional "analytical artificial intelligence", its generated content is brand new and completely original, no longer just a simple shuffling and reorganization of existing data. That is

to say, he has completely become the creator of the content. It inevitably has many problems such as the following.

4.1   Intellectual Property Disputes [7-12]

Can and should works created by generative AI be protected by copyright law?

If AI in the past only extracted elements from existing works and recombined them, this product lacks originality and internal understanding and thinking, so it cannot be considered a work. The emergence of generative artificial intelligence has undoubtedly had a huge impact on the field of intellectual property. The entire creative process is completely automated by robots, and the training data is based on works created by humans.

In China, there is no clear regulation on this issue in the Copyright Law, and there is no unified consensus in both the theoretical and practical fields. These disputes will also undergo new changes with the continuous iteration of AI.

When we shift our perspective to service providers, we will find that their ownership of copyright rights and obligations is still unclear. In Article 3(a) of the ChatGPT usage agreement, it is stated that "within the scope permitted by current laws, users have ownership of the input content, and, subject to compliance with the agreement, OpenAI Company transfers all rights and interests in the output content to users. From the division of responsibilities between both parties, OpenAI Company complies with laws, regulations, and agreements, and may use the content provided by users when necessary.". "Users are responsible for the content, including ensuring that it does not violate any current laws or user terms.

OpenAI attempts to emphasize the technology neutrality principle of ChatGPT through this content, but this clause is suspected of shirking responsibility. Due to the complexity of the ChatGPT algorithm model and the existence of an "algorithm black box", it is difficult for ordinary users to fully understand the operational logic of ChatGPT, and there is no corresponding expectation for its generated content. Judicial personnel are also unable to determine whether infringement occurred during the algorithm operation process through inspection and analysis, resulting in users being in a disadvantaged position.

4.2   Data Leakage Risk

The popularization of artificial intelligence has made people's daily lives increasingly transparent. When faced with numerous choices that are difficult to make, artificial intelligence can analyze daily data such as historical records, behavioral patterns, and current situations to help us make the wisest choices at the lowest cost and fastest speed. Although this has brought great convenience to our lives, the huge risk of data privacy leakage hidden behind it cannot be ignored.

Taking ChatGPT as an example, OpenAI provides online text data for ChatGPT, including approximately 300 billion words from books, news articles, blogs, social media, encyclopedias, and other sources[1]. However, currently ChatGPT still belongs to the algorithm black box, and OpenAI has not publicly disclosed the data

sources used. There are still doubts about whether the relevant training databases have been authorized.

In addition, when users communicate with ChatGPT, the information they input can also become the object of their learning. In Article [5] of the usage agreement, it is written as follows: "In order to assist OpenAI in providing and maintaining services, you agree and instruct us to use content to develop and improve services." This indicates that OpenAI will not monitor or protect the input information.

If someone maliciously imports information from others, the victim not only cannot determine the true identity of the infringer, but also has to endure the pain of analyzing, arranging, and even fabricating their privacy. In addition, the emergence of ChatGPT has greatly increased the likelihood of trade secrets being violated. When using ChatGPT, employees of a certain company may unintentionally disclose information that directly affects the operation and technology of the enterprise, such as salary and internal composition. Once this information is captured, if a malicious third party asks suggestive questions, ChatGPT is likely to be fully exposed. The intrusion of malicious third parties can also lead to the leakage of trade secrets, including not only direct theft of data by third parties, but also data pollution caused by hackers implanting algorithm viruses.

4.3   Rumors are Rampant

Some malicious users can use generative AI models to automatically generate a large amount of seemingly convincing misleading and untrue information, in order to achieve the goal of secretly manipulating public opinion [4].

The emergence of ChatGPT has brought greater challenges to this issue. Even the most common AI face swapping requires infringers to prove the authenticity of the content through details. Therefore, in the face of GPT, a generative AI with strong learning ability and the ability to autonomously generate videos or images that look completely fake, how can infringees effectively collect evidence to fight against infringers in the future is worth pondering.

4.4   The Standardization of Legal Cognition Is Being Challenged

People often choose more standardized and computer-operated legal products when purchasing legal services, as this means a reduction in costs. The emergence of artificial intelligence has made costs lower [6]. It can integrate global data, allowing the public to evolve from only understanding legal norms to understanding the operational results of articles.

After the emergence of ChatGPT, based on its powerful learning ability, people can not only obtain answers to questions and clarify legal basis through it, but also input their own information to provide personalized opinions and suggestions. In the interaction between humans and artificial intelligence, people's understanding of the law has gradually been reconstructed from their previous understanding of legal norms formulated by a single legislative authority to a state formed by complex games between different parties and different artificial intelligence. When participants

in legal activities are closely connected to legal rules, rule algorithms have been combined with real-life situations. Even if different individuals admit to being constrained by a universal rule, the individualized impact produced cannot be ignored. The transformation of legal norms from generalization to personalization is essentially a probabilistic transformation. Therefore, if ChatGPT is trained with a large amount of erroneous information, public perception will conflict with the judgment of professional judicial teams, ultimately leading to compromise between one party and the other.

Assuming that even more severe cases are applied to the actual trial, the possible biases and errors will undoubtedly affect the subjective judgment of judicial personnel. Regarding this issue, the Supreme People's Court of China issued the "On Regulating and Strengthening the Judicial System" in December 2022.

The Opinion on the Application of Artificial Intelligence in Judicial Practice clearly states that no matter what level of technological development, artificial intelligence cannotreplace judges in making judgments, and the results of artificial intelligence assistance can only serve as a reference for judicial work or judicial supervision and management.

4.5   Industry Monopolies are Difficult To Avoid[13-17]

In the contemporary society with highly developed artificial intelligence, some private property is shared by Internet giants voluntarily or compulsively, which brings them huge monopoly interests, which follow the law of increasing returns.

During the conversation between users and ChatGPT, for efficiency reasons, they will hand over their information to AI for use. Over time, artificial intelligence companies that control public data will gradually gain substantial power. The rise of generative AI may exacerbate the monopolistic position of technology giants, leading to actual market inequality. It is estimated that OpenAI needs to spend $100000 per day to support the operation of ChatGPT, which is actually a cost barrier that many companies cannot enter this industry. Large Internet companies continue to invest in R&D funds, and small enterprises are unable to enter the market to compete with them, leading to increasingly severe industry monopoly.

4.6   The decline in Social Credit and the Challenge to Public Order and Good Customs[20-23]

The emergence of ChatGPT has brought widespread attention to the issue of integrity. In January 2023, a survey released by online course platform Study.com showed that over 89% of students have used ChatGPT to complete homework, and more than 50% of students have used ChatGPT to write papers. This data has shown a significant upward trend since ChatGPT gained widespread attention.

On January 27, 2023, Holden Thorp, editor in chief of the Science series, publicly stated that Science and its subsidiaries will not accept articles written by ChatGPT because inappropriate citations may pose a risk of plagiarism. In addition to academic papers, doubts about the originality of ChatGPT's works and artworks will increase trust based transaction costs, ultimately leading to a decline in social credibility and

even giving rise to black and gray industry chains such as false advertising and article fraud.

In addition, ChatGPT may spread biases and discrimination that are prevalent among mainstream groups in a more covert way. Although OpenAI invested a significant amount of manpower in training before releasing the product, in order to maintain it as much as possible Standing attitude. But as ChatGPT becomes publicly available and a large number of users become the main force training it, the cost of manual intervention by OpenAI significantly increases, making discrimination even more unavoidable. The current solution is nothing more than a patch like repair, which cannot fundamentally solve the problem[18-19].

ChatGPT regards itself as "rational, neutral, and objective", but in fact, its essence has transcended the scope of technological tools and is "a technology paradigm guided by ideology involving power allocation.". Against the backdrop of political and technological interweaving and mixed authenticity formed by artificial intelligence technology, ideological risks manifest as "covert, global, complex, and dynamic" characteristics. AI can accurately imitate extremist content and turn individual radicalism into extreme ideological ideologies. In short, if users train ChatGPT based on their own subjective will and value judgments, it will continue this value judgment

5   Conclusion

Genetic artificial intelligence has some unique advantages and disadvantages.

5.1   Advantage

It can generate unlimited data: generate artificial intelligence has unlimited generating ability and can constantly generate new data, which is very useful for many applications, such as natural language text generation, image generation, etc. It can process complex data: generating artificial intelligence can process complex non -linear data and learn the structure and laws of data from it, which makes it have strong ability to process complex data such as natural language and images.

5.2   Shortcoming

Long training time: generating artificial intelligence requires a lot of training data and computing resources, and the training time is long, which makes it restricted in practical applications. Poor interpretability: The generating process of generating artificial intelligence is composed of multiple neurons and layers, so it is difficult to explain and understand the result of the production results, which brings a certain challenge to the explanatoryness of the model.

It is difficult to control the resulting result: It is difficult to completely control the production result of the generated artificial intelligence. Therefore, post -processing and adjustment are required in practical applications to achieve the final expected results.

In short, generating artificial intelligence is an artificial intelligence model with ability to generate ability. It has advantages in processing complex data and generating natural data, but there are certain restrictions on training time, explanatory, and generating results. With the continuous progress of technology and the continuous expansion of applications, generating artificial intelligence is expected to play an important role in more fields.

The generative AI represented by ChatGPT provides more convenient conditions for the future digital development of human society. The development of science and technology is a double-edged sword. While enjoying the artificial intelligence dividend, we must also prevent its impact on various fields and effectively intervene in it. At this stage, the academic problems, educational issues, and application problems we see may be just the tip of the iceberg. The establishment of reasonable applications in various fields is not a comprehensive resistance to artificial intelligence, but the harm that may bring to humans to buds. Each relevant departments must adhere to the principle of generating AI non -standard subjects and formulate relevant decision -making regulations on this basis. In addition, while conducting daily supervision of the generation AI, relevant departments must actively seek cooperation with developing enterprises to jointly promote the healthy development of the artificial intelligence industry, and give full play to their positive role in improving social efficiency and promoting technological innovation.

Acknowledgment

References

1. Zhang Xuebo, Wang Hanrui, "The legal regulation of the generated artificial intelligence-take ChatGPT as an example", Social Science Volume I of the Youth Forum of the Industrial Intelligence Conference, 253-261(2023).
2. Liu Shuwen, Guo Liang, "Generative artificial intelligence reconstructs human knowledge production and thinking patterns," Chinese Social Sciences, April 18, (2023).
3. Shanmugasundaram Mathura, Tamilarasu Arunkumar, "The impact of digital technology, social media, and artificial intelligence on cognitive functions", a review#13. Frontiers in Cognition 2.(2023).
4. Zheng Shilin, Tao Ran, Yang Wenbo, "The impact of generative artificial intelligence technologies such as ChatGPT on industrial transformation and upgrading", industry Economic commentary edition,1-21(2024).

5. ZhangXinyi, "ChatGPT-4 triggers a new round of heated discussions", China Electronic News, March 17,2023

6. Xu Xiaoban, "On the copyright method of artificial intelligence generated content equality protection", Chinese law, 166-185(2024).

7. Emuowhochere Oghenevwegba T, "Future of Artificial Intelligence in Developing a Sustainable Intelligent Engineering Systems," A Review. Engineering Headway,111-125(2024).

8. Guo Kaiming, "Development of Artificial Intelligence, Industrial Structure Transformation and Upgrading, and Changes in Labor Income Share," Management World,66-67(2019).

9. He Yuchang, Fang Kun, "Theoretical interpretation of the integration of artificial intelligence and the real economy," Academic Monthly,56-67(2018).

10. Jia Nan, Lu Yufeng, "Using a few thoughts of generating artificial intelligence represented by ChatGPT, a few points of thinking of increasing the obedience of tax law," Tax Research,10-15(2023).

11. Su Haitao, Wang Xiuli, "Analysis of Artificial Intelligence on my country's Industrial Structure," Research on Industrial Innovation,18-22(2023).

12. Zhou Zhibo, "ChatGPT model introduces the construction of digital government in my country: functions, risks and its regulation," Journal of Shandong University (Philosophy Social Science Edition),144-154(2023).

13. Zhang Zhizhen, Zhang Lingling, Mi Tianyi, Qiu Shiping, "Is Large Language Models give birth to the structural change of schools? - Forely -based analysis based on ChatGPT," Chinese distance Education,32-41(2023).

14. ChenYanbin, Lin Chen, and Chen Xiaoliang, "Artificial Intelligence,Aging, and Economic Growth," Economic Research, 47-63(2019).

15. Yu Xingzhong, Zheng Ge,Ding Xiaodong, "enerativeArtificial IntelligenceandLaw: TakingChatGPT as anExample,"Chinese Law Review, Issue 2, 2023.

16. Elbadawi Moe, Li Hanxiang, Basit Abdul W Gaisford Simon, "The Role of Artificial Intelligence in Generating Original Scientific Research.," International journal of pharmaceutics,123741-123741(2024).

17. Shao L, Chen B, Zhang Z, et al. "Artificial intelligence generated content (AIGC) in medicine: A narrative review," Mathematical biosciences and engineering: MBE, 1672-1711 (2024).

18. Lili, "ChatGPT: Research on the Risk and Countermeasure Research on the Genesis Artificial Intelligence Application," Journal of Hubei Institute of Economics (Humanities and Social Science Edition), 98-102(2024).

19. Li Chuqi, "Criminal risks and regulations for generating artificial intelligence," China-Arab Science and Technology Forum (Chinese and English), 162-166(2024).

20. Deng Yue, Xu Hongkai, Wang Shifei, "Artificial intelligence risk governance: mode, tools and strategies," Reform, 144-158(2024).

21. Leng L, "Challenge, integration, and change: ChatGPT and future anatomical education," Medical education online, 2304973-2304973(2024).

22. Susan F, "ChatGPT Will Take Your Neurology Boards Now: Large-Language Models vs. Humans on Exams," Neurology Today, 10-11(2024).

23. Pietro Zangrossi, et al, "Large language model, AI and scientific research: why ChatGPT is only the beginning," Journal of neurosurgical sciences (2024).