

# TREND REPORT



Overview of  
patent trends  
in the field of AI

MAY 2024

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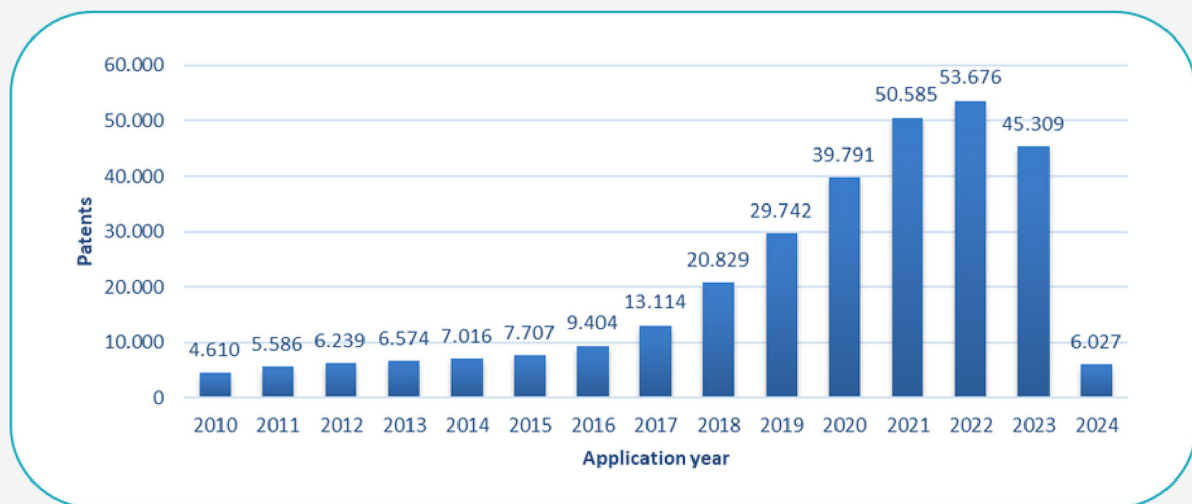
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# Introduction

In recent years, there has been a lot of research and discussion on artificial intelligence (AI), and it is generally believed that AI is an important driving force for the new round of technological revolution and industrial transformation. Therefore, extensive research has been conducted on AI worldwide, and significant technological innovations have been achieved. This report provides a statistical analysis of the development of AI related patents worldwide since 2010 (Data as of May 20, 2024).

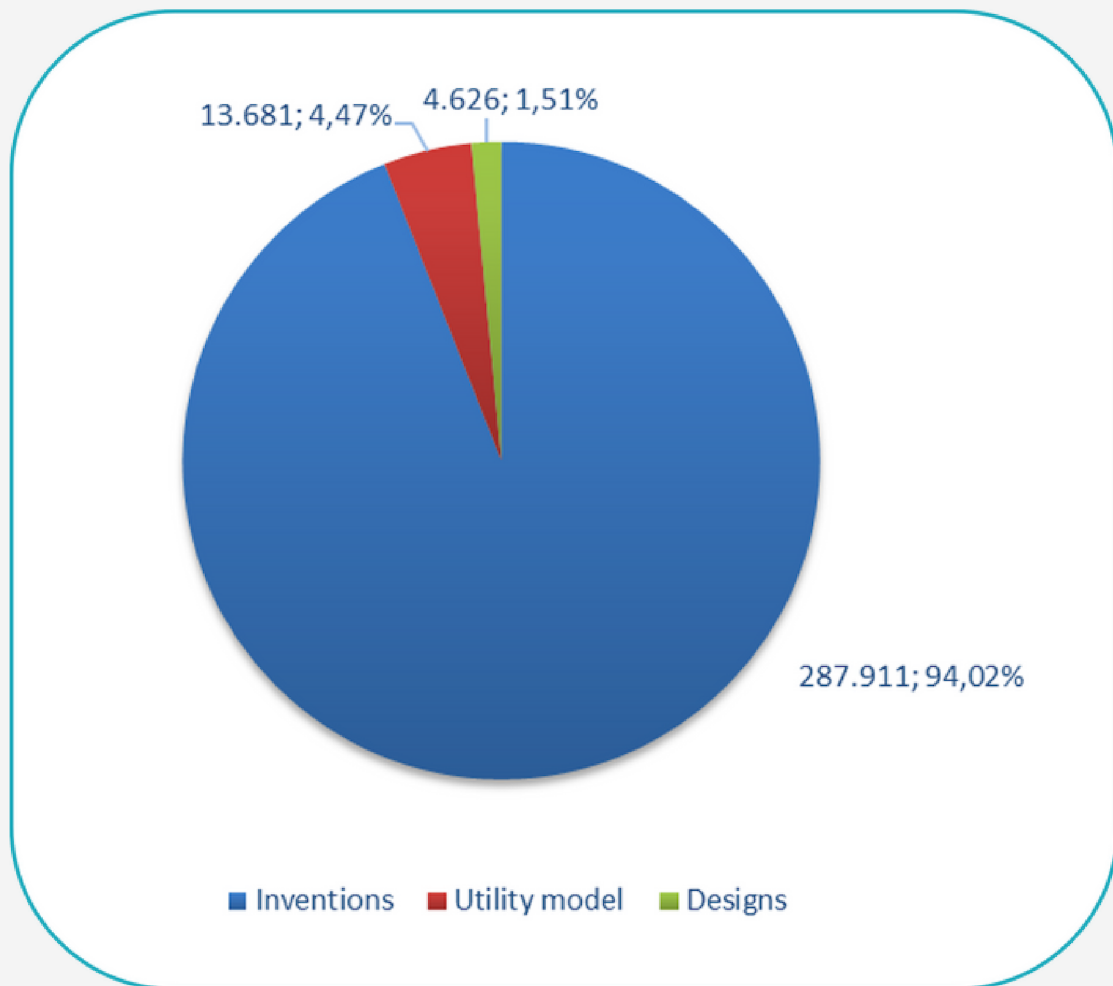
# Part 1: Application and Granted Trends

In the past 15 years, there are numerous patents related to AI, with a total number of applications exceeding 300,000, and the annual application volume has been consistently increasing (as shown in [Figure 1](#)). In 2010, The annual patent application volume for AI related patents was only 4,610, and has steadily increased thereafter. Especially after 2016, the number of patents applied for each year has grown rapidly. The total number of applications in 2022 reached 53,676, which is 11.6 times that of 2010. The decrease in patent volume from 2022 to 2024 is mainly due to some patents not yet being publicly disclosed.



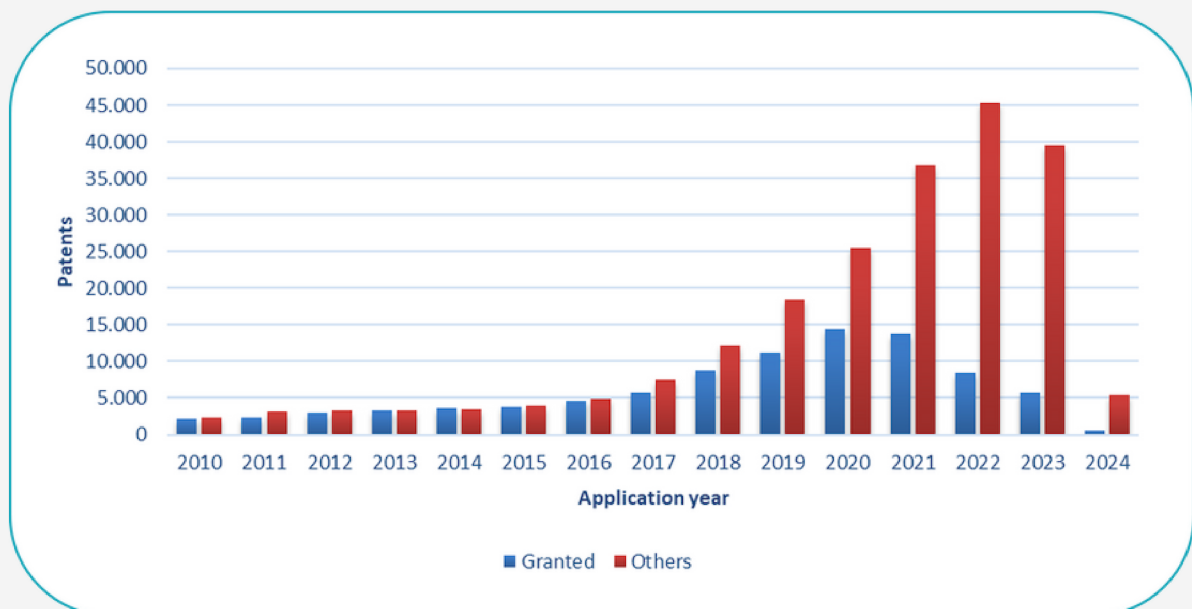
**Figure 1 Application trend of AI related patents**

From the perspective of patent types, patents related to AI are mainly invention patents, with a quantity of 19,660, accounting for 94.02%, while the proportion of utility models and design patents is very low (as shown in [Figure 2](#)).



**Figure 2 Patent types**

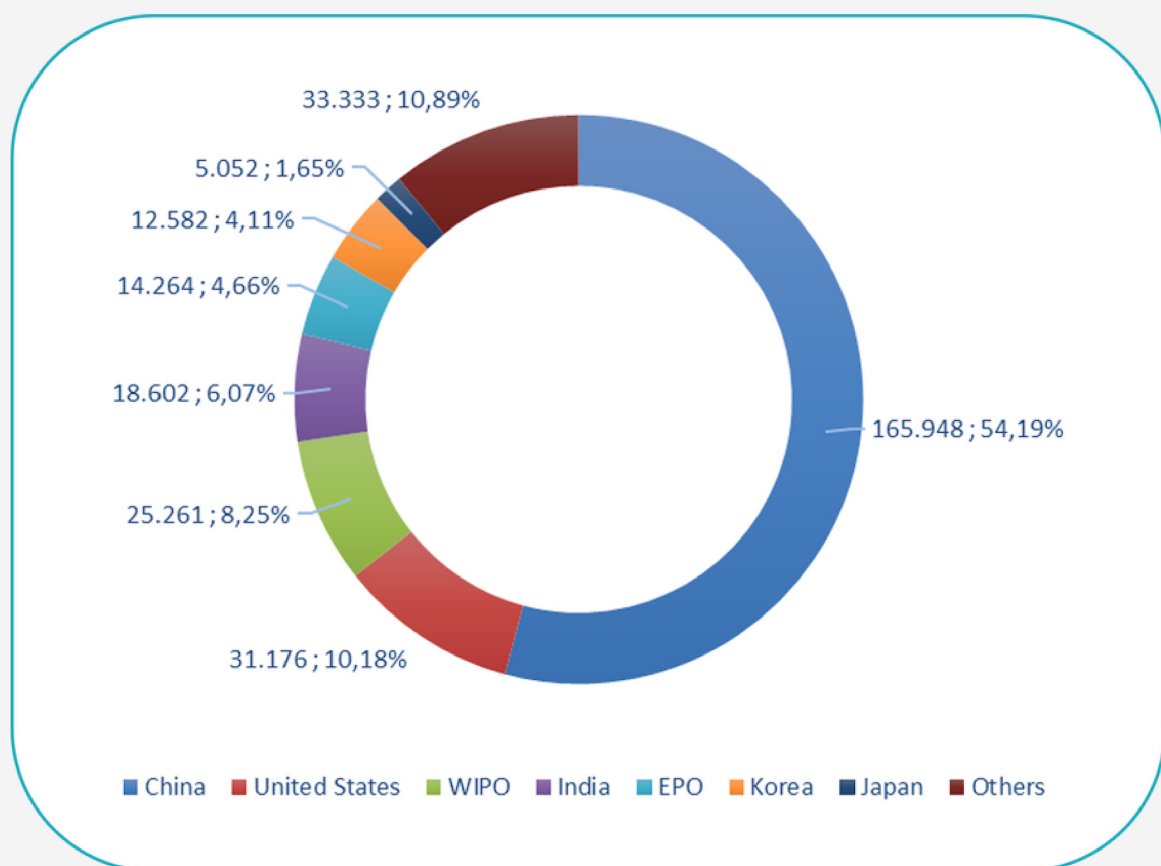
Meanwhile, from 2010 to 2020, The granted volume of AI related patents is gradually increasing, but it has been on a downward trend since 2021, mainly due to the fact that many patents have not yet been examined (as shown in [Figure 3](#)). Currently, 9,1251 invention patents have been authorized in this field, with an overall granted rate of 31.69%. The relatively low grant rate is mainly due to large volume of pending patents as a large number of AI related patent applications in recent years.



**Figure 3** Granted trend of AI related patents

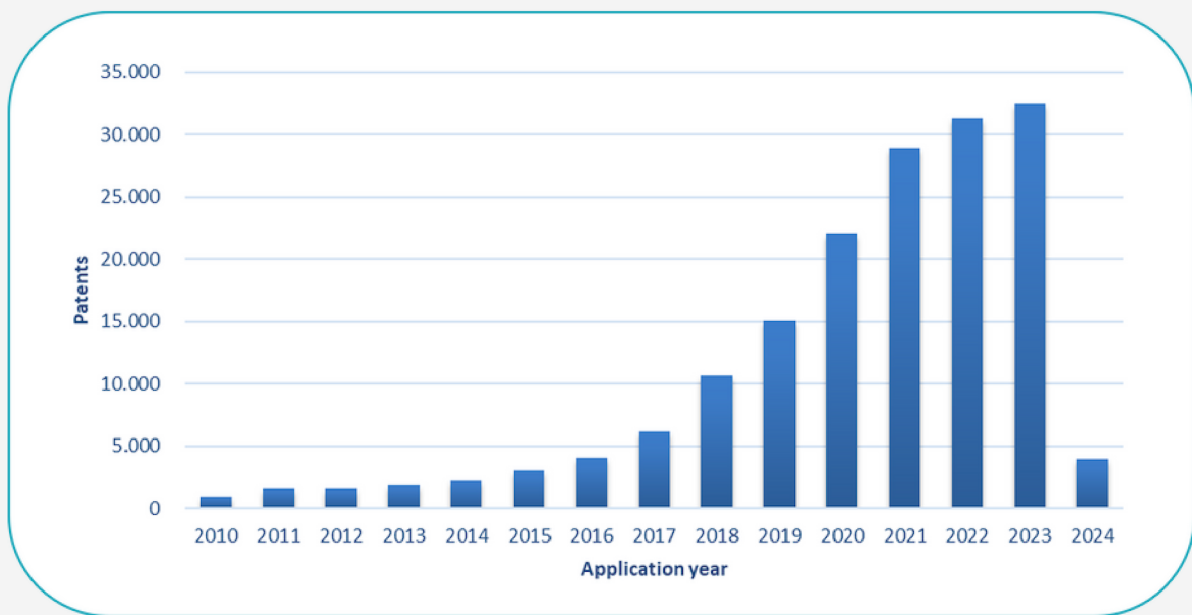
# Part 2: Geographic Territories

A statistical analysis of the main intellectual property offices that handle AI patents revealed that China has the highest number of patents, followed by the United States and WIPO (as shown in [Figure 4](#)). It is worth noting that in addition to the world's top five (IP5) intellectual property offices, India is also ranked high.



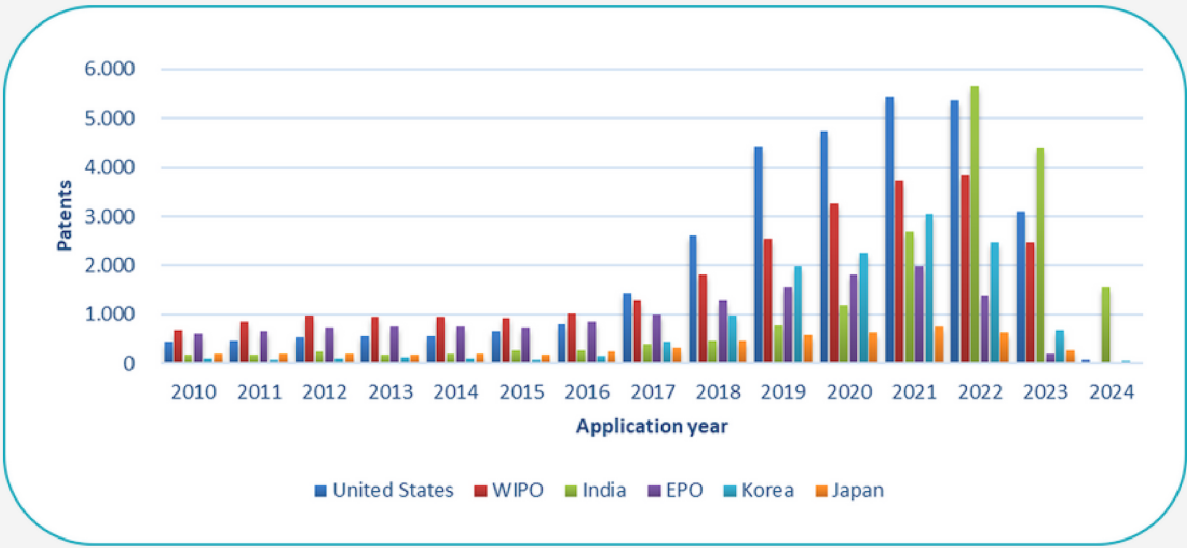
**Figure 4** Top intellectual property offices

From a statistical analysis on the application trends of AI related patents in the aforementioned intellectual property offices (as shown in [Figure 5](#) and [Figure 6](#)), it can be seen that China, as the country with the highest number of AI patent applications, has maintained a growing trend in patent volume and has a significantly higher volume than other countries in recent years. The annual application volume of AI patents in the United States, WIPO, EPO, Korea, and Japan is generally on the rise, but there has been a decline in 2022. In recent years, the number of AI patent applications in India has significantly increased, especially in 2022, with its patent application volume second only to China.



**Figure 5 Application trend of AI related patents in China**

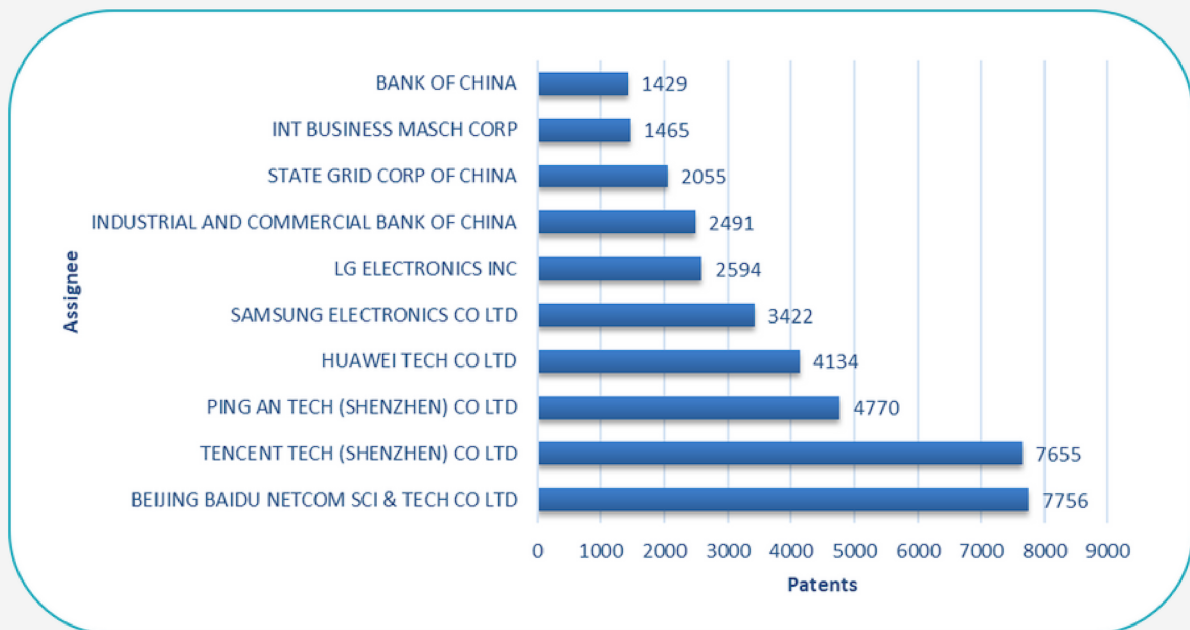




**Figure 6 Application trend of AI related patents in US, etc**

# Part 3: Key Technologies

From the perspective of applicants, Baidu and Tencent are currently the companies with the highest number of patent applications in the field of AI, and 7 of the top 10 applicants are from China (as shown in [Figure 7](#)).



**Figure 7** The top 10 standardized current assignees

# Conclusion

The patent technology related to AI has received widespread attention, especially after 2016, the number of patents in this field has rapidly increased. The development of AI related patented technologies in countries such as China, the United States, and India requires special attention.

Note: All numbers used and statements made in this report are indicative and for information purposes only. No warranty or liability is given nor accepted for anything published in this report.

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