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Abstract. In the current machine learning methods, deep learning is the focus of attention. Deep learning technology has achieved rapid development in various related fields, especially in the field of face recognition applications. Deep learning is to imitate the mechanism of the human neural perception system by layer-by-layer autonomous learning to obtain high-level abstract features, which can solve the distribution of facial changes, with fast learning speed and high recognition accuracy. This article introduces the advantages and core technologies of face deep learning, and studies and analyzes the application of face deep learning technology in university management.

Keywords: Human Face, Deep Learning Technology, University Management

1. Introduction

As a new direction in the field of artificial intelligence research, deep learning is a kind of technological science that simulates the mechanism of the human neural perception system through autonomous learning to obtain high-level abstract features and conduct data information analysis [1]. At present, the most widely used deep learning technology in the security surveillance industry is image and video analysis. In terms of image analysis, face recognition technology is the most well-known. Deep learning can analyze the law of facial images in face recognition in detail, solve the distribution of facial changes, learn fast, and improve the accuracy of face recognition. In the new situation of college management, face deep learning technology can be used to solve the problems and difficulties faced in security management, student management, faculty management, logistics service support management, education and teaching, improve the management efficiency of colleges and universities, and truly realize "intelligence, Digital and integrated" management.

2. Advantages of face deep learning technology

With the advancement of science and technology and the development of the times, the demand for personal information is applied in more and more fields, and the protection of information security has reached an unprecedented height, and all walks of life have put forward higher information security requirements. Traditional information security protection methods include key verification, ID verification, chip card recognition, etc. This method is simple and easy to use, but there are many problems such as inconvenience to carry and the possibility of easy loss. Therefore, people urgently

need a recognition technology with high recognition, unique features, and easy to carry. Under such a background, biometric recognition technology has emerged.

Human biological characteristics include features such as face, retina, body movements, muscle memory, blood, palm prints, fingerprints, iris, notes, etc., through intelligent algorithms for preprocessing, feature recognition, and contrast detection, and finally achieve the purpose of identity recognition [2]. Compared with other biometric methods, facial feature recognition is not only a supplement to the campus card, but also solves the problems of distributed management of data, inconvenience to carry, and different cards. Its main advantages are as follows:

1) Stability: In a certain period of time, human facial features are relatively stable, and the basic structure will not change much. Moreover, the repetition rate of facial recognition is low and it is difficult to counterfeit.

2) Non-contact: The identified person can complete the identification process without physical contact with a specific device. Compared with traditional biological characteristics such as fingerprints, it is not easy to cause disgust, and it is also a gospel to certain groups of people such as hygienic patients.

3) Easy collection: Under normal conditions, facial feature collection only needs to take pictures to complete the collection of information, with high efficiency and low cost.

The traditional intelligent facial recognition algorithm summarizes the feature points in the image based on the experience of the algorithm engineer. The algorithm design rules only recognize the lower part of the same illumination condition and angle with high accuracy, and it is easy to miss abstract features. The deep learning algorithm is the machine self-learning and summarizing the rules through massive data, such as processing the shallow features such as forehead and cheek layer by layer, and finally forming a deep image that can be recognized for learning. For large sample data and complex images, the machine's inductive learning ability is better than the engineer's subjective experience, with higher accuracy and better ability to adapt to complex environments.

3. Application of face recognition technology in university management

The face recognition platform can realize basic information personnel management, group management and equipment management through modules such as timing scheduling, system management, query reports, information management, etc., it provide unified portrait collection, grouping, personnel, and equipment management; provide standard recognition services Docking APP and interface standards, supporting multi-scenario access of business systems; with visual report viewing, independent license collection, living body detection, flexible configuration of identification parameters, mass information import and synchronization information, multi-scenario multi-platform access, offline offline Identification and other characteristics. The face recognition platform mainly includes a front-end system (face collection) and a back-end system (intelligent back-end analysis server). The front-end camera of the system collects facial images and connects to the campus network through a wired network. The front-end camera collects all personnel in the supervision area of the school. Face image, the back-end server can realize real-time warning, historical warning, face query, face check, face search by face, and personnel track record through face comparison analysis.

3.1. Face recognition dormitory management

Currently, the management of student dormitories in colleges and universities mainly includes the following two methods. One is that the dormitory staff is on duty 24 hours a day to coordinate with the Ministry of Education and Engineering to check the bed at night; the other is that students use the campus card to enter and exit. Both of these two methods have some shortcomings. The dormitory management staff cannot remember all the faces of the students, and cannot efficiently, quickly and accurately count the sleeping situation of the students, and it is inconvenient to check the records of the sleeping students; the phenomenon of students swiping and borrowing cards from time to time appears. To reduce the speed of student entry and exit, it is difficult for the dormitory management to correct the students' non-swiping card situation one by one, and need to cooperate with the gates,

which violates the requirements of fire evacuation under the new situation [3]. The facial recognition dormitory management system uses the deep facial recognition technology to recognize all the people entering and exiting the channel at one time, realizing the intelligentization of efficient dormitory management. After the system is connected to the face recognition platform, it cooperates with the face recognition binocular tablet to realize the function of brushing the face in and out of the dormitory; the system and the access control device jointly realize the automatic authorization and prohibition, avoiding the trouble of manual operation. In order to ensure the realization of face recognition in and out of the dormitory scene, it is necessary to deploy a face authentication service platform, dormitory management application server, database server and offline recognition host in the central computer room. A face recognition gate is installed at the entrance of the dormitory, and the face recognition binocular flat panel is installed on the gate in the form of a base.

Using face recognition technology, the system takes the dormitory building as the management unit, and cooperates with the participation of security, students, counselors, dormitory administrators and other personnel to achieve the goal of multi-dimensional, scientific, digital, and intelligent apartment management.

1) The face recognition gate solves the disadvantages of different cards and multiple swipes with one card, and achieves the integration of access authorization and personnel identity.

2) Effectively stop the random entry and exit of outsiders, and effectively stop the entry and exit of unauthorized personnel such as lawbreakers, salesmen, and advertisers. When passing through the turnstile, an audible warning is issued to unauthorized persons, and at the same time, the facial information of illegal persons is captured and uploaded to the background server for analysis and comparison.

3) There is no need to carry the all-in-one card with you, freeing students' hands, making it easier for students to get in and out, and solving the problems caused by losing, re-applying, or forgetting to bring the card.

4) After students enter the dormitory through the turnstile, the electronic control interface can send electricity to the dormitory according to the record of brushing their faces.

3.2. Campus consumption management

With the enhancement of modern service awareness and the popularization of the application of face recognition technology, university administrators have gradually paid attention to the improvement of campus restaurants, supermarkets and other student life service facilities and grades. The application of face recognition technology to catering and other campus consumer services is not only Providing fast consumer services is also conducive to creating a good image of the student life service area. When facial recognition technology is used in school canteens, supermarkets, coffee shops, etc., consumer machines are connected with facial recognition equipment, traditional credit card consumption is upgraded to face consumption, software consumption functions are retained, and the traditional credit card verification method evolves to face recognition. The process is as follows .

1) After students order meals and other services, the staff enters the corresponding amount in the consumer card machine.

2) The face recognition device prompts the student to complete the face recognition. The face recognition device sends the identification information (random serial number, name, student ID, college, etc.) to the consumer machine, and uploads the face recognition record information to the background Intelligent analysis server.

3) The consumer machine encodes the information generated by the face recognition device, such as the name and student's student ID, into a consumption record, and then the consumer software synchronizes the consumption record information. The final consumer software will contain the consumption amount, random serial number, name, and student's academic record. The record information such as the number is uploaded to the back-end consumption management software server.

Realize the consumption service of face-swiping on the campus of students. It can collect and

record the recharge consumption and face-swiping consumption of students on campus, and realize the online management of face-swiping consumption equipment. At the same time, it has full face-swiping consumption function and does not affect the current campus The normal consumption and use of the one card. Moreover, the face-swiping consumer device also includes query and statistics functions such as student consumption statistics reports and recharge consumption details reports.

3.3. Early warning management of abnormal aggregation

"Collective Behavier" (Collective Behavier) was first proposed by American sociologist Parker. He believes that crowd gathering behavior is a common collective impulse behavior. Gathering behavior is a kind of mass behavior without organization, without leadership, not subject to normal social norms, and without clear goals and action plans [4]. Campus gathering behavior is an important manifestation of crowd gathering behavior. It refers to the unorganized, unleaded, and unconstrained school behavior norms and standards such as school discipline and school rules that occur on campus, and there is no clear action goal and action. The planned group behaviors of college students mainly include riots, riots, carnivals, and panic. Research shows that the behavior of gathering crowds in Chinese universities is increasing, the scale is further expanded, the behavior is more intense, and the social influence is wide [5]. Therefore, it is of great significance to strengthen precautions and adopt scientific management methods for campus gathering behaviors. With the help of face collection equipment, to investigate the gathering behavior during abnormal time periods and outside the activities of abnormal club organizations, the campus digital video surveillance center immediately prompts early warning. At the same time, the recorded video stream is compared and analyzed by face recognition, to find the personal information of the students gathered in the screen, such as the college, class, name, etc., and finally send the information to the relevant personnel (class teacher, counselor, security personnel, etc.) Mobile interface.

3.4. Campus stranger management

Due to the increase in the movement of outsiders, the surrounding environment of colleges and universities is becoming more and more complex, safety management is not perfect, safety awareness is poor, safety management personnel are less, and measures taken on key safety protection parts cannot meet the needs of the safety development of colleges and universities [6]. Therefore, it is of great significance to strengthen the safety management of the campus, take effective measures to protect the safety and rights of students, and ensure the comprehensive physical and mental health of students. With the gradual maturity and development of human recognition technology, a face recognition platform based on deep learning can improve the lack of human protection in colleges and universities, and adopt advanced intelligence, ultra-clear, image analysis and other technical means to realize the management of strangers in the campus. Minimize various hidden dangers to the greatest extent. In the school's face information database, it is necessary to connect the suspect information of the public security system, put it in the blacklist, and call the police at the campus digital video surveillance center. The university campus is an open campus. Social personnel entering the campus to use public facilities such as swimming pools and gymnasiums, infrastructure project personnel construction, and logistics service personnel can be managed by strangers on campus. Binocular face collection devices are arranged at multiple locations at the school gate to query the face information of strangers in batches. For those who are not identified in the face database, additional entries can be added. Facial collection equipment is arranged in key areas and main roads of the school. The back-end intelligent analysis server can check the staying time, length, staying point, number of times, etc. of strangers entering and leaving the school at any time, counting and analyzing the entry and exit situation, setting daily detection time, polling the location of strangers staying, and arranging accordingly The management personnel inspect and warn of potential safety hazards in advance.

3.5. Action call for help and alarm

The face capture device integrates the function of judging body behavior and the function of

microphone voice collection and recognition. Use face capture equipment to capture motion calculations, voice recognition, face detection, live detection algorithms, etc. in the video, preset in the system such as "calling'help' three times", "swing left arm three times towards the camera" to achieve Artificial intelligence alarm. The system automatically triggers the current camera and preferentially transmits the image to the digital video surveillance center to monitor the large screen, prompting the security personnel to alarm information.

3.6. Personnel trajectory

Managers select multiple facial images from the face library by capturing them. The face recognition platform automatically marks and draws the trajectory of the personnel on the system map according to the location and time of the collection of these facial images, and can display them at different rates. Therefore, it is possible to quickly locate and understand the time, space, and activities of personnel. Universities can set three key points in security management.

1) Install and deploy face capture equipment around the campus and at the entrance, and conduct corresponding comparison and investigation of strangers entering the school;

2) Dormitory area. Install face capture equipment at the entrance and corridor of the dormitory to compare and identify people entering and exit the dormitory;

3) School finance, information center computer rooms, laboratories and other important sites are also installed with face capture equipment for recognition and comparison to reduce Probability of theft. From these aspects, ensure the safety of school property management, student dormitory management and campus security management.

4. Conclusion

Due to space reasons, the above only illustrates the main application scenarios of face deep learning in university management. Compared with traditional identification methods, face recognition technology is unique, and identification cannot be counterfeited. It can help schools improve safety management and create a safe and healthy campus environment. Deep learning technology makes the original face recognition better. Usability and accuracy make the application of this biometric technology a new direction for campus security construction.

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