

# ***Research on the New Mode of E-commerce Based on AI Authentication- POIZON App***

**Yaxuan Liao<sup>1,a,\*</sup>, Jiekai Sun<sup>2,b</sup>**

<sup>1</sup>*Institute of Foreign Languages, Southwest Jiaotong University, Chengdu, Sichuan, 610000, China*

<sup>2</sup>*Faculty of Finance, City University of Macau, Macau, 999078, China,*

*a. 2020116311@my.swjtu.edu.cn, b. F21090104459@cityu.mo*

*\*corresponding author*

**Abstract:** With the development of the Internet, large Chinese e-commerce platforms such as Taobao, Jingdong, and Pinduoduo are developing rapidly. In recent years, trendy e-commerce platforms, represented by POIZON App, have gradually emerged. The birth of Artificial Intelligence (AI) authentication has created a new e-commerce model for the POIZON platform and also provides new convenience for the majority of consumers. This paper is based on the "AI +e-commerce" new situation to carry out the AI authentication of the new mode of e-commerce discussion, this paper also analyzes the development of the current situation of AI authentication, its advantages and disadvantages, and this research found that consumers believe that the main advantage of AI authentication is the authentication of fast and convenient to use. But at present, AI authentication has not entered the public's vision, its utilization rate and popularity are still very low, and most consumers believe that it can not meet the authentication needs. At the same time, technical difficulties need to be overcome, but AI authentication technology still has a broad development prospect, half of the consumers believe that the future trend is AI authentication, supplemented by artificial authentication. This paper can provide suggestions for solving the various defects of the current AI authentication and successfully entering the market, and provide reference for other e-commerce platforms of the same type.

**Keywords:** POIZON App, AI authentication, Simulated product

## **1. Introduction**

Today's world is experiencing the fourth industrial revolution, which is represented by artificial intelligence, cloud computing, big data, gene editing, driverless cars, 3D printing, and other technologies. Schwab suggested that with the advent of the fourth industrial revolution, "various major technological innovations are about to set off unstoppable huge changes on a global scale" [1]. Among them, artificial intelligence (AI) is the core component of the fourth industrial revolution, and in the past decade or so, global artificial intelligence technology has achieved rapid development, becoming one of the core driving forces of the new round of scientific and technological revolution and industrial change [2,3].

The development of AI has gone through the following three stages: computational intelligence, perceptual intelligence, and cognitive intelligence. The overall development trend is from simple to complex, i.e. from "machine intelligence" to "artificial intelligence" [4,5].

Certainly, in contemporary times, With the development of information technology, enterprises are turning to the "AI+" model and strengthening data integration and analysis. In the aviation industry, artificial intelligence manufacturing systems integrate physical and virtual dimensions to form a new mode of deep integration, possessing the ability to learn and self-optimize [6]. In smart communities, deep learning algorithms ensure smooth fire exits and improve response speed in emergencies [7]. In the field of education, online platforms and facial recognition technologies are used to achieve student data tracking and campus security[8]

With the birth of the Internet, some large e-commerce platforms have also begun to be combined with AI technology for application. In recent years, the trend of e-commerce platforms, such as Getting Things, Nice, and Knowing Goods, has also emerged. These e-commerce platforms have changed the way of life of Chinese residents, both big and small. As the e-commerce industry gradually matures, it is bound to need a strong and powerful wave of influx[9]. The combination of AI + e-commerce will help promote the localization of AI technology while enriching the e-commerce industry. At present, AI and e-commerce from a variety of perspectives to the depth of the combination, thus promoting the birth of new models of e-commerce, such as AI authentication, AI customer service, AI store design, AI data analysis, AI virtual anchor, etc. [9]. This shows that the development trend of AI + e-commerce is considerable.

Therefore, this paper mainly discusses the new mode of e-commerce based on AI authentication from the development status quo, advantages and disadvantages, and development prospects of AI authentication. Through the form of a mediation questionnaire, consumers were asked questions including the way to understand AI authentication, whether they have used AI authentication, the attraction of AI authentication, the future development trend of AI authentication, and so on. This paper determines the degree of reception of AI forensics within the public eye by understanding consumers' use and perception of AI forensics. The research in this paper can provide suggestions for solving the various defects of the current AI authentication and successfully penetrating the market, and at the same time provide a reference for other e-commerce platforms of the same type.

## 2. Method

This paper distributed online questionnaires to many citizens through social networks and collected nearly 100 questionnaires. As shown in Figure 1, the gender ratio of investigators is 33.33% male and 66.67% female; The age group included 13.33% under the age of 18, 50% between 18 and 25, and 36.67% over the age of 25. Qualifications include high school/secondary school or below 16.67%, junior college 6.67%, bachelor's degree 70%, and master's degree or above 6.67%.

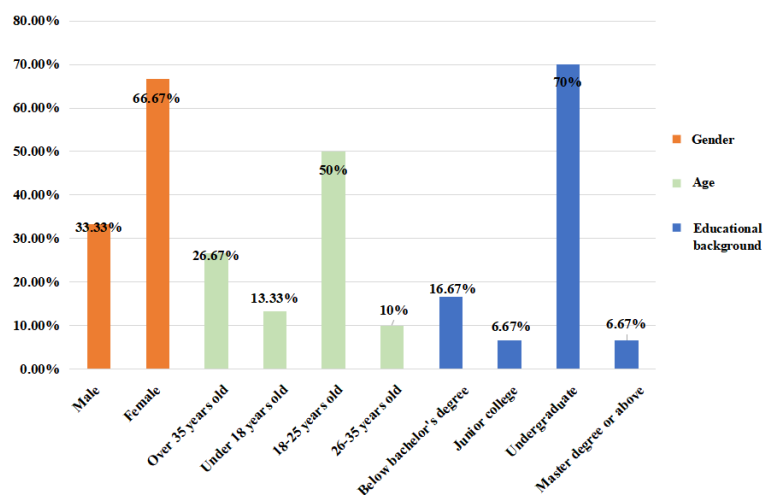


Figure 1: Survey population.

### 3. The Rise and Development of AI Authentication

In 2017, POIZON App created the transaction mode of "authenticate first, deliver later", and implemented the compensation system of fake one to compensate for three, which effectively solved the problem of consumers buying fake and shoddy products and being cheated, effectively protecting the rights and interests of consumers, and satisfied the high pursuit of consumers for genuine products, which was deeply loved by the majority of young consumers, and got the goods. Therefore, it has become the leader of this industry.

However, in recent years, some consumers have exposed that the platform of POIZON sells fake products and there are mistakes in the authentication process, which has greatly undermined the trust of consumers in the platform of POIZON[10]. To further enhance the ability to guarantee genuine products, POIZON App has spent a lot of money to open a CNAS-certified authentication laboratory, which is a precedent in the industry by using high-precision instruments for authentication and fidelity. Score App also Applies AI cutting-edge technology to authentication and quality inspection for the first time, and established the world's first AI-assisted authentication production line, which assists the identifier's multiple cross-authentication, improves the efficiency, and further guarantees the refinement and accuracy of authentication to meet more users' needs[11].

At the same time, the AI Extreme authentication function of the POIZON App, which was launched in August 2023, is available for consumers to use for free. Simply upload the goods you want to identify in the form of pictures to the platform, and the AI can identify them according to the set style rules or manual experience samples, which saves time and effort and brings great convenience to consumers.

As shown in Figure 2, consumers through friends promotion and POIZON App to understand POIZON AI authentication accounted for the largest proportion, respectively, 40% and 36.67%, at the same time, as shown in Figure 3, the use of POIZON AI authentication consumers only accounted for 26.67%, indicating that the vast majority of consumers only stayed in the know the existence of the AI authentication, and did not use this function.

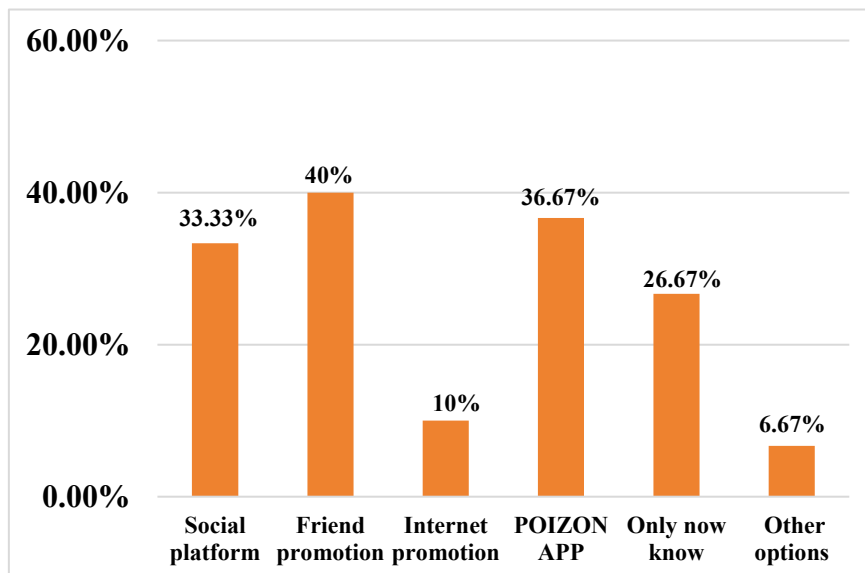


Figure 2: Approach to Knowing the AI Authentication of the POIZON App.

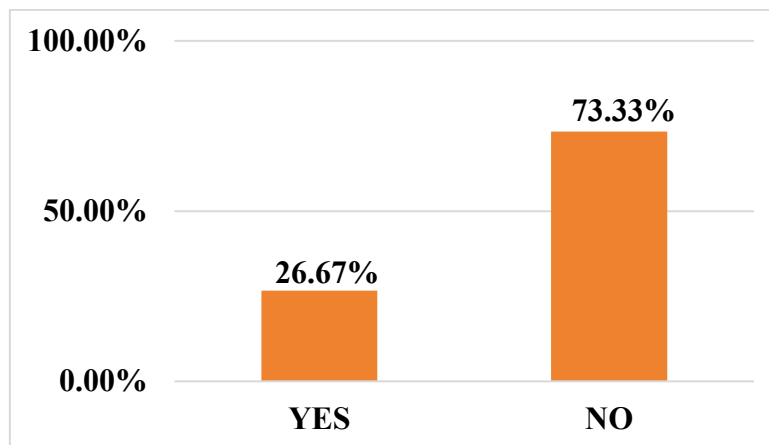


Figure 3: The rate of the utilization of AI authentication.

At present, the development of AI authentication is still in its initial stage, get things need to increase publicity, to solve the technical problems behind, it so that it enters the public's field of vision, but at the same time this also means that AI authentication in the future has a broad space for development.

#### 4. The principle and advantage of AI authentication

For such e-commerce platforms, the authenticity of goods has always been the most important part of the transaction service process. At present, there are many authentication platforms on the market, such as POIZON, Shihuo, Tuling Authentication, etc. They have initially Applied AI technology to the various services they provide, trying to use AI technology to solve the problem of authenticity that consumers are most concerned about[12]. In the case of POIZON, POIZON Applies AI technology to its most critical authentication process.

The early technology and the current conventional AI authentication technology are very cutting-edge technologies, ahead of other platforms in the industry, and all technologies are self-developed. Like artificial authentication, AI authentication can be divided into two ways, The first is based on rules, which can be understood as each brand has its mandatory regulations, such as the length and width of the line, knitting direction, character recognition, etc., when the identified goods do not meet this requirement, they will be judged as fake. The second is based on experience, for some characteristics of the product, such as the thickness of the font, printing depth, clarity, bump, etc., after seeing enough genuine products, you can sum up the law and skillfully use it, naturally you can distinguish between real and fake products. For artificial authentication, most people use the second way, almost no one uses the first way, because the first way is extremely complicated, and each brand will not easily disclose such information to consumers in case of improper ideas. For AI authentication, both methods can be used. If the rule-based Approach is chosen, some traditional CV methods are mainly used to identify the characteristics desired by the rules. However, the rules are changeable, each brand has its own rules for each series and even each style. When a new series style Appears, to maintain the latest rules, huge development costs will be consumed. And the goods are non-rigid. It is not very friendly to traditional CV algorithms, so the first method is not practical. If the experience-based Approach is chosen, it provides a large number of real and fake samples of goods for AI to learn. This approach is very much in line with current artificial intelligence technology. Over the years, the POIZON platform has accumulated rich experience and massive data in the authentication and inspection practice of fashion items, which is transformed into its trend authentication database[13] and provides big data support for the learning process of the artificial

intelligence authentication and inspection system. For the fashion goods sold on the POIZON App, the platform has established detailed authentication files one by one. The professional authentication research team will conduct detailed analysis and instrument testing on packaging, Appearance, materials, accessories, etc., issue detailed authentication reports, and continue to accumulate experience in first-line authentication and iterative upgrading[13]. POIZON has always been in the leading position in this industry with a large user base, many service times, and a large sample size[14]. These make the POIZON platform more easily develop AI authentication technology and obtain higher accuracy compared with other platforms of the same type.

To sum up, at present, POIZON AI authentication is used the second way, and the authentication accuracy of most styles is equal to or even higher than the manual authentication accuracy. AI authentication mainly takes pictures of key parts of goods by users and identifies the authenticity of goods through artificial intelligence technology. The whole process can be divided into four parts: determining style- determining parts- segmentation parts- and identifying authenticity. Compared with traditional manual authentication, the AI database is large, and data processing is fast, greatly improving the authentication speed, and greatly reducing the authentication time; And because AI will not feel tired, and can continue to work 24 hours, the authentication error rate will be much lower than manual authentication; In the same time, AI authentication efficiency is often tens or even hundreds of times that of manual labor, and the platform can also reduce the need for manual labor and thus reduce costs; Because the underlying logic of AI is an algorithm and model, it can be copied, which can further reduce the cost consumption. POIZON not only adopts the method of artificial AI combined with authentication in the platform authentication stage but also provides an online AI authentication function for consumers who have received goods. Users only need to upload pictures to the platform and can get authentication results without leaving home, which provides convenience for many trend lovers.

As can be seen from Figure 4, 50% of users believe that the advantage of AI authentication lies in the authentication speed and ease of use, fewer users believe that AI authentication is highly accurate, and a few users believe that this technology has other advantages. Most users believe that AI authentication is mainly attractive to users because of its authentication speed and ease of use.

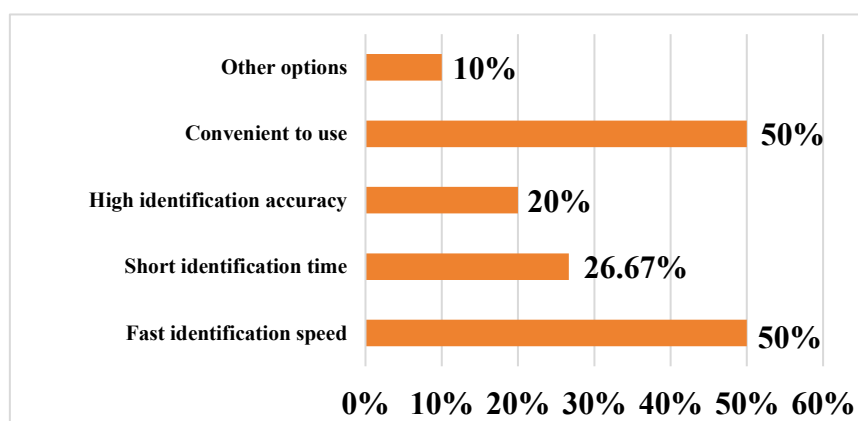


Figure 4: Attractions of AI authentication compared to manual forensics.

The broad market prospect also leads the industry gradually to intelligence. POIZON App is the first to invest hundreds of millions of yuan in Shanghai to build a global supply chain center, which is equipped with a complete artificial intelligence inspection system for all kinds of trend items. The project will build dozens of automated production lines, which are based on image recognition technology and high-precision algorithms to quickly identify abnormal goods[15]. The abnormal situation is accurately judged to realize the digital, fine, and intelligent authentication of fashion

goods. Due to the fashion products involving footwear, clothing, accessories, digital and other categories. They have complex materials and the brand production lines are different. Authentication work and inspection work is extremely complex. There is no unified detection system for trend products in China. The artificial intelligence authentication and inspection system built by the POIZON App promotes the digital and intelligent development of the fashion authentication industry and greatly improves the technical level of the e-commerce industry and the testing industry. Compared with other platforms of the same type, POIZON has a stronger foundation. Due to its early creation, many users, large sales, and other advantages[16], it can research effective technology faster and earlier than other platforms in the same industry and provide services for a wider group of people.

## 5. AI authentication current weaknesses and prospects

At present, the existing platform AI authentication function has brought a certain degree of convenience to consumers, but this function is only limited to the consumer side. The buyer will take photos of the purchased goods and upload them to the App, AI will identify the pictures, and AI only acts as an auxiliary manual role in the authentication and quality inspection. Due to technical limitations, although the authentication accuracy of AI authentication is higher than or equal to the manual authentication accuracy in most styles, there are still many technical difficulties to overcome and optimize if you want to achieve usable accuracy.

It can be seen from Figure 5 that 63.33% of users believe that AI authentication can not fully meet user needs, and only 36.67% of users believe that AI authentication can not fully meet user needs.

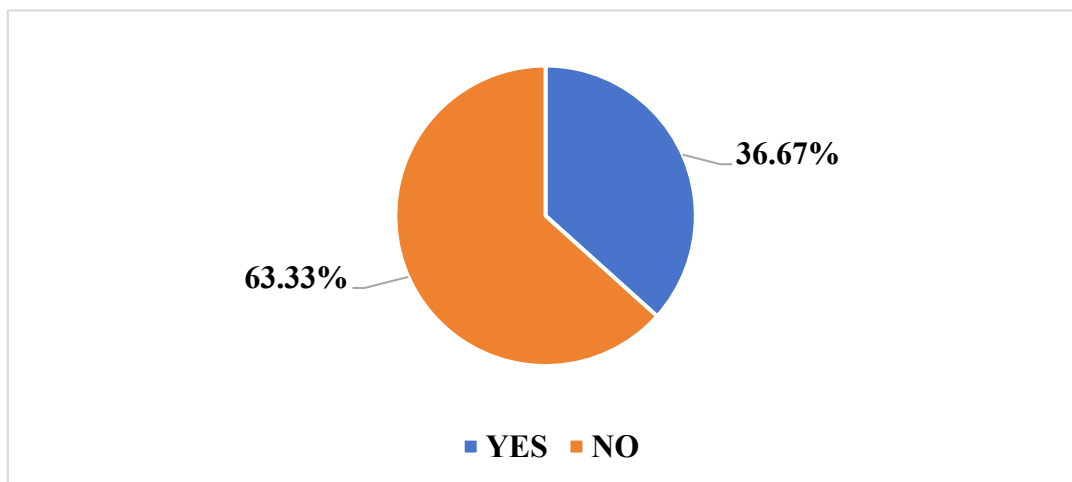


Figure 5: Whether AI authentication of the POIZON App can meet user's needs.

So, in what dimensions can AI further integrate with the POIZON platform and help the POIZON App develop to a new height? This is what the author of this article is committed to exploring.

The AI authentication-assisted manual authentication production line and the AI authentication function of picture recognition launched by POIZON have improved the accuracy and comprehensiveness of authentic product inspection and further met people's quality consumption needs. However, if we want to achieve AI authentication to account for the overwhelming proportion or even replace manual authentication and Apply AI to more production and consumption scenarios, we need to solve many problems between technology and products. For example, at present AI authentication can only determine the authenticity of goods through images. But for some goods with the same appearance, smoothness, and other characteristics but different materials, AI authentication cannot correctly determine their authenticity. It can only rely on artificial touch and other ways to judge. Nowadays, major brands have a high frequency of launching new products. When the brand's



new series and new styles of goods Appear, there will be new authentication standards. At this time, new logic codes need to be added from the bottom, which is more complicated. The brand of the same type of product workmanship will also be different. Some goods due to poor workmanship and easily to be judged as false by AI. In addition, "Putian manufacturers" will also actively look for countermeasures. Through a large number of counterfeit authentication samples, sum up experience and produce more goods that are not easily authenticated as fake by experience. So that experience is no longer effective. It will increase the difficulty of authentication and reduce the accuracy of authentication. Such problems are the defects that AI authentication needs to overcome. And only when these problems are all solved, AI authentication is expected to completely replace manual authentication as the mainstream authentication method.

POIZON App plans to establish a public testing service platform when it develops to a certain stage in the future. It will improve detection accuracy and efficiency through artificial intelligence testing and extend the value chain of third-party testing with intelligence. It also can provide first-hand information for relevant industry decision-making and promote industry reform[15]. It is believed that in the near future, the entire e-commerce industry will have new changes and there will be the emergence of offline AI authentication stores.

As can be seen in Figure 6, 50% of users believe that AI authentication will be the main industry in the future and manual authentication will be supplemented; 36.67% of users believe that manual authentication will continue to be the main and AI authentication will be supplemented in the future; Another 3.33% of users believe that AI authentication has no development prospects at all; 10% of users still think otherwise. The results show that the majority of users believe that the future trend is a combination of a small number of manual authentication and a large number of AI authentication.

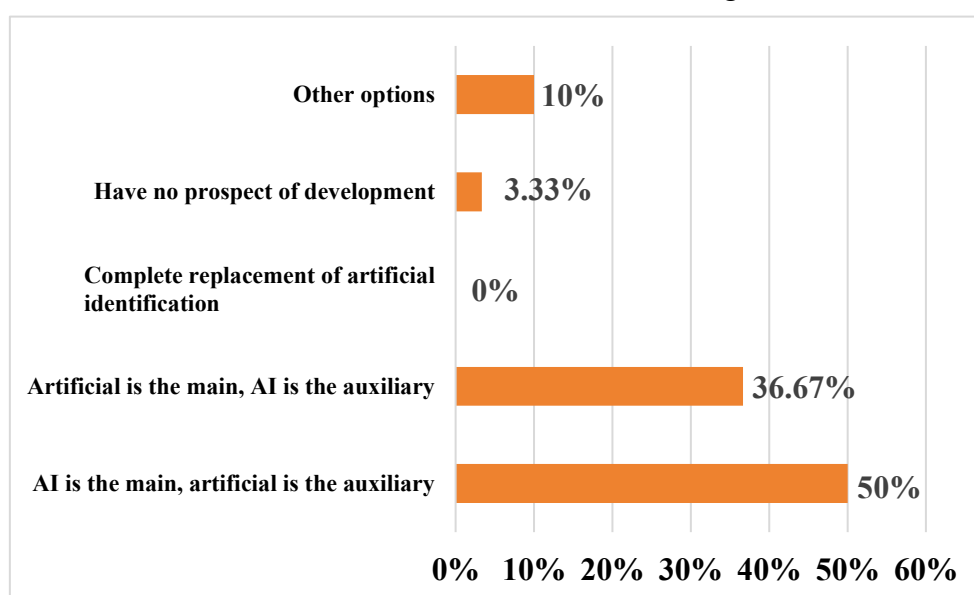


Figure 6: AI authentication of POIZON App future trends.

Figure 7 shows that 30% of users will choose to start using AI authentication in the future, and another 30% will choose to follow but not use the technology. 20% will neither follow nor use AI authentication in the future and another 20% will choose to continue using the technology.

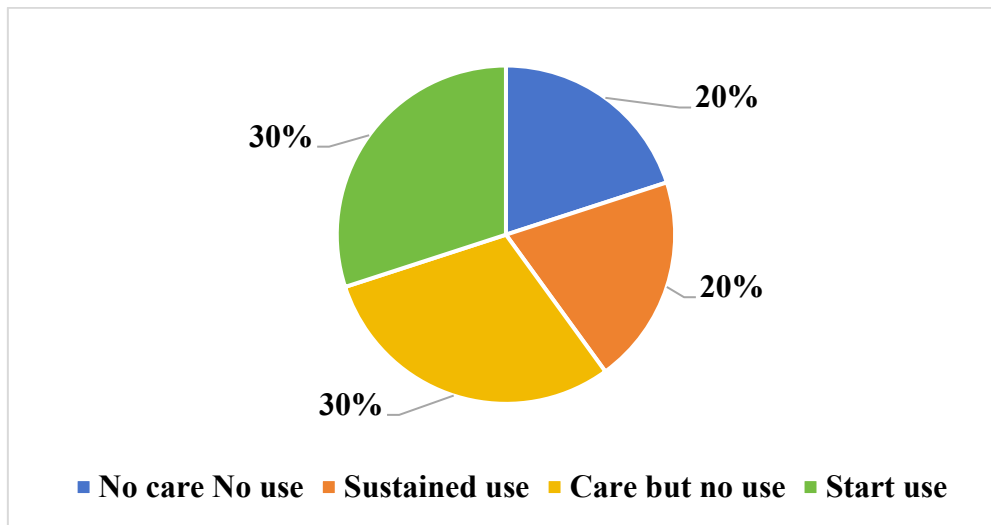


Figure 7: The future trends in AI authentication of the POIZON App.

It can be seen from Figure 8 that 56.67% of users are willing to recommend this technology to others, while 43.33% of users are unwilling to recommend it.

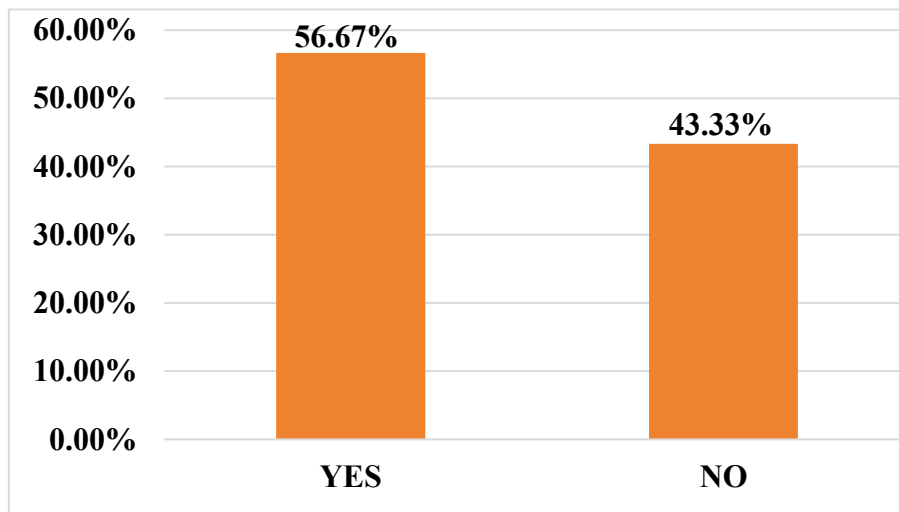


Figure 8: The future use of AI authentication of the POIZON App.

In general, AI authentication is very likely to replace manual authentication as the mainstream authentication mode in the future.

## 6. Conclusion

This paper aims to study whether artificial intelligence can be cleverly integrated with today's e-commerce industry to form a new industry model based on AI, which will bring benefits to the company and provide more convenient and effective services for the masses. As the core driving force of a new round of industrial change, artificial intelligence is having a huge impact on the world economy, social progress, and human life. AI authentication has injected new vitality into the e-commerce authentication platform. It provides new convenience for the majority of consumers and brings new ideas and new opportunities to promote the development of the e-commerce industry. Through the survey, it can be seen that AI authentication is still a very novel technology. It is in its infancy. Most people only hear about this technology but have not used it. And this technology has



not yet fully entered the public's vision. Although it is acknowledged that AI authentication has many advantages over manual authentication, such as short authentication time and fast speed. This technology also has some difficult problems to solve and users still have questions about whether it can fully meet their needs and the reliability of authentication[12]. Despite this, most people believe that the development prospects of AI authentication technology are very impressive. And some users will gradually try to use this technology in the future. It is undeniable that the current AI authentication technology is not mature. There are still many problems that have not been overcome. How to solve all kinds of current defects of AI authentication so that this technology is perfect and goes into the public's life is still a period in the future that needs the industry to think deeply and solve the problem.

With the change of the times and the continuous development of science and technology, there is reason to believe that shortly, AI authentication technology will emerge with a new appearance.

### Authors Contribution

All the authors contributed equally and their names were listed in alphabetical order.

### References

- [1] Zhao, Q.X. (2016). *Marching Signposts for the Economy of the Future- Reading Klaus Schwab's New Book "The Fourth Industrial Revolution"*. *High-Tech Zone of China*, 20, 83-84.
- [2] Lv, W.J., Chen, J., Liu, J. (2018). *The Fourth Industrial Revolution and Artificial Intelligence Innovation. Research on Higher Engineering Education*, 3, 63-70.
- [3] Xu, N. (2017). *Windfalls and Bubbles in the AI Industry*. *Qilu Weekly*, 48, 6-10.
- [4] Zhu, S.B. (2021). *Exploration on the New Model of AI Empowered E-commerce*. *Technology Wind*, 3, 19-20.
- [5] Wu, M.D. (2023). *How to Apply ChatGPT from "+AI" to "AI+"*. *Software and Integrated Circuits*, 4, 48-50.
- [6] Sui, S.Q., Xu, A.M., Li, X.H. (2020). *The Convergence Application of DT and AI for Aerospace Intelligent Manufacturing*. *Chinese Journal of Aeronautics*, 7, 7-17.
- [7] Zhejiang Dahua Technology Co., Ltd. (2023). *AI Hotspot Applications in Smart Community*. *China's construction informatization*, 5, 13-15.
- [8] Shi, C.C. (2020). *The United States: Four Issues to Consider when Applying AI to Education*. *People's Education*, 2, 16-17.
- [9] Wu, Q.J., Chen, X., Wang, F. (2019) *Will Artificial Intelligence Bring about Large-scale Unemployment- Calculation of Artificial Intelligence Technology, Economic Benefits, and Employment Based on E-commerce Platforms*. *Shandong Social Science*, 3, 73-80.
- [10] Pu, W.J. (2019). *The troubles of POIZON's growth*. *China's strategic emerging industries*, 21, 93-96.
- [11] Rizhao News Network. (2023). *The People's Daily Online praises the product app for users to strictly control quality: meticulous, detailed, and ultimate*. Retrieved from <http://finance.people.com.cn/n1/2022/0114/c1004-32331772.html>
- [12] Zhou, J.T. (2022). *Research on the Development Strategy of POIZON App Based on SWOT Analysis*. Retrieved from <https://www.doc88.com/p-26116190126066.html>
- [13] Li, Y. (2022) *"Authenticate First, Deliver Later" to Ensure the Use of Genuine Products in POIZON App and Ensure the Safe Consumption Appeal Young People*. *The Ten Thousand Miles Journey of China Quality*, 2, 182-184.
- [14] Wang, M.J. (2021). *Analysis of Online Marketing Strategies in the Chinese Footwear Market- POIZON App*. *West LeatherWest Leather*, 43, 38-39.
- [15] Qilu Yidian. (2020). *The Largest Artificial Intelligence Authentication Scenario in the World! POIZON App Leading the Trend Industry into the AI Era*. Retrieved from <https://baijiahao.baidu.com/s?id=1672067139992107967>
- [16] Shen, J.H., Zhang, Y. (2020). *Research on Platform Innovation of the Internet Tide Value Chain- POIZON App*. *China Economic Trade Herald*, 8, 111-113.