"Surface-line-point"—analysis of the development of artificial intelligence in the Yangtze River Delta

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Abstract. Artificial intelligence technology is booming all over the world, profoundly affecting the social and economic development model and people's lifestyle. The Yangtze River Delta urban agglomeration, which has a very high strategic position in the country's modernization and comprehensive opening up, is an important support for China's participation in international competition and a gathering place for China's cutting-edge technology. The Yangtze River Delta has become the leader of my country's artificial intelligence technology and industry by virtue of its advantageous geographical location, active economic development, high-density talent pool and years of development and accumulation in the field of artificial intelligence. From "surface-line-point", the article analyzes the advantages and disadvantages of the rapid development of artificial intelligence in the Yangtze River Delta; combines the education industry to analyze the integration of artificial intelligence and education and possible bottlenecks; conforms to the trend of the times and shows the new Internet celebrities of the programming world—python.

1. Introduction
Artificial intelligence is a cutting-edge technology based on big data and using the Internet as an artery to study human characteristics such as human thinking, behavior, and perception capabilities. It is an extension of human consciousness. The development of artificial intelligence has roughly gone through three stages. Firstly, to solve computing-related problems. Secondly, to realize perception-related intelligence, such as face recognition, text recognition, and barcode recognition. Thirdly, to realize cognitive-related intelligence, such as knowledge acquisition and depth Learning, behavior expression, etc. In the future, artificial intelligence may develop to a higher level[1].

As a demonstration area of artificial intelligence technology and industry in my country, the Yangtze River Delta urban agglomeration has formed a complete industrial chain from the basic layer to the application layer through its strong alliance, complementary advantages, and coordinated development. "Fool's haste is no speed", while the hot development of artificial intelligence, it also inevitably exposed some shortcomings and encountered development bottlenecks.

2. The advantages and disadvantages of artificial intelligence in the Yangtze River Delta
On September 17, 2018, General Secretary Jinping Xi said in his congratulatory letter to the World Artificial Intelligence Conference that a new generation of artificial intelligence is booming around the world, injecting new momentum into economic and social development, and profoundly changing people's production and lifestyles [2]. The integration process of artificial intelligence technology and traditional industries is accelerating, involving trade, scientific research, education, service industry,
medical care, finance, manufacturing, social management, etc., in order to realize social economic transformation and upgrading and seek new economic growth points. It brings good opportunities, but also challenges.

2.1 Advantages of artificial intelligence in the Yangtze River Delta

The Yangtze River Delta has a strong industrial foundation, a large number of talents, and a developed commodity economy. It is China’s largest foreign trade export base and has unparalleled advantages and conditions in the development of the artificial intelligence industry. For example, the artificial intelligence industry cluster in Shanghai Songjiang District is driven by the powerful engine of the ‘Yangtze River Delta G60 Science and Technology Innovation Corridor’. Songjiang District continues to promote the integration of artificial intelligence innovation chain, industrial chain and value chain, relying on system integration and equipment. The basic advantages of the industry have formed an artificial intelligence industry cluster featuring intelligent manufacturing. According to Rong Peng, chairman of ‘Weben Intelligent Electromechanical Company’, as of September 2019, there are 816 artificial intelligence-related enterprises in Songjiang District, including 135 high-tech enterprises and 3 listed companies. A large number of leading companies Excellent companies, such as ‘KUKA’, ‘Turing’, ‘Comau’, etc. At the same time, the ‘artificial intelligence + industry’ in Songjiang District is developing rapidly and is becoming a rookie in the industry. For example, in the field of ‘artificial intelligence + industry’, Songjiang District has attracted ‘Haier’ (COSMOPlat platform), ‘Yongyou Networks (JingZhi Industrial Internet Platform)’ and other industrial Internet companies, and has formed an industry support system with nearly 200 related companies. It provides a strong guarantee for Songjiang’s breakthrough in the development of artificial intelligence [3].

The efficient development of artificial intelligence in the Yangtze River Delta urban agglomeration benefits from the following points.

2.1.1 Stable external conditions-policy support

Artificial intelligence is an emerging technology, which is currently in an ascending stage and requires strong policy support. Since 2015, when artificial intelligence has received national attention, focusing on smart manufacturing, the Ministry of Industry and Information Technology and the Ministry of Finance jointly issued the "Smart Manufacturing Development Plan (2016-2020)", and the MIIT, NDRC, Ministry of Science and Technology and the Ministry of Finance have jointly issued some Top-level documents such as ‘Manufacturing Engineering Implementation Guide’ and ‘National Intelligent Manufacturing Standard System Construction Guide’, to carry out smart manufacturing pilot demonstrations and standard system construction. After that, the State Council issued the requirements of the ‘New Generation Artificial Intelligence Development Plan’, and Shanghai issued the first Yangtze River Delta AI policy. In September 2018, the ‘Yangtze River Delta Smart Manufacturing Collaborative Innovation Development Initiative’ was released, and the smart manufacturing field started regional collaboration in the Yangtze River Delta. On June 17, 2019, the National New Generation Artificial Intelligence Governance Professional Committee issued the ‘New Generation Artificial Intelligence Governance Principles-Development of Responsible Artificial Intelligence’, which proposed the framework and action guidelines for artificial intelligence governance. The promulgation of these documents undoubtedly provides a good external environment for the development and innovation of artificial intelligence.

2.1.2 Capital injection

The field of artificial intelligence is deeply rooted, and its integration with the industry is intricate. It requires a lot of investment in personnel training, technology research and development, raw material supply, and scenario applications. The Yangtze River Delta urban agglomeration has attracted the support of capital markets, including financial institutions, with its leading artificial intelligence technology research and development and industrial application experience. According to relevant data of the artificial intelligence industry, as of the end of 2019, there were nearly 2,700 investment and
financing projects in the artificial intelligence industry nationwide, of which Shanghai ranked third in terms of investment and financing projects. Generally speaking, the artificial intelligence investment projects acquired by the Yangtze River Delta urban agglomeration have become large-scale, which is of great significance for improving the strategic position of artificial intelligence in the Yangtze River Delta urban agglomeration [4].

2.1.3 Scientific research support
As artificial intelligence has received widespread attention from the society, more and more universities, research institutes and research institutions treat artificial intelligence as a key course and invest more resources in personnel training and scientific research. The Yangtze River Delta city cluster has one city and three provinces, more than 300 general colleges and universities, scientific research institutes, national key laboratories, and ‘985’ famous universities such as Tongji University, so the Yangtze River Delta region has a strong academic atmosphere. According to statistics, the number of universities in the Yangtze River Delta that have opened artificial intelligence majors is 10, 2 national key laboratories, and 16 artificial intelligence industry-related research institutes. These universities and scientific research institutes have injected artificial intelligence into the development of artificial intelligence. Batches of fresh blood continue to stimulate the new vitality of the artificial intelligence industry in the Yangtze River Delta.

2.1.4 Complementary advantages
On September 9, 2020, three provinces and one city (SuZhou, Zhejiang, Anhui, and Shanghai) took the lead in establishing four YRD industrial chain alliances with an output value exceeding one trillion yuan, including the YRD superconducting industry chain alliance led by Shanghai and Jiangsu province. The Yangtze River Delta Software and Information Service Industry Chain Alliance, the Yangtze River Delta Digital Health Industry Chain Alliance led by Zhejiang Province, and the Yangtze River Delta Artificial Intelligence Industry Chain Alliance led by Anhui Province. Although Jiangsu is technologically advanced in the development of the artificial intelligence industry, the degree of industrial concentration is not high; although Zhejiang has ‘Alibaba’ and other technology companies with a market value of more than 10 billion US dollars, the level of scientific research and innovation is not high. Shanghai has formed a good industry. However, there is no support from world-class scientific research enterprises. The speech recognition technology of Anhui University of Science and Technology is the only one in the country, but there are no significant results in other aspects. The establishment of the alliance is conducive to the effective allocation of resources, enhances the competitiveness of the artificial intelligence industry in the Yangtze River Delta, and strengthens the deep integration of artificial intelligence and various economic and social fields.

2.2 Weaknesses of Artificial Intelligence in the Yangtze River Delta

2.2.1 Unbalanced development
Shanghai is accelerating the speed of the construction of a scientific and technological innovation center with global influence. It has a number of large scientific facilities, has gathered a group of artificial intelligence talents, and has unique advantages in application scenarios. Jiangsu has mastered the fields of image recognition, smart sensors, and smart chips. A batch of key core technologies. Artificial intelligence technology has gradually penetrated into fields such as smart manufacturing and smart education. With its advanced artificial intelligence industry foundation, Zhejiang has also formed a number of influential artificial intelligence companies. In contrast, although Anhui has artificial intelligence companies represented by the University of Science and Technology iFlytek, it is slightly inferior in terms of financial support and intelligent industry development [5].

2.2.2 Talent scarcity
Talent has become the core competitiveness of the development of the modern industrial system and
will become a key factor affecting the competitiveness of the artificial intelligence industry at home and abroad in the future. The latest ‘China Artificial Intelligence Industry Report 2018’ released by the China Science and Technology Policy Research Center of Tsinghua University shows that Zhejiang has only 10,589 artificial intelligence talents, ranking sixth in the country, while Jiangsu ranks second in the country with 19,293 and Shanghai is ranked at 10,592. Fifth [6]. The Yangtze River Delta region should strengthen the training of basic talents and high-tech talents in the artificial intelligence industry.

3. Integration of education and artificial intelligence
At the end of 2019, a sudden epidemic affected the life and work habits of almost everyone. In order to win this prevention and control sniper battle, artificial intelligence played an irreplaceable role, which greatly stimulated the development of the artificial intelligence industry. Such as smart temperature measuring guns, smart medical robots and other smart products. In order to ensure that students are not suspended from school, a large number of smart product companies have successively launched multi-person video and online communication software services. Among them, ‘DingTalk’, as the world's leading smart mobile office platform, launched an online office guide at the first time, and opened multiple people for free. At the same time, video conferences ensured online classes for half of the students across the country. According to statistics, there are 140,000 schools, 2.9 million classes, 120 million students, and 3.5 million teachers in the country through ‘DingTalk’ [7].

H S Tian, director of the Basic Education Curriculum and Textbook Development Center of the Ministry of Education, said that artificial intelligence is rapidly and profoundly changing our learning methods, teaching methods, and thinking methods, including the way we solve problems. Artificial intelligence has proposed education from multiple levels. Deep challenge [8]. It is undeniable that the application of artificial intelligence technology in the field of education has a more significant positive impact than traditional teaching methods.

Frankly speaking, the current degree of integration of artificial intelligence and education is still relatively superficial. Conventional informatization has added a little data science knowledge and has not completed the profound changes in the history of education. We must understand that the main body of education is people, and it should be people-oriented. For children who are still immature, machines can teach you knowledge, but it is difficult for you to distinguish between true and false; they can teach you to know dragonflies and frogs, but it is difficult to teach you. To tolerate life; can teach you poetry, but it is difficult to teach you the beauty of poetry. Existing artificial intelligence machines cannot have emotions like humans, cannot achieve true teaching in accordance with their aptitude, and do not have human thinking and psychological qualities. The thinking it can achieve is only some procedures and steps set by humans in advance, and cannot have emotions. And the sense of responsibility does not have the unique creativity of human consciousness. Therefore, although the development of artificial intelligence has made great progress, the application of artificial intelligence in education is still at a relatively backward stage. This requires researchers in the Yangtze River Delta region to adopt systematic and professional methods based on their own advantages. The problem seeks a feasible way. Only by breaking through the current bottleneck of the combination of artificial intelligence and education, and applying artificial intelligence to education in a targeted manner, can the potential of artificial intelligence and education be brought into full play.

4. New Internet celebrities-python
In the field of programming, there is a very famous saying, "Talk is cheap, show me the code". Don't say more, and look at the code. Python is a programming language that can help us "communicate" with computers better.

Google Research Director P Norvig once said that from the beginning, Python has always been an important part of Google, and with the development and evolution of the system, it is still the same now. Nowadays, many Google engineers use Python, and we are also looking for more people who have mastered the language skills [9]. World-renowned large companies like ‘Spotify’, ‘Netflix’, ‘Quora’, ‘Facebook’, and ‘Google’ have already developed Python in depth. Google has supported Python from
the beginning. Python is now Google’s official server-side language. They recode many scripts written in Bash or Perl into Python. Its power lies in:

- It has the largest free "code base" behind it, giving beginners enough resources to realize the functions they want.
- It is an important supporting language for artificial intelligence and big data analysis.
- It is called "glue language", which can package and call libraries written in other programming languages well.
- It is a scripting language, which is more concise and efficient than other programming languages.

The most important thing is that python has a wide range of applications, such as crawling, data analysis, scientific computing, automated office, automated operation and maintenance, website development, multimedia processing, machine learning, deep learning, etc.

Therefore, in order to better realize the collaborative development of artificial intelligence in the region and in line with international standards, choosing a unified programming language will help accelerate the development of artificial intelligence.

5. Summary

The development of artificial intelligence is in the ascendant. As a pioneer in the field of artificial intelligence in China, enterprises in the Yangtze River Delta should strengthen cooperation in the development and innovation of source technologies, especially strengthening the innovation chain for warmth, strengthening the cooperation of human resources in the Yangtze River Delta, breaking administrative barriers, and promoting high-level The effective flow and optimized allocation of talents between regions will promote the integrated and high-quality development of the Yangtze River Delta.

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