Research on the application and security of artificial intelligence in financial industry

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Abstract. Artificial intelligence technology is a new industry, which affects the world in a unique way. In the 21st century, artificial intelligence has reached the peak of stage, which has become the representative of emerging technology. In the financial field, artificial intelligence has been fully applied, which improves the prosperity of the financial industry. However, artificial intelligence technology also increases the instability and risk factors of financial industry. This paper first analysis the application of artificial intelligence in the financial field. Then, this paper puts forward some security problems. Finally, some suggestions are put forward.

Keywords: the application and security, artificial intelligence, financial industry

1. Introduction
In 2016, Alphago beat South Korean chess player Li Shishi with a 4-1 result. In May 2017, Alphago defeated Chinese go expert Ke Jie with a 3-0 result. Alphago seems to be the "No.1 expert" in the go world, which shows that artificial intelligence has been fully capable of defeating human beings. Therefore, people's expectations of artificial intelligence are gradually increasing, which has become an irreplaceable work in the financial industry. The financial industry is highly dependent on information technology [1]. Therefore, the current financial industry has also carried out the application of artificial intelligence exploration. Financial institutions at home and abroad are actively promoting the application of artificial intelligence in the financial field. Though these applications still lie in the initial research stage, they has produced an effect on the industry of finance.

2. Application of artificial intelligence in financial field
Artificial intelligence has made great application in the field of finance, mainly in three aspects. Details are shown in figure 1.

2.1. Intelligent customer service
Intelligent customer service is an important application direction of artificial intelligence, which is
mainly divided into online and offline aspects. The offline part is mainly the intelligent robots in the lobby of banks and financial institutions. In 2015, the intelligent customer service robot "Jiaojiao" has become an important part of the Bank of Communications entity network, which is the product of artificial intelligence technology. Through speech recognition, image recognition, speech synthesis and other technologies, intelligent customer service can replace the tedious work of the lobby manager, which will reduce the work intensity of the lobby manager [2]. Online part refers to online intelligent customer service. Based on voice recognition, natural language processing and other technologies, online intelligent customer service will realize remote consultation and processing, which will reduce the artificial service pressure. At the same time, intelligent customer service can reduce the operating cost of financial institutions, which will realize various forms of services, such as web page, wechat, telephone and app customer service. Today, the online service for customers in a lot of banks has been replaced with intelligent robots [3]. Such as, in the "double 11" period, 90% of the service in ant financial services was finished by intelligent customer service.

![Intelligent customer service](https://example.com/intelligent_customer_service.png)

**Figure 1.** Application of artificial intelligence in financial field

2.2. **Biometrics**

Compared with traditional identification methods, biometrics has obvious advantages in security, confidentiality and convenience. With the increasing security requirements of the financial industry, biometric technology has been widely used in payment verification and security monitoring. Through biometric technology, we can improve the security of financial payment, verification and monitoring. At present, many biometric technologies have been applied in the financial field, such as face recognition, fingerprint recognition, iris recognition [4]. Through ATMs, outlets and other cameras, banks can classify and identify customers, which can discover high-quality customers in advance and conduct precise marketing. Iris recognition has the following characteristics, such as high complexity, strong security and so on. In the field of finance, iris recognition technology is mainly used in security control and authentication, such as vault, data center and so on. Therefore, biometric technology has become the main application technology of financial institutions security [5].

2.3. **Intelligent investment consultant**

At present, intelligent investment consultants are mainly used in two aspects. First, provide personalized financial services for ordinary customers. Compared with traditional financial services, intelligent investment advisory system can collect basic indicators, such as age, consumption trajectory, economic basis, risk preference, etc. By building a mathematical model, the intelligent investment consulting system can analyze the wishes of customers, which will be more conducive to the development of personalized financial services. With the continuous optimization of the algorithm model, the personalized scheme of the intelligent investment consultant will become more and more intelligent, which will gradually improve its accuracy [6]. By collecting all kinds of economic data in real time, intelligent investment consultants will continue to carry out machine learning. Second, for investment institutions. Through neural network technology such as machine learning, intelligent investment consulting technology will become an analysis and processing mode. By building and improving the transaction model, we will integrate data from different sources.
3. Problems of artificial intelligence in financial industry
A total of 1000 questionnaires were distributed in this study, of which 982 were valid, with an effective rate of 98.2%. The specific analysis is as follows.

3.1. Risk of information disclosure
For the financial area, the very popular problem of AI is information disclosure, which will disclose the privacy information and personal information of the masses. Artificial intelligence will accelerate the developing of financial industry, which will bring various risks. Through data analysis, customer information security can’t be guaranteed. According to the survey results, the main problem is privacy information disclosure, accounting for 57.8%. The second is personal information disclosure, accounting for 48.4%. Details are shown in figure 2.

![Figure 2. Risk of information disclosure](image)

3.2. Potential safety hazards
There exist a lot of differences between AI and brains of human beings. Brains of human beings is a thinking path that depends on reasoning and deduction. However, artificial intelligence pays more attention to correlation and algorithm, such as multilayer neural network. If the technology of artificial intelligence is out of control, there is no way to understand its internal operation mechanism [7]. According to the survey results, the main problem is responsible party for indeterminate system problems, accounting for 75.0%. The second is inestimable benefits and risks, accounting for 58.0%. Details are shown in figure 3.

![Figure 3. Potential safety hazards](image)

4. Improve the security strategy of AI
4.1. improve the professional quality of financial practitioners
Government departments, schools and scientific research institutions need to cooperate. With the popularization of artificial intelligence technology, we should strengthen propaganda, which will promote scientific judgment mechanism. Financial supervision is a long-term, continuous improvement, cyclic and complex process, including market access supervision, daily management,
risk assessment, risk disposal, market withdrawal and so on. However, financial regulating and financial supervision are relatively lagging behind. We need to pay attention to the improvement of the professional quality of financial practitioners. Only when employees understand AI can they make good use of it. Therefore, we should improve the quality of the financial practitioners.

4.2. pay attention to the R & D and application of user information encryption technology
If we want to improve the effective application of AI in the financial field, we need to effectively ensure the information security of users. By studying information encryption technology, we can further protect the privacy information and personal information of guests. Artificial intelligence needs to pay attention to the research and development and promotion of information encryption technology. Only in this way, the financial industry can really prevent the risk of information leakage, which will enhance the security of artificial intelligence. Therefore, we must cooperate effectively with AI technology research and development institutions. By focusing on the R &amp; D and application of user information encryption technology, we will promote the financial sector's ability to resist risks.

5. Conclusions
Nowadays, China attaches great importance to the development of artificial intelligence. For example, China has put forward a series of preferential policies, which will increase the support of AI research and development. China has released the development plan of artificial intelligence, which points out the research direction for researchers. With the development of economy, the penetration of Finance in life is gradually deepened. Thus, the application demand of AI in the financial industry is increasingly strong. For this reason, artificial intelligence has also been introduced into the financial field, which will assist in the management of financial business. Based on this, China needs to widely promote artificial intelligence, which will improve the service level of the financial industry. By accelerating social transformation and development, artificial intelligence has a very good application prospect in the financial field.

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