

Business Ventures of Sense Time

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Abstract

As a unicorn in the AI industry with the highest valuation at the moment, Sense Time Technology Development Co., Ltd. Established in 2014, Sense Time is not only a face recognition company, but also an innovative company with deep learning as a technological breakthrough, focusing on the field of computer vision. In September 2018, the Ministry of Science and Technology announced: Relying on SenseTime to build a new generation of AI open innovation platform for smart vision countries. Since then, SenseTime has become the fifth largest national AI open innovation platform after Baidu, Alibaba Cloud, Tencent, and iFLYTEK. The first four are all established technology companies that have been in the country for at least ten years.

Keywords

Sense Time; Innovation; AI; Business.

1. From Lab to SenseTime

In 2000, 18-year-old Xu Li was recommended to the Department of Computer Science of Shanghai Jiaotong University for undergraduate studies. Four years later, he was again recommended for postgraduate studies. After graduating with a master's degree in 2007, Xu Li worked in Motorola, Omron, Microsoft Research and other institutions successively, engaged in research and product development in the fields of computer vision, pattern recognition, and image processing. However, Xu Li was not satisfied, because big data, cloud computing, and artificial intelligence were developing rapidly after 2007. So, in the autumn of 2010, Xu Li resolutely gave up all his work and went to the Chinese University of Hong Kong, known as the Whampoa Military Academy in the CV sector, to continue his studies. Since then, Xu Li has closely identified his destiny with the face.

From 2011 to 2013, the laboratory published 14 deep learning papers at the two top conferences in the field of computer vision, ICCV and CVPR, accounting for nearly half of the total number of deep learning papers in these two conferences [1]. Although these research results are still in the laboratory stage, a project at the time gave Tang Xiaou's team confidence that it was a project from the Hong Kong police. "Some escape vehicles traveling at high speeds have too vague surveillance video. I hope they can restore the escape vehicles. Information, the police are willing to pay for the service"[2]. This practice gives the team a great sense of accomplishment. In March 2014, its team released the GaussianFace face recognition algorithm, with an accuracy rate of 98.52% on the LFW database, making it the world's first breakthrough in human eye recognition capabilities. Since June 2014, the DeepID series of algorithms that have been published have gradually increased the accuracy of face recognition to 99.55%, opening the era of the entire face recognition industry technology [3].

Soon, a team of co-founders with Professor Tang Xiaou as the core was formed. They used the Hong Kong Science Park as their entrepreneurial base, and Xu Li as one of the co-founders established Sense Time as the company's CEO. At first, SenseTime's business team was only four or five people, and the company was busy receiving inquiries from customers. It was not until the end of 2015 that it began to develop industry customers in a targeted manner.

However, SenseTime's goal is not limited to a face recognition company, but is committed to building a deep learning platform to be an "all-rounder" player.

In February 2019, Silicon Valley's CB Insights released the AI 100 report, and selected 100 "most promising" AI startup companies worldwide. In the list, there are 6 Chinese companies, and SenseTime is listed in the "Global "AI Unicorn" first place. Within 6 years, it has completed 10 rounds of financing, with a total financing of more than 3 billion U.S. dollars and a corporate valuation of more than 7.5 billion U.S. dollars. How did SenseTime become the world's leading AI star enterprise? How did this company, known as the "academic" by the outside world, quickly explore and move forward in this brand-new "no man's land" and experienced a change from quantitative to qualitative change?

2. Intellectual Property Team, Escort Independent Innovation

Since its inception, Xu Li has attached great importance to intellectual property work. The group's research results and a large number of high-level international conference papers have been reasonably protected through domestic and foreign patents, technical secrets, etc., so that they have always been internationally in the field of computer vision and deep learning. A large number of leading-edge research results have been fully protected.

SenseTime's intellectual property team was established with the company's birth, and is fully responsible for intellectual property matters such as patents, trademarks, copyrights, domain names, technical secrets, intellectual property infringement litigation, anti-counterfeiting, intellectual property operations, standards, etc. of the group and its branches. In the early days of its establishment, the team formulated the intellectual property macro strategy of "protecting basic research and safeguarding the commercial market", and won the honorary title of "China's Outstanding Intellectual Property Service Team" in less than four years.

2.1. Full Coverage and Multi-level Patent Layout

As of 2019, SenseTime has 315 valid patents in China, accounting for 93.6% of the total. At the same time, in terms of overseas layout, it has now entered many countries or regions through the PCT, "Paris Convention" and other methods. From 2018 to 2019, there were 116 foreign patent applications, and patent authorizations from the United States, Japan and other countries were obtained.

With the steady increase in the number of patents, Xu Li also noticed the importance of patent layout, began to emphasize the supporting role of patents in the market, and made a series of adjustments. On the one hand, it applies for core patents in combination with the group's core products and services in the areas of business advantages, and arranges peripheral patents around the core patents for technical alternatives to block competitors. On the other hand, the Group has increased its patent application efforts in areas where its competitors have a wide range of products, especially conducting in-depth research on rival core patents, and using subordinate patents to limit the effectiveness of its core patents.

According to the AI industry and the main competitors facing, classify the group's products and divide the technology, conduct periodic patent search and survey analysis on the distribution of competitors and technology, and complete the mapping of the industry's patented technology regions. , Provide professional support for technology research and development and market decision-making. In the past two years, the team has followed up to more than 10 companies in the same industry, reviewed thousands of patents, and regularly updated the above search and survey results, conducted corresponding patent interpretation and analysis, and provided patent warnings to R&D and the market. report.

Industrialized and commercialized patent operation

The intellectual property team used intellectual property operations to rapidly increase the group's patent assets. After professional evaluations in technology, law, and business, SenseTime acquired a large number of high-value patents in the AI field from the Chinese University of Hong Kong, laying a good foundation for the group's long-term business operations and technology research and development. After several years of accumulation and development, the group's basic research results and engineering products have been widely used in the AI field. The intellectual property team has excavated, analyzed and combined the core patent assets of the group's patent assets to prepare for possible patent operation projects such as licensing in the future.

The intellectual property team closely cooperates with the front-end engineering product team, combined with product characteristics, and provides comprehensive protection for multiple product lines through various patent types such as inventions, utility models, appearance designs, and combined protection of domestic and foreign patents; at the same time; Through market monitoring and other means, combat various infringements; in terms of the construction of the intellectual property system, the team has formulated a series of management methods and regulations for the protection and management of intellectual property rights, which effectively guarantees the efficient accumulation of intellectual property assets and the impact on the group's commercial market. Effective protection.

3. Build an "AI+" Ecology, Explore and Innovate "No Man's Land"

3.1. System Innovation is more Important than Technological Innovation

When Tang Xiaou and Xu Li founded the company, they had a consensus: "Don't do superior technology, but transform technology into business and productivity"[4]. Therefore, how to do research on the landing of AI products in the industry has become the biggest challenge facing SenseTime. Senior research director Zhang Wei led the team to break through this problem from two aspects. "On the one hand, real AI products must make breakthroughs in multiple technical directions; on the other hand, they must solve a practical problem that can achieve industrial applications. The red line requires a lot of innovation in the entire algorithm and engineering."

After five years of exploration, SenseTime has gradually developed a mature R&D system that can abstract the needs in different fields and different products and do long-term technology accumulation. However, with the increasing scale of data and the rapid increase in recognition categories, Zhang Wei found that the research and development of AI involves many links and there are many chains, and it is difficult for researchers to accomplish research and development goals under controllable resources. In response to this problem, Zhang Wei and the Sense Time research team pioneered the development of an automated system that connects the entire set of AI research and development links to ensure that fewer manual interventions are achieved during the entire circulation process, and the researcher's energy is removed from repetitive work. Freed up, you have more time to do original research, and at the same time, you can respond more quickly to business needs. This has also become a big difference between SenseTime and the R&D teams of other companies in the industry.

A successful AI product has huge human and time costs. In order to make more effective use of resources, SenseTime's research team will consider abstracting common algorithm modules when designing algorithm schemes and focusing on core algorithm problems. Maintain continuous iteration and innovation. This kind of high-reuse algorithm support enables SenseTime to build corresponding products in the shortest time when receiving new market demands, flexibly combine different algorithm modules driven by demand, and quickly verify and cut into new business scenarios.

3.2. Construct a more Efficient Innovation Environment

Behind the strong R&D system of SenseTime is the original spirit and deep insights into practice. SenseTime is also constructing a more efficient innovation environment in the tide of AI development. Zhang Wei believes: "In addition to technology, innovation requires an open environment that allows everyone to try new possibilities, learn and iterate continuously from mistakes and experience, and look forward to discovering something in the unknown. Or understand clearly the needs of the industry, and finally decompose it into a long-term goal of technology accumulation, matching the interests of different researchers, so that everyone can grow in a certain long-term direction, and at the same time, it also integrates everyone's abilities. To meet the needs of the entire industry."

Zhang Wei briefly summarized SenseTime's model in one sentence: While using rapid technological innovation to continuously promote application landing, while training a large number of talents for the development of the AI industry. At present, SenseTime has produced more than 3000 algorithm models and exported them to more than ten industries for commercial realization.

4. The Future Will Depend on the "Market Dream Rate" to Continue Life or Return to the Essence of Business

"Our name is Sense Time, (the word for business is first), so commercialization is ranked higher"[5]. When discussing the priority of commercialization with the company's board of directors, Xu Li joked, but the commercialization has indeed become Sense Time. The most important work of the moment.

In fact, there are three other companies known as the "Four Little Dragons" in the CV field that face the same problem as SenseTime: Mining Technology, Yuncong Technology, and Yitu Technology. Their operations have also attracted attention from the outside world. At the beginning of this year, Mining Technology announced its robot strategy in the AIoT (Artificial Intelligence Internet of Things) era, and released the intelligent robot network collaborative operating system "Hetu". Yitu Technology released the AI cloud visual reasoning chip on May 9 or 9— -Search for questcore and enter the AI chip market. A rule that is not difficult to find is that AI companies talked about technological strength in 2016, competed in financing in 2017, and talked about applications in 2018. In 2019, everyone focused on how to commercialize and achieve large-scale revenue.

In the post-epidemic era, factors such as international competition, M2 overproduction, and "new infrastructure" have promoted a new generation of information infrastructure to become a favorite of the stock market. AI, as an important part of it, has been placed with excessive enthusiasm and expectations. Although there is financial support, you can continue to look for application scenarios, and then quickly cut in, and then explore short-term realization opportunities on this basis, and continue to polish step by step to discover long-term business models. However, Xu Li also knows that the current profit model of the AI industry is not clear enough. Huge financing is a double-edged sword. It directly pushes the valuation of AI companies to a height where most VC/PEs are prohibitive, which may still lead to Subsequent financing failed.

Before the bubble burst, is it to continue to rely on the "market dream rate" to continue life? Or return to the essence of business and create real value? As the company with the most sufficient funds, the largest business scale and volume in this industry, how SenseTime finds more new and sustainable growth points will become the key to supporting its AI platform market imagination.

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