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**INDUSTRY STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GA/T 1344-2016

**Face recognition application in security systems. Technical
requirements for face image extraction from video**

安防人脸识别应用 视频人脸图像提取技术要求

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Security facial recognition application Video facial image extraction technical requirements

1 Scope

This standard specifies the technical requirements and test methods for video facial image extraction in security face recognition applications.

This standard applies to the design of the video face image extraction scheme, the development and testing of related products in the application of security face recognition.

2 Normative references the following documents are indispensable for the application of this document. For dated reference documents, only the dated version applies to this article Pieces. For undated references, the latest version (including all amendments) applies to this document.

GA/T 893-2010 Application terminology of security biometric identification

3 Terms and definitions the following terms and definitions defined in GA/T 893-2010 apply to this document.

Video face image extraction faceimageextractionfromvideo the process of discovering and obtaining facial images from video image sequences as required.

Face detection

The process of finding a face image from a given video image sequence and determining its position and size.

Face clustering

The process of grouping and identifying face images according to the number of people appearing in the video.

Face selection the process of selecting an image that meets the predetermined requirements from the classified and grouped face images.

Note: The predetermined requirements include the number of pixels between the eyes, the angle of the face pose, expressions and accessories, etc.

Ratiooffalsedetection the proportion of non-face images in the face detection results to the total number of detected images. which is.

$R_{fd} =$

$B \times 100\%$

Where.

Rfd---false detection rate, %;

Bf---the number of non-face images;

B --- Total number of detected images.

Dm---The number of times that a person who meets the predetermined requirements for a face image is not selected;

D ---The total number of people should be selected.

4 composition

Video face image extraction consists of face detection, face clustering and face selection.

First, perform face detection on the video image sequence, and then perform face clustering on the results to form a classification group, and then analyze each group of face images Make face selection. Face detection is mandatory. Face clustering and face selection are optional. Face selection should be done after face clustering is turned on get on.

5 Technical requirements

5.1 Functional requirements

5.1.1 Face detection should have the following functions.

- a) Set the face detection area in the screen, and only detect the face image in the area;
- b) Detect the face images of multiple people appearing at the same time;
- c) Set the detection range of face size, and only detect faces within the range.

5.1.2 Face clustering should have opening and closing functions.

5.1.3 Face selection should have the following functions.

- a) Turn on and off;
- b) Set the upper limit of the number of face images selected per person;
- c) Mandatory selection of face images that do not meet predetermined requirements.

5.2 Performance requirements

5.2.1 Face detection when the false detection rate is not more than 1%, the missed detection rate should not be more than 1%.

5.2.2 Face clustering when the mispolymerization rate is not more than 5%, the mispolymerization rate should not be more than 10%.

5.2.3 Face selection when the false selection rate is not more than 5%, the miss selection rate should not be more than 1%.

6 Test method

6.1 Overview

The test system is a stand-alone host, and the operating system is a Windows server series version, which can complete video playback and test results Store. The video facial image extraction application system should provide configuration items for obtaining the URL of the video stream.

Each test item should be entered in the entire test video. During the test, the same video keeps the parameter settings unchanged, and different videos can be changed Parameter test.

The function test item is tested twice in the same video, and the test result of each test should meet the requirements of 5.1, the average value of each test result of the performance test item all should meet the requirements of 5.2.

6.2.1 Face detection

6.2.1.1

The face detection area setting function is tested as follows.

- a) Turn off face clustering and face selection;
- b) Use the F1 group standard video of A.2.2 in Appendix A, and enter the first paragraph F11;
- c) Set the area where people appear in the screen as the detection area;
- d) Play the standard video to complete the facial image extraction;
- e) Refer to the B.1 output catalog in Appendix B to check whether the result is a human face image;
- f) Set the area where no people appear on the screen as the detection area;
- g) Replay the standard video to complete the facial image extraction;
- h) Refer to the B.1 output catalog in Appendix B to check whether the result is a human face image;
- i) Enter the next video in group F1;
- j) Repeat c)~j) until the F11~F15 segment of video is input in sequence.

Determine whether the result meets 5.1.1a).