

Research on AI Commercial Application development

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Abstract. As the emerging industry continues to grow, there has been a rise in both the quality and quantity of AI products during the era of commercialization. This article aims to discuss the pros and cons of AI products and looks ahead to their commercialized development. The primary focus of this paper is to examine the current state and progress of AI commercialization by analyzing four aspects: AI-generated artwork technology, machine translation capabilities, and intelligent customer service to AI itself such as its lack of intelligence, limitations in creativity, copyright concerns, and social impact. Increasing involvement in human society, it becomes crucial to establish a new human-machine ecosystem in this era under specific circumstances. In terms of politics, the "China 2025" policy proposed a means to integrate information technology with manufacturing processes – aligning with the trajectory of AI commercialization.

Keywords: AI (Artificial Intelligence); Commercialization; Data privacy; Employment change; Social ethics.

1. Introduction

Since the beginning of the year, AI (Artificial Intelligence), as represented by Chat GPT, has become a global buzzword and hundreds of millions of users have started using related products is an important driving force for a new round of scientific and technological revolution and industrial transformation. Research in this area includes robotics, computer vision, natural language processing, and expert systems, among others. Since the birth of AI, the theory and technology have matured, and the field of commercial applications has expanded. Computer vision is mainly concerned with the processing and analysis of image and video data. Examples include face recognition, medical image analysis, AI painting, and road sign detection. Natural language processing focuses on the analysis and understanding of text and speech data. Examples include machine translation, intelligent customer service, Chat GPT, sentiment analysis, etc.

But at the same time, the associated risks are becoming increasingly impossible to ignore. Huge amounts of personal data are being collected, but there is often little transparency about how it is stored, and accessed and what it is being used for. This poses a huge threat to public and personal security. The development of commercialization of AI is very important, take its impact on the economic and political world as an example. Thanks to the explosion of AI, Microsoft's position in Wall Street's capital operations is growing, and Microsoft's stock price continues to rise. A bipartisan proposal in the US Congress to create a National AI Commission could also prove crucial for the future development of AI.

AI can protect people from known and unknown threats in many areas, which helps people stay connected, get work done faster and at a lower cost than humans, and potentially provide better solutions as Han said [1]. It uses the example of the health code to explain many cases in the field of artificial intelligence catalyzed by the epidemic. There is no need to say much about the positive effect of artificial intelligence on economic growth and business change, but if you want to turn the theoretical discussion into reality, AI can bring more benefits to people, you must also go through a key link - the commercialization of AI. It involves chip development, training AI, national AI strategies and the fierce competition between China and the United States for AI commercialization as Fu said [2].

As AI has risen to a national strategic level, and industry has acted earlier than politics. Since 2010, a series of startups and investment and financing institutions in the field of artificial intelligence in China have entered the public eye. By the end of 2016, the market size of the artificial intelligence

industry had increased to 9.56 billion yuan, with an annual compound growth rate of around 40%. Yang shows that it stresses the importance of the commercial development of artificial intelligence after mentioning the need to maintain an open and inclusive treatment of foreign AI [3].

Besides, research shows that the mainstream application of AI technology has not only changed traditional industries, but also spawned many new industries. Smart speakers, smart homes, virtual assistants and other products have become everyday tools in people's lives. AI commercial development is also playing an important role in education, agriculture, energy and other fields, promoting social progress and innovation [4]. But as AI gradually seeps into our daily work and life, people are beginning to realize some of the unintended consequences of AI, such as the loss of human expertise [1].

However, it also shows that the development of AI technology also faces challenges, including issues such as data privacy, employment change and social ethics. What's more, according to the report, companies hope that AI will help companies enter new business areas, but the reality is that only one in five companies has adopted AI technology. The second problem is that there is a huge gap between those companies that have understood and adopted AI - the pioneers - and those that are lagging. While most companies have built strong AI data architectures, many still lack experience or access to data. The research focuses on demonstrating the intersection of old and new AI technologies and the decisions that implement AI technologies [5].

In order to promote the development of AI, we need to strengthen technology research and development, cultivate talents, and formulate relevant laws and regulations and ethical guidelines [4].

This paper will study four aspects of AI painting, face recognition, machine translation and intelligent customer service. In terms of AI painting, this paper will give some advantages and disadvantages, conclusions and suggestions for the commercial application and copyright of AI painting in the current market. In face recognition, this paper will focus on the analysis of its use and possible criminal risks, and the development of its commercial application will be analyzed. In terms of machine translation, this paper will use examples to show the commercial development of automatic translation in daily life. In terms of intelligent customer service, this paper will analyze the advantages of contemporary online industry applications and the advantages of manual customer service.

2. Commercialization status and development

2.1. AI Drawing /AI painting

AI painting is the use of artificial intelligence to paint, which is one of the typical application scenarios of AI-generated content.

First, in AI advertising production, businesses can quickly produce ad images and words based on the customized needs of their customers. Modeling companies, for example, can also customize AI models to wear clothes and take model publicity photos. The ability of AI to help try on clothes is also greatly convenient for customers. For companies, this feature not only reduces the cost and time of advertising production but also increases output. The innate advantages of "fast delivery + low cost + batch debugging production" allow the AI painting platform to occupy a place in the advertising market in the form of a "subscription system + single payment or free membership + payment for some value-added services". For example, Nestle's AI AD "The Maid Who Pours Milk". This enables zero-cost off-camera shooting; The 3D models generated by AIGC enable zero-cost models and product displays, such as virtual fitting online, which greatly improves the customer's online shopping experience, boosts purchasing power and addresses the problem of inappropriate sizes or mismatches in online clothing.

Second, AI painting can be used to create multiple IPs. Whether it's a character in a game, a virtual idol and so on, you can use AI paintings to generate images. This fast iterative creation model reduces the cost of trial and error, such as not being prone to scandals and low training costs. The company

can quickly generate a large number of IPs to market, eventually select good feedback IPs and then conduct in-depth creation.

Third, AI painting and film production Currently, there have been several original film and television productions that have repaired the image quality of AI. For example, using AI painting to color black and white films. The iterative update of Stable Diffusion makes it possible to generate image content from text, and when the technology further matures, the use of AI to produce film and television content will not be a rarity. Traditional film and television production requires a lengthy process. For live-action films and television, shooting, editing, and distribution is also a lengthy process, and live-action filming also involves the actors' time schedules and other issues. Perhaps because of sudden special circumstances involving the lead actor or director, film and television productions were extended or outright banned. The cost of producing and commercializing film and television productions by AI will also be greatly reduced, and there will be no need for so many people to draw the pictures, or for the high cost of filming and venue rental. A more visually stunning effect can also be achieved in the production of special effects.

2.2. Face recognition /AI face change

In recent years, with the fast development of AI technology, AI face recognition, as one of the important applications, has been widely used in vast professional fields. It refers to the use of AI artificial intelligence technology to replace other people's faces with their own faces [8].

With development, face recognition now has high accuracy and can process large amounts of data quickly. With the help of powerful computing power and machine learning algorithms, whether it is public security monitoring or mobile payment scenarios, AI has been trained to adapt to multiple scenarios. For example, the monitoring system in the community, and the use of face can enhance security capabilities. Or you can use AI technology on the ZAO app to use your own photos for the characters in the drama or video. Another example is the personalized identification of skin type and skin tone launched by the Meitu Xiuxiu app, which gives users detailed face-lift plans and makeup recommendations. In addition, during the COVID-19 period, face payment can realize contactless payment and is more convenient.

AI face-changing technology can be easily and widely used in film and television production, games, virtual reality and so on. Also, in films and television productions, this technology can be used to replace the faces of actors, so that actors can "transform" in a short time, and complete special effects scenes that would otherwise take a long time to prepare. In terms of game entertainment, this technology can be used to allow players to experience different faces in the game and enhance the immersion of the game.

With the greater progress of technology, AI face-changing technology will become more and more mature and be able to achieve a more natural and realistic face conversion. At the same time, we also expect that this technology can do a better job of protecting personal privacy, ensuring data security, preventing technology abuse, etc., and bringing more convenience and fun to our lives.

2.3. Intelligent translation/S Translator

AI machine translation realizes large-scale automatic text processing, which can improve work efficiency. And through AI machine translation, communication between different languages has become more convenient and rapid. Among them, the machine translation involved in the language service industry has attracted many universities and research institutions to compete for research and attracted the active investment of corporate giants including Google and Alibaba [6].

For products with high demand, such as AI translation, commercialization has become easy. For example, online platforms and software developers have integrated AI systems to provide real-time automatic translation functions, such as the "write while translating" function and photo translation function developed by social media WeChat. There are also some online subtitle translators, such as Baidu Translate and Youdao Translate, which provide translation environments in different fields, such as medicine, information technology, business and other professional fields. Companies can use

it to carry out transnational cooperation documents and emails and other office materials, according to different context needs to quickly convert into other languages, accelerate the process of business activities and promote international trade cooperation.

In addition, it can also be applied to e-commerce, social networks, smart homes and intelligent robots. For example, smart homes and smart robots can use AI translation technology to provide voice interaction and multilingual services to meet the language needs of users in different countries and regions.

2.4. Intelligent customer service

AI intelligent customer service refers to a system that uses artificial intelligence technology and natural language processing and other related technologies to answer users' questions and handle problems. With the popularization of Internet big data, cloud computing and in other fields, especially in industries such as telecommunications, banking, financial services, retail and e-commerce, intelligent customer service technology has become an important tool to improve customer satisfaction and reduce costs. As shown in Fig.1.

When traditional manual customer service is faced with a variety of problems from different businesses, it often repeats a lot of mechanical boring work, which brings high labor costs. In this context, it is very meaningful to design and develop an intelligent customer service system to improve work efficiency [9]. AI intelligent customer service can greatly reduce manual operation time by automatically replying and quickly answering common questions (such as Taobao's automatic reply function and frequently asked question's function). In order to improve efficiency, AI customer service can be available 24 hours a day online and can handle multiple user requests through the collection and analysis of large amounts of data.

With the popularization of intelligent customer service, in the retail industry online, many e-commerce platforms have developed the ability to recommend relevant products according to customers' preferences, which has largely eliminated the information gap and promoted sales growth.

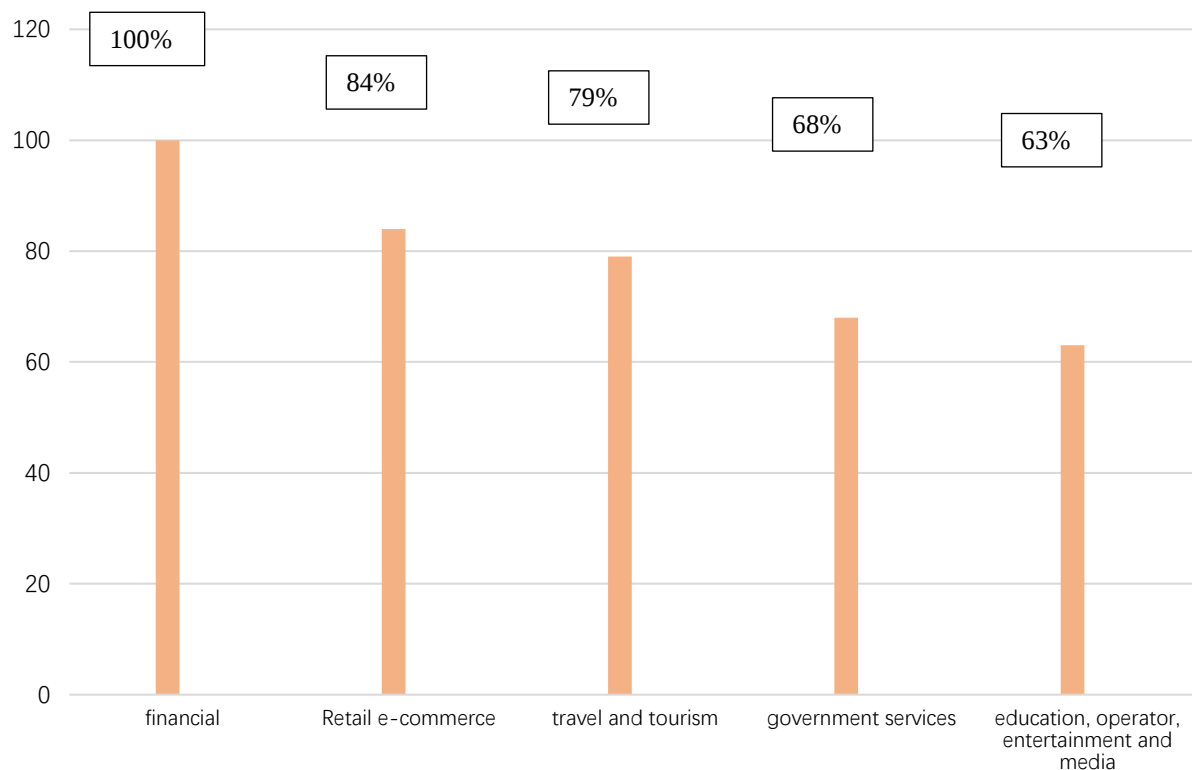


Fig.1 The proportion of downstream applications of smart services in China

In addition, in the field of banking and finance, many banking institutions have begun to use AI intelligent customer service, such as AI to give customers detailed investment advice and frequently asked questions. This technology allows banks to manage larger-scale accounts and reduce labor costs.

With the continuous advancement of cutting-edge technologies such as machine learning and natural language processing, intelligent customer service systems will become more intelligent, humane and personalized. In the future, artificial customer service will still exist for a long time and may develop from competing with intelligent customer service to complementary with intelligent customer service.

3. Problems and trends

3.1. Intelligence deficiency

At present, AI is a thriving trend, but some of the current identification accuracy can not reach the level of commercial application, such as AI in the subdivision of the environmental adaptability is poor.

For example, given the relative standardization of vehicles and road environments, the recognition rate is becoming higher, but the accurate recognition of faces is vulnerable to environmental effects such as insufficient lighting, blurred images, too small target size, or mutual occlusion, which may affect the accuracy of recognition.

In addition, the dispersion of data resources cannot obtain a large number of data resources, which makes artificial intelligence analysis lack effective data support. This leads to the limitations of other scenarios, and it is difficult to gain trust and establish a relationship of data cooperation with public security business departments.

Human-computer interaction and user experience: electronic customer service, voice assistants, intelligent recommendations and other services flooded the market. However, most people still choose human service on customer service calls because voice recognition is not accurate enough. However, AI translation suffers from limited accuracy and few cultural considerations. At present, there are still some errors and understanding biases, especially for complex or polysemous sentences. Because of the vast cultural differences between countries in the world, problems such as incorrect expression of original meaning or ambiguity may occur in cross-language conversion. Besides, it may involve the transmission of users' personal information and sensitive data, so privacy protection and data security become urgent challenges to be solved. In addition, AI customer service lacks emotional factors due to its inability to understand emotional colors and flexibly use body language. In addition, knowledge limitations make AI customer service agents give wrong answers or fail to give clear answers when they encounter new fields or complex problems. The fundamental problem is that AI customer service is, after all, a machine product, which is difficult to replace interpersonal communication. For some scenarios involving more sensitive topics or requiring in-depth communication and understanding (such as complaints, dispute handling, etc.), AI intelligent customer service is not as equipped with communication power and solutions as human customer service.

3.2. Limitation of creativity

Thinking alone and not relying on experience is a disadvantage. AI can learn over time using pre-input data and experience, but it cannot be creative in its approach. A classic example is the robotic quill pen that writes Forbes earnings reports. These reports contain only the data and facts that have been provided to the bot. While it's impressive that a robot can write an essay on its own, it lacks the human touch found in other Forbes articles.

Creativity and innovation are uniquely human qualities. The ability to generate new ideas, design new products, and solve complex problems from scratch is something that AI currently cannot replicate. Creativity requires interdisciplinary thinking, emotional understanding, and intuition,

which are core features of human intelligence and play an important role in art, design, scientific research, and more.

Complex emotions and interpersonal communication: Humans have rich emotional experience and emotional intelligence and can understand and express complex emotional states. In interpersonal communication, we use emotional intelligence to understand the emotions, needs, and intentions of others and build deep relationships. AI is not yet able to fully simulate human emotional and social abilities, which makes humans uniquely valuable in areas such as counseling, social work, sales, and leadership.

3.3. Copyright issues/authenticity issues

For AI Painting, in foreign countries, the issue of AI infringement has aroused social concern. Recently, the Wall Street Journal and other mainstream foreign news outlets accused OpenAI and its chatbot model ChatGPT of using news sources for training without permission and refusing to pay the media. In January, a group of artists sued AI Painting Stability AI Ltd., and Midjourney Inc. Alleging that the companies downloaded and used billions of copyrighted images without authorizing and compensating the artists for them.

Besides, thinking about face recognition, there are still cases of misjudgment or missing judgment due to factors such as light and Angle changes, such as twins, who have a high degree of facial similarity, which makes it particularly easy to confuse face recognition systems.

What's worse, this technology also faces some challenges, such as data privacy, legal regulations and other issues. Many criminals take advantage of the convenience of AI face-changing to carry out criminal activities online. For example, in April 2023, Mr. Guo, a technology company in Fujian, was defrauded through AI face-changing and onomatopoeia technology. In just 10 minutes, he was cheated of more than 4.3 million yuan.

There are more and more apps or functions like "AI writing" Chat GPT or "AI singing" from the Kugou app. Many news reflect the academic problems caused by ChatGPT: some teachers told the reporter that they had found students writing articles using ChatGPT. This not only does not help students improve their learning ability but also confuses the public through fake news and articles.

3.4. The impact on society

The impact of AI on society is deep and multifaceted. Through the full study of productivity, labor employment, income inequality and other economic aspects of the impact on the human way of thinking, production, lifestyle and other social aspects of the impact [10].

It affects automation and employment. Many repetitive, tedious, or dangerous tasks can now be performed by AI, raising concerns about the automation of human jobs. At the same time, some new jobs will be created, but these require more education and training, which is not only difficult to spread but also time-consuming.

The commercial application of AI can not only improve productivity, but also provide more precise decision support for businesses and governments. For example, AI can engage in medical diagnosis, patient monitoring, and personalized treatment, greatly improving the accuracy and efficiency of medical services. Hospitals can also develop AI to automatically diagnose patients.

The demand for education has increased, and AI technology has made it easier to provide customized learning content and feedback based on student's abilities and needs. For example, teaching software in the market shows the problem-solving process by identifying question banks with artificial intelligence to guide children's learning. But when AI faces some complexity and unknown questions, they will not be able to solve them, or even worse they may give the wrong answers.

As AI gets smarter, social and ethical issues grow. Many AIs can be subject to preset biases and values programmed by humans. Therefore, the application of AI needs to regulate the correct value of AI based on protecting the interests of individuals and society. Moreover, this leads to several ethical and legal challenges. For example, how to ensure that machines' decisions comply with ethical

standards and legal regulations, and how to deal with conflicts between artificial intelligence and privacy, security, intellectual property rights and so on. These problems need scientific management and strengthening of legal supervision and norms but also need to adapt to the application and development of artificial intelligence technology, cultivate more AI talents, and try to ensure the privacy and security of data.

In terms of social income, the development of AI may exacerbate the gap between the rich and the poor. Those with the technology and resources may be more likely to reap the benefits of AI, while those without those resources may be marginalized.

4. Conclusion

This paper has studied the state of AI development and the pros and cons of AI painting, face recognition, machine translation and intelligent customer service, as well as their commercial applications. Finally, the problems and trends of AI itself are analyzed.

In terms of AI painting, some conclusions and suggestions on how to distribute copyright and how to make AI commercial applications are mainly drawn.

For the area of face recognition, after analyzing some uses and potential criminal risks of face recognition, it also expresses the prospect of the future of face recognition. Besides, machine translation, which is combined with the advantages of AI itself, this paper analyzes its role in daily life and some commercial development.

What's more, this paper analyzes the advantages of AI technology applications in intelligent customer service and the advantages of manual customer service and finally expresses the summary of new and old customer service.

Let the new industry of AI build on its strengths and avoid its weaknesses. While strengthening legal supervision, it is necessary to strengthen the correct popularization of AI. Do not let AI mislead the development of the new youth but let them learn the correct application of AI to develop all areas of the country. This requires frequently updating the library of problems and giving it the ability to learn and solve problems independently.

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