Research on the application of Artificial Intelligence

Zewen Li

Guangzhou University Affiliated High, Guangzhou, Guangdong, 510000, China

2507229545@qq.com

Abstract. Currently, the field of artificial intelligence mainly includes key technologies such as computer vision, natural language processing, cross-media analytical reasoning, intellectually adaptive learning, group intelligence, autonomous unmanned systems, smart chips and brain-computer interfaces. These operations that can be completed with the assistance of artificial intelligence, with the help of artificial intelligence, life efficiency is greatly improved and the cost is greatly reduced. However, at present, Artificial Intelligence is only effective in the field of pointed and high-end research and learning, and there are still some thresholds in the application of daily life. In recent days, there have been a series of new technological inventions such as ChatGPT and a series of civilian Artificial Intelligence. Most of these new programs cannot be reasonably applied. This paper takes the application of Artificial Intelligence in the professional field as the background, and deeply explores the application of Artificial Intelligence technology in the non-professional field as exemplified by ChatGPT. This paper finds that in the medical field, Artificial Intelligence has played a considerable role, and Artificial Intelligence research on medical care is also in progress, so this paper makes predictions about the Artificial Intelligence that will appear in the medical industry based on the current situation, and investigates the understanding and use of Artificial Intelligence among teenagers through questionnaires, and analyzes the collected data.

Keywords: Artificial Intelligence, Prediction, Application, Development.

1. Introduction

In recent years, the popularity of Artificial Intelligence technology has been rapid, and different types of Artificial Intelligence play a role in various aspects of people's lives, both positive and negative. Therefore, the use of Artificial Intelligence has caused many social problems, such as some industries being impacted, and the use of Artificial Intelligence replacing many professions. How to choose suitable professions, how to use Artificial Intelligence correctly, and who should take responsibility when Artificial Intelligence makes mistakes are the doubts in people's hearts. And so far, there has been very little research on how these societies should solve, face, and choose. This article mainly starts with the current assistance of Artificial Intelligence in medical diagnosis and the current use of Artificial Intelligence by young people. It analyzes and discusses the use of different types of Artificial Intelligence by young people, predicts the future development of Artificial Intelligence, and also predicts the rapid popularization of Artificial Intelligence use in other fields. By analyzing data, conducting surveys, and analyzing questions. This article aims to analyze the help that Artificial Intelligence can bring now, how to utilize it, and make predictions on which areas will further improve

people's living standards in the future, helping people maximize the use of Artificial Intelligence in the present.

2. Artificial Intelligence in Professional Fields - An Example from Medicine

Identifying Crohn's disease (CD) and tuberculosis of the intestine (ITB) by endoscopy is challenging [1]. Our goal is to build a trusted Artificial Intelligence differential diagnosis application for more accurate endoscopic diagnosis of CD and ITB. The accuracy of unbiased text CNN in the differential diagnosis of CD and ITB was 0.83 (CD F1: 0.87, ITB F1: 0.77), the highest accuracy in the baseline. On the noisy verification set, the accuracy is 0.70 (CDF1:0.87, ITB: 0.69), which is significantly higher than that of the unbiased model. We also found that unbiased models make it easier to mine important diagnostic features. Unbiased text CNN mined 39 diagnostic features in the form of phrases, 17 of which were key diagnostic features identified by the guidelines. We have built a trusted Artificial Intelligence differential diagnostic application to distinguish between CDS and ITBs, with a focus on accuracy, interpretability, and robustness. The classifier performed well and had statistically significant features in line with clinical guidelines.

Their research suggests that it is possible to use machines to detect illness. Some hospitals in Beijing have now begun to conduct preliminary examinations of people's physical examinations using machines [2,3]. This examination method greatly increases efficiency, resulting in the problem of patients waiting for too long due to insufficient doctors [4]. Moreover, in some basic diseases, machines may be more efficient than doctors, and doctors' abilities should be applied to more complex medical problems that cannot be accurately judged by machines [5]. Although machines have gradually played a role in the medical field, they still have not played a decisive role.

As of 2023, there are currently five types of Artificial Intelligence medical diagnoses [6]. The first type is medical imaging diagnosis, which utilizes algorithms such as deep learning to automatically analyze and diagnose medical images such as CT, MRI, X-ray, etc. The second type is clinically assisted diagnosis, which utilizes technologies such as natural language processing and machine learning to analyze and diagnose clinical data such as patient medical records and examination reports. The third type is electrocardiogram analysis, which uses algorithms such as deep learning to automatically analyze and diagnose the electrocardiogram and provides real-time monitoring and warning functions. The fourth type is blood analysis, which uses machine vision and other technologies to automatically analyze and diagnose blood microscopic images, such as blood cell count and blood pathology. The fifth type is EEG analysis, which uses algorithms such as deep learning to automatically analyze and diagnose EEG and provide real-time monitoring and warning functions.

The direct benefits of using artificial intelligence can be divided into four points: 1) Improving diagnostic accuracy: Artificial Intelligence assisted diagnostic equipment can use algorithms such as deep learning to analyze and learn a large amount of data, thereby improving diagnostic accuracy and efficiency. 2) Improving medical efficiency: Artificial Intelligence assisted diagnostic equipment can automatically analyze and process medical images, clinical data, and other information, reducing the workload of doctors and improving medical efficiency. 3) Improving patient experience: Artificial Intelligence assisted diagnostic equipment can provide real-time monitoring and warning functions, helping patients better manage their health status and improve their experience. 4) Reducing medical costs: Artificial Intelligence assisted diagnostic equipment can reduce the waste of medical resources, reduce medical costs, and improve medical efficiency and quality [7].

At the same time, there are also some shortcomings in using Artificial Intelligence technology to assist in treatment, which can be summarized as four points: 1) Insufficient data: Artificial Intelligence assisted diagnostic equipment requires a large amount of data for learning and training. If the data is insufficient or of low quality, it will affect the accuracy and effectiveness of diagnosis. 2) Lack of humanized judgment: Artificial Intelligence auxiliary diagnostic equipment lacks the experience and judgment of human doctors, which may lead to missed diagnosis, misdiagnosis, and other situations. 3) Privacy leakage risk: Artificial Intelligence assisted diagnostic equipment needs to handle a large amount of medical data and personal privacy information. If data leakage occurs, it will pose a threat to

the patient's privacy. 4) Immature technology: Artificial Intelligence assisted diagnostic equipment is still in the development and exploration stage, with immature technology and some challenges and limitations [8].

According to the current social situation, in some comprehensive and complex cases, Artificial Intelligence is still unable to independently complete diagnosis. However, machines can provide doctors with assistance, from simply calculating numbers to obtaining preliminary diagnostic results, to now being able to independently perform synchronous analysis on multiple data images. The assistance of Artificial Intelligence in medical diagnosis is gradually improving, and research on Artificial Intelligence related to genetic diseases is currently a hot topic [9].

The difficulty of suturing egg membranes is equivalent to minimally invasive surgery, so some robots now have certain surgical capabilities and will definitely play a greater role in the future.

In fact, through research, we can discover some problems. Currently, Artificial Intelligence is more involved in the processes of disease identification and surgery and lacks an Artificial Intelligence system for diagnosis and treatment. After analysis, this article concludes that deep learning artificial intelligence should be the development direction for this type of Artificial Intelligence. Firstly, two types of artificial intelligence are discussed, including autonomous learning, such as alpha dogs. Programmers use programming to allow machine learning to determine the condition, and then let the machine continuously try and error to generate a set of treatment plans and then continuously compare them with existing cases. Let the machine master how to develop treatment plans. The advantage of this type of machine learning is that it can still provide solutions for rare cases with fewer matches with existing cases because this type of Artificial Intelligence does not match cases with existing databases, screens out the cases with the highest matching rate with the database, and then uses the same method for treatment. Instead, the machine understands the patient's condition and tailors the medicine according to it. The disadvantage of this type of Artificial Intelligence is that it generates results slowly, and the effectiveness of the plan is relatively low. Another possible type of Artificial Intelligence is a relatively common type, which is to optimize the speed of data analysis through algorithms and then quickly match existing cases with the database to obtain the optimal solution The advantages of this type of Artificial Intelligence are high scheme effectiveness and fast extraction speed, while the disadvantage is that it cannot effectively analyze rare cases. After analysis, this article believes that the latter option is more feasible. The reason is that even human doctors may not be able to determine the treatment plan for rare cases, and the plan provided by machines still plays an auxiliary role and does not dominate the treatment process. Therefore, the most commonly used scenarios for this type of robot are to check and review the rationality of the treatment plan of the attending doctor, and to quickly obtain results. The analysis requirements for rare cases are not high, so the latter solution is more in line with the requirements.

3. Application of Artificial Intelligence in Non-specialized Fields-Taking ChatGPT as an Example

A survey questionnaire for teenagers aged 12 to 20 in Guangzhou, China, with a total of 193 participants and a total of 22 questions [10]. The questionnaire includes the use of artificial intelligence in daily life, the knowledge of artificial intelligence, and the selection of artificial intelligence that interests oneself after reading information about the development of artificial intelligence.

From the survey questionnaire, it can be concluded that if the total amount of basic information about all artificial intelligence is considered 1, the reliability coefficient of teenagers' understanding of artificial intelligence obtained through alpha reliability analysis is 0.52, indicating that, based on limited data analysis, teenagers aged 12–20 have a low comprehensive understanding of artificial intelligence (referring to professional knowledge such as internal programming principles). If all life scenarios are considered as 1, then the reliability coefficient of scenarios containing artificial intelligence in teenagers' daily lives obtained through alpha reliability analysis is 0.83, which is a relatively high number, reflecting that a teenager has been integrating Artificial Intelligence into their daily lives to a large extent since they left home in the morning, taking Artificial Intelligence as the transportation tool, and

having Artificial Intelligence payment systems in breakfast shops. One of the things that caught my attention was how many people have personally tried various forms of artificial intelligence. There are three options for this question: 0, 1, 2, and more. Only three people chose 0 for this question, while 98.4% chose 1 and 2 or more. This indicates two facts. Firstly, teenagers have a strong curiosity and desire to use artificial intelligence, which is attractive to them. Secondly, in the previous few years, artificial intelligence seemed to be at a level that the general public could not reach. Most of it remained at the level of chess artificial intelligence, such as Alpha Dog and Deep Blue, defeating world champions and using artificial intelligence to solve mathematical century problems. However, we should realize that the era of artificial intelligence has gradually arrived, and artificial intelligence has gradually become more accessible to the public and is moving towards popularization.

4. Conclusion

This article analyzes the specific functions of Artificial Intelligence from three aspects: diagnosing the condition, proposing treatment plans, and conducting clinical surgeries in today's medical treatment process. In terms of diagnosing the condition, artificial intelligence can make relatively accurate discriminations even on some rare diseases and can play a unique role in identifying some simple and basic cases. In fact, some hospitals in Beijing have begun to use artificial intelligence to analyze physical examination reports. In terms of surgical treatment, several robots have emerged that can replace surgeons for surgery, but in some areas, such as minimally invasive surgery and organ transplantation, robots have not yet been publicly used. For the development of medical plans, this article proposes that deep learning artificial intelligence should be used to analyze a large number of cases and develop treatment plans through screening and analogy. In addition to the professional field of healthcare, this article also analyzes some social situations, such as the understanding and use of artificial intelligence among adolescents. Although adolescents do not have a comprehensive understanding of artificial intelligence, they already have a sense of its rise. However, there is not enough consideration given to how to use artificial intelligence reasonably to improve the quality of life. So it can be concluded that in the current environment, with the rapid development of artificial intelligence, many industries in the future may emerge or disappear due to the emergence of artificial intelligence. Teenagers should understand artificial intelligence because its development is closely related to their employment and other issues. Therefore, families, schools, and society should encourage, support, and promote content related to artificial intelligence so that teenagers can have more exposure to it.

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