Retraction

Retraction: Research on the Feedback System of Face Recognition Based on Artificial Intelligence Applied to Intelligent Chip (J. Phys.: Conf. Ser. 1744 032162)

Published 16 September 2022

This article has been retracted by IOP Publishing following an allegation that raises concerns this article may have been created, manipulated, and/or sold by a commercial entity. In addition, IOP Publishing has seen no evidence that reliable peer review was conducted on this article, despite the clear standards expected of and communicated to conference organisers.

The authors of the article have been given opportunity to present evidence that they were the original and genuine creators of the work, however at the time of publication of this notice, IOP Publishing has not received any response. IOP Publishing has analysed the article and agrees there are enough indicators to cause serious doubts over the legitimacy of the work and agree this article should be retracted. The authors are encouraged to contact IOP Publishing Limited if they have any comments on this retraction.

Retraction published: 16 September 2022
Research on the Feedback System of Face Recognition Based on Artificial Intelligence Applied to Intelligent Chip

Lin Feng¹, Jian Wang¹,*, Chao Ding¹,², Ye Chen¹, Tian Xie¹

¹State Key Laboratory of Fire Science, University of Science and Technology of China, Hefei, China, 230026
²School of Environment and Energy Engineering, Anhui Jianzhu University, Hefei, PR, China, 230601

*Corresponding author e-mail: wangj@ustc.edu.cn

Abstract. With the iterative development of computer AI, user experience design based on user experience will consider whether the user can obtain emotional experience in the process of interaction with the machine when designing the product of face recognition feedback system. Therefore, it pays more attention to experience design and can better meet the user's experiential needs. Based on this, this paper first studies the principle and architecture of the feedback system for face recognition based on artificial intelligence, then analyzes the design of the feedback system for face recognition based on intelligent chip, and finally gives the optimization principle and strategy of the feedback system for face recognition based on intelligent chip.

Keywords: Feedback System, Face Recognition, AI, Intelligent Chip

1. Introduction

With the iterative development of computer information technology represented by artificial intelligence, the current products based on artificial intelligence should not only meet people's increasingly diversified functional needs, but also meet people's increasingly personalized experiential and interactive needs, which requires the products based on artificial intelligence to have a certain feedback system, so as to continuously improve the experience of products. User experience design based on user experience will consider whether users can obtain emotional experience in the process of interacting with the machine, so it pays more attention to experience design[1]. From the level of user experience, the feedback system based on artificial intelligence takes human emotion dimension as the design goal, and has gradually become the primary development direction of human-computer interaction represented by face recognition.

It is an important way to realize the face recognition feedback system based on artificial intelligence, which is applied to the feedback system to improve the human emotional interaction experience. Secondly, with the iterative development of artificial intelligence technology, the continuous updating of intelligent chip technology level, and the significant improvement of artificial intelligence software and hardware development level, human-computer interaction has become an indispensable part of intelligent design life.
In addition, with the increasing demand for computer artificial intelligence, a variety of application scenarios and feedback systems have been developed and used continuously. Face recognition is also developing towards a more intelligent and humanized direction. In the case of identification and information security has become a key problem to be solved, face recognition, as a friendly and convenient way of information collection, has become an important organic component of human-computer feedback system. Face recognition analyzes the feature information of the face and identifies the given face image based on the existing face database. It involves many aspects and fields as shown in Figure 1. By integrating the advantages of these fields, it can judge the identity ability and function, so it is widely used in many fields. Therefore, it is of great practical value to study the feedback system of face recognition based on artificial intelligence applied to intelligent chip.

2. Face recognition feedback system on account of artificial intelligence

2.1. Working principle of face recognition system

Face recognition is based on the human face feature information for identity recognition, through the detection and location of the face in the image, and then face recognition of the detected face. Through image acquisition, it detects and locates faces from video stream or image, and preprocesses the image such as noise filtering, so as to complete face feature extraction, output the recognized face feature point results and compare with the face in database system, so as to verify the structure. Face recognition is mainly based on artificial intelligence feature points algorithm, and has become the mainstream algorithm of face recognition access control\(^3\). Characterization features use the gray information of the face image to extract global or local features through some algorithms. In addition, based on the input face image, the key feature points of the face, such as contour points of various parts of the face, are automatically located.

2.2. Features of face recognition system and technology

Due to the uniqueness of the face and the typical characteristics of hard to copy, the identification system based on face recognition has the characteristics of non mandatory, non-contact, concurrency and visual characteristics, as shown in Table 1 below.
Table 1. Features of face recognition system and technology.

| Features          | Contents                                      | Advantages                                      |
|-------------------|-----------------------------------------------|------------------------------------------------|
| Non mandatory     | No special cooperation from users is required  | Face image can be acquired without perception    |
| Non contact       | No direct contact with equipment is required   | It can obtain face image conveniently            |
| Concurrency       | Practical application is convenient            | Sort, judge and recognize multiple faces         |
| Visual characteristics | Recognize people by their appearance         | In line with people's cognitive habits           |

2.3. Market size of face recognition system

With the rapid iteration of the Internet of things and artificial intelligence, the application scenarios of face recognition will be more and more extensive. With the R & D investment of scientific research institutions, enterprises' research on technology and market promotion, these will be the representation of the broad prospect of face recognition [3]. In addition, face recognition technology in the practical application is becoming more and more mature, and the demand of its market is increasing, and the application scenarios of face recognition are also constantly being mined. The development trend of the current face recognition system market scale is shown in Figure 2.

![Figure 2](image-url)

Figure 2. The development trend of face recognition system market scale.

2.4. Functional architecture of face recognition system

The system of face recognition system can be connected with computer through TCP / IP communication port to realize a more powerful face recognition management system composed of controller, communication network and management computer, as shown in Figure 3 below, so as to meet the requirements of face recognition rate, recognition response time and environmental illumination adaptation. Secondly, the system functions of face recognition system include authorization by gate level, authorization by gate group, authorization by special key areas and authorization by time period. In addition, face recognition system has a variety of different basic types, such as single door dual control controller, double door double control controller, four door single control controller and so on.
3. Research on face recognition feedback system based on intelligent chip

3.1. A feedback system for face recognition
Face recognition feedback system and expression recognition system coordinate and cooperate to form a face image processing system based on artificial intelligence. Based on the face information, people can judge the identity of people automatically by matching the information of the acquired face image with the known database information stored in advance, so it has the applicability in a variety of scenarios. Secondly, the system obtains the identity information in the face image, which is the process of identity authentication. At present, the feedback system of face recognition based on intelligent chip has become a widely used information exchange method in the field of human-computer interaction based on its direct recognition effect. In addition, as a static image processing technology, the feedback system for face recognition is based on the trained classifier to classify, recognize and determine the collected face images.

3.2. Hardware environment of the feedback system for face recognition
As a way of language representation in the process of communication, human body movements can not only express a variety of emotions, but also achieve an emotional expression through body movements and facial expressions\(^5\). Secondly, the driving unit controls the body and face to be the feedback of facial actions, so as to realize the emotional communication between human and computer. In addition, the facial features are collected to realize the expression recognition of face recognition, so as to obtain the human-computer emotional interaction of the human face recognition feedback system. At the same time, combined with the expression recognition system, facial expression interaction is realized. In the emotional interaction environment of the feedback system for face recognition, the basic class library is used to build the main framework of the operating program. In the process of face recognition, the open source computer vision library is used to process the face image. The system...
borrows the third-party toolkit to achieve more accurate acquisition of the face in the image and improve the accuracy of face detection.

3.3. Design of feedback system for face recognition based on intelligent chip

First of all, in the design level of the feedback system for face recognition based on the intelligent chip, the collected facial image feature information is transmitted to the central nervous system computer, and the corresponding processing is carried out by the computer to obtain and return the appropriate results. Secondly, in the aspect of face image processing, the face image is collected by camera, and the processed face image is obtained through segmentation, denoising and graying. Then the processed face images are sent to different application systems to get the authentication results. In addition, the facial expression is obtained by the expression recognition system, and the results are fed back to the system to obtain better interactive results.

In the implementation level of the feedback system for face recognition based on intelligent chip, the human face recognition classifier is trained based on the identity obtained by face recognition. The feedback flow is shown in Table 2.

Table 2. The feedback flow of face recognition system.

| Feedback flow            | Contents                                       |
|-------------------------|------------------------------------------------|
| Training face recognition| Update the necessary configuration and open the database |
| Serial line connection  | Execute feedback interaction control program   |
| Image acquisition       | Open face image processing program             |
| Feedback interaction    | Program driven interactive feedback system     |

4. Optimization of feedback system for face recognition based on intelligent chip

4.1. Principle of optimal design of feedback system for face recognition

First of all, in the value level of the face recognition feedback system with smart chip, higher level feedback system can produce higher economic benefits. Therefore, the application of intelligent chip can significantly improve the market competitiveness of face recognition feedback system. Secondly, the principle of optimizing the design of the feedback system for face recognition based on intelligent chip is to let users know their own state and give them correct feedback at the right time. In addition, the behavior process of face recognition feedback system has exceeded the functional requirements of product design, and the interaction behavior is formed based on interaction action and corresponding feedback.

4.2. Optimization of feedback system for face recognition based on intelligent chip

At present, most of the face recognition systems lack of effective guidance and clear feedback of user behavior, which leads to the decrease of the usability of face recognition system based on intelligent chip. Users of face recognition system can only get information feedback by asking, so as to meet their own needs. Based on this, the improved design of feedforward and feedback of the feedback system for face recognition based on intelligent chip can greatly improve its applicability and practicability. In addition, the optimization of the feedback system for face recognition based on intelligent chip mainly starts from the installation height of the face recognizer and the feedback level of the face recognizer, and strengthens the feedback to the user behavior in the human-computer interface of the system. In the logo design level of the system, it brings complete information feedforward for new users, and enables users to receive feedback information at the system feedback design level.

5. Conclusion

In summary, with the development of various application scenarios and feedback systems based on artificial intelligence, face recognition is also moving towards a more intelligent and more humanized direction. In the case of identification and information security has become a key problem to be solved,
face recognition, as a friendly and convenient way of information collection, has become an important organic component of human-computer feedback system. In this paper, the principle and architecture of face recognition feedback system based on artificial intelligence are analyzed. Through the analysis of the feedback system of face recognition based on intelligent chip, the design of the feedback system is studied. Through the optimization design of the feedback system for face recognition based on intelligent chip, the optimization principle and strategy of the feedback system for face recognition are given.

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