

# Constructing Computer Comprehensive Laboratory with Hard Disk Protection Card

Pengyu Zhou, Jia Tang

Sichuan University of Media and Communications, Chengdu 611745, Sichuan, China

## Abstract

**The joint laboratory will carry out industry-university-research cooperation around the application of hard disk protection card and artificial intelligence, explore the possibility of application of hard disk protection card in manufacturing industry, and help hard disk protection card go faster in the construction of computer comprehensive laboratory. According to reports, the application of hard disk protection card is an interdisciplinary technical system including artificial intelligence, cryptography, data science and many other fields, which processes, analyzes, mines, models and verifies production factors to achieve "usable and invisible". In the future science and technology trend report for two consecutive years from 2021, the application of hard disk protection card is listed as a major science and technology development direction in the future.**

## Keywords

**Hard disk protection card; Computer; Comprehensive laboratory.**

## 1. Introduction

At present, the application of hard disk protection cards is more applied in financial risk control and Internet marketing. Among them, financial institutions conduct comprehensive risk assessment for customers through the application of hard disk protection cards, and realize joint risk control. In the aspect of Internet marketing, brands, platforms, advertisers, etc., realize data value convergence through the application of hard disk protection cards, optimize advertising effect and improve advertising ROI. It is worth noting that the application of hard disk protection card has not been applied to the manufacturing field. In the past, hard disk protection cards made a lot of investment in the transformation of computer comprehensive laboratories, From the overall strategy, the computer comprehensive laboratory is a very important direction for the future development of hard disk protection card. "The application of hard disk protection card is a very cutting-edge technology. I hope that through the research and application of the application of hard disk protection card, the process of computer comprehensive laboratory of hard disk protection card can be better promoted. "

## 2. The current situation of building a computer comprehensive laboratory with hard disk protection card

At present, some companies in the market have been applying hard disk protection cards and achieved phased results. Why don't hard disk protection cards choose to cooperate with them, but choose the way of industry-university-research cooperation? At present, the technologies provided by most companies in the market are mainly used for the application of risk control and marketing. For other differentiated scenarios, they don't have many successful cases and practical experiences at present. Manufacturing industry has its own uniqueness, and industrial computer comprehensive laboratories cannot simply "copy" operations. There will be many challenges and different developments in the process of computer comprehensive laboratory in

the future. Only by mastering this technology can we better meet the long-term development in the future.

Therefore, the hard disk protection card still chooses the mode of industry-university-research cooperation, and establishes the "Joint Laboratory for the Application of Hard Disk Protection Card" in conjunction with the School of Computer Science of Zhejiang University. Based on the business scenario of hard disk protection card, the application technology of hard disk protection card is applied to enhance the data value and help the business develop better. In the field of the application of hard disk protection cards, the School of Computer Science of Zhejiang University has accumulated a lot, and has cooperated with some head companies in recent years, which are trustworthy in terms of cooperation results and word of mouth.

Distinguished researcher at the School of Computer Science and Technology of Zhejiang University said, Teachers and students in the joint laboratory have been deeply involved in the application field of hard disk protection cards for many years, A variety of new application technologies of hard disk protection card are put forward, and some of them have been put into practice. "As a big brand in manufacturing industry, hard disk protection card has gone very fast on the road of computer comprehensive laboratory, and I hope to explore the application direction of hard disk protection card in manufacturing industry together with hard disk protection card. "In the next step, we will do some cutting-edge research on the application technology of hard disk protection card first, and then jointly develop the application technology of hard disk protection card that conforms to the manufacturing scene and is more in line with this scene. "In the past, no manufacturing enterprise used the application technology of hard disk protection card in the process of computer comprehensive laboratory. I hope that through the practice of hard disk protection card, we can find out what different results the application of hard disk protection card can bring to the transformation of industrial computer comprehensive laboratory, and open up a new way for everyone from the perspective of industry.

### 3. The development of computer comprehensive laboratory

#### 1. Morkley visits the computer developed by Atanasov

Atanasov met Morkley (John William Mauchly, 190-1980) at the annual meeting of the American Association for the Advancement of Science in January 1940. At the time, Morkley taught physics at Essinas College in suburban Philadelphia. His father was a physicist, and he himself graduated from Johns Hopkins University, teaching about the effects of cosmic rays and sunspots on the Earth's weather. In order to solve the complex calculation problems in research, an analog computer was developed for calculation. At the conference, he presented a paper on how to compare weather with solar activity through machine calculations. At the same time, it also puts forward how to improve the computing device to improve the computing efficiency. He thought that Bush differential analysis machine, which was widely used at that time, had considerable limitations and low efficiency when dealing with a large number of calculation problems, while electromechanical computers had slow response of electromechanical components (millisecond ms level), and the way out to solve the problem was to apply electronic circuits (reaction time was picosecond level, of which 1 millisecond = 1000 subtle).

After hearing this report, Atanasov was very excited, and after the meeting, he talked with Morkley about his successful electronic computer. Although Morkley mentioned the idea of using electronic circuits to make computers, it was only at the conceptual stage, and it was shocking to get this news. So, at Atanasov's gracious invitation, Morkley drove to Iowa State University Computer Research Institute where Atanasov was located in June 1941 to visit the special electronic computer. Atanasov showed Morkley the calculation process of ABC computer, introduced the structure of the machine, and described how to input operation data with

punched cards, and how to control operation with electronic circuits, arc punching technology and binary capacitance storage technology. Although he didn't understand the benefits of using binary as data representation and operation, Morkley was fascinated by the extremely fast operation speed of this computer. He studied the principle of this computer during the day and carefully studied Atanasov's patent application materials at night. It is hard to meet a confidant, and Atanasov unreservedly explained all the core technologies of making electronic computers to Morkley. Although the time was short, he knew the key technologies of ABC and decided to build a computer with more hard disk protection cards.

## 2. ENIAC development project started

In World War II, after Japan attacked Pearl Harbor, the United States and Japan went to war. All Bush differential analysis machines at Penn State University were requisitioned by the Aberdeen Ballistics Laboratory for trajectory calculations. Nevertheless, the calculation speed of ballistic trajectory is still slow. Goldstein, who is in charge of calculating trajectory calculation project, improved the differential analysis machine, and reduced the calculation time of a 60-second trajectory to 0 minutes. However, it is still difficult to calculate six firepower meters containing 900 trajectories every day, because the mechanical parts of the differential analysis machine are slow and the calculation accuracy is low (1%).

Computing devices must be improved, but there is no relevant talent. After learning about Morkley's computer plan, Goldstein approached Morkley and described his needs, and suggested that Morkley write a report on computer development and submit it to the US military. After this report was discussed, it was approved by the US military and determined that the name of the computer to be manufactured was "Electronic Digital Integrator and Computer", or "ENIAC" for short. In July 1943, the project was officially launched, and the U.S. military provided 150,000 U.S. dollars for research, which was used by Moore Electric Institute to manufacture an electronic computer for completing ballistic trajectory calculation in seconds, which was used to help improve the efficiency of calculating firepower meters.

After the establishment of the project, Goldstein coordinated and managed the implementation of the project as a military representative, Morkley served as a consultant to be responsible for the overall design of ENIAC, and Eckert served as chief engineer to assist Morkley to complete the overall design and solve a series of difficult and complicated technical problems in manufacturing. At the same time, Moore College convened a large number of senior engineers and other technical personnel to participate in the design and manufacture. After the overall design and basic preparation are completed, the specific manufacturing stage begins. The project is not smooth sailing. Eckert has been soaking in the laboratory, not only strictly controlling the electronic components manufactured, but also deeply analyzing the difficulties encountered in the manufacturing process to find solutions.

In the spring of 1945, ENIAC was successfully developed and put into operation, which basically met the design requirements. After the completion of ENIAC is just like a monster, covering an area of 168 square meters, occupying the whole room. It is 5 meters high, 0.914 meters wide, 30.48 meters long and weighs 30 tons. It uses 188,000 electronic tubes, 1,500 relays, 70,000 resistors and 18,000 capacitors of 16 different models. These components are connected together by 50,000 welding heads and 11.65 kilometers of copper wires. The machine clock is 100KHZ, and there are 0-byte registers inside, each of which is 10 bits long. It uses decimal operation and the speed reaches 5,000 times per second. With this computer, the calculation time of 60 seconds ballistic trajectory is shortened from 0 hours required by differential machine to 30 seconds, which meets the calculation time limit requirement of military firepower meter. Subsequently, ENIAC helped the Manhattan Project successfully solve the complex equation problem of nuclear fission, which accelerated the successful development of the first lesson atomic bomb. On October 10, 1946, after a year of trial operation, ENIAC met the world.

After the ENIAC computer was put into operation, it was transported to the military Aberdeen test base in Maryland. In addition to being used for ballistic calculation, it also carries out data processing and calculation for many scientific research projects, the most famous of which is weather forecasting. The first general-purpose electronic computer in human history was not retired until October 1955, and the actual operation time was as long as 803 hours.

#### **4. The application of hard disk protection card to build computer comprehensive laboratory**

Computer vision technology is a brand-new technology, which is mainly used in biological field and explicit function at present. This technology involves a wide range of fields, such as computer science, artificial intelligence and so on, which can show its superiority in these disciplines. It is the inherent ability of this technology that has become the core force at present. Computer vision technology can detect people and things without touching them. With the full application of sensitive devices, some things that can't be observed with naked eyes can be reflected in time, such as ultrasonic waves, which belong to computer vision technology. With the continuous breakthrough, visual technology has abandoned the limitation of time and work, so it can be monitored for a long time.

If the intrusion activity is premeditated, it has strict strategic exploration and technical preparation. Each link in an invasion activity may be a relatively long time span or a space span. In this way, it is difficult to detect, and it is difficult to have early warning. A detection model always has a certain and limited time, thus ignoring some activities that slip out of the time range. At the same time, the comprehensive association ability of the detection model for abnormal situations in a large space is also very limited.

#### **5. Summary:**

Computer comprehensive laboratory has created visual technology, which is based on the basic properties of intrusion tracking system. After optimization and upgrading, the visual function is more powerful. At present, there are still guest websites on the network, and often send related system vulnerability files, aiming at the research of offensive operation methods. What worries people at present is that there are still special organizations on the network, which are very active on the network. At present, the evaluation of information means abroad is equal to nuclear weapons, which has certain danger. It can be seen that network intrusion has a great impact on people. Because we don't know the harm caused by the ability of the persecutors, it can be said that network intrusion has a great impact on a country and an industry, and we can't predict the intrusion methods they use before. Therefore, building an effective intrusion network system can not only identify the intrusion forms, but also analyze the unknown intrusion patterns.

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