Terminology

This page is from APP, the official source of professional practice for policing.

First published 22 March 2022

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5 mins read

This section of the APP reflects terminology approved and adopted by the NPCC to facilitate forces working together in relation to LFR. It does this by promoting the consistent use of terminology and definitions, resulting in a commonality of language used by law enforcement agencies in England and Wales.

It is written to provide an accessible reference point for members of the public to understand the nature of LFR deployments, and for police officers seeking to use LFR operationally.

There are a number of technical terms that can be found within International Organization for Standardization (ISO) standards. It may be more appropriate to use these terms where a precise technical meaning is needed, for example, in relation to procurement.

Terminology

Adjudication

A human assessment of an alert generated by the LFR application by an LFR engagement officer (supported, as needed, by the LFR operator) to decide whether to engage further with the individual matched to a watchlist image. In undertaking the adjudication process, regard is to be paid to subject factors, system factors and environmental factors

Administrator

A specially trained person who has access rights to the LFR application, in order to optimise and maintain its operational capability.

Alert

A notification generated by the LFR application when a facial image from the video stream, which is being compared against the watchlist, returns a comparison (similarity) score above the threshold.

True alert

When it is determined that the probe image (the image from the video stream) is the same as the candidate image in the watchlist.

Confirmed true alert

When, following engagement, it is determined that the engaged individual is the same as the person in the candidate image in the watchlist.

True recognition rate (TRR)

The number of times when individuals on a watchlist are known to have passed through the zone of recognition and the LFR system correctly generated an alert, as a proportion of the total number of times that these individuals passed through the zone of recognition (regardless of whether an alert is generated).

This is also referred to as the true positive identification rate.

False alert

When it is determined by the operator that the probe image is not the same as the candidate image in the watchlist, based on adjudication without any engagement.

The false alert rate is one of the two measures relevant to determining application accuracy.

Confirmed false alert

Following engagement, it is determined that the engaged individual is not the same as the person in the candidate image in the watchlist.

False alert rate (FAR)

The number of individuals who are not on the watchlist but generate a false alert or confirmed false alert, as a proportion of the total number of people who pass through the zone of recognition.

This is also referred to as false positive identification rate.

Application accuracy

Application accuracy can be considered to consist of the combined LFR technology accuracy and the human in the loop decision-making process. Accuracy is determined by measuring two metrics, the true recognition rate and the false alert rate. This is further explained below. The example given has been simplified to demonstrate the concept. Note that the metrics have been calculated in accordance with the agreed scientific method, as set out by the International Organisation for Standardisation.

The TRR, or true positive identification rate, would be 90% if, after 10 people on the watchlist pass the LFR system, a correct alert is generated for 9 out of 10 of those people. As no alert was generated against one person in this example, there was one missed alert.

The FAR, or false positive identification rate, would be 0.1% if, for every 1,000 people that passed the LFR system, an alert was generated against one person who was not on the watchlist.

Authorising officer (AO)

The officer (usually holding the rank of superintendent or above) who provides the authority for LFR to be deployed.

Biometric template

A digital representation of the features of the face that have been extracted from the facial image.

It is these templates (and not the images themselves) that are used for searching and that constitute biometric personal data. Note that templates are proprietary to each facial recognition algorithm. New templates will need to be generated from the original images if the LFR application's algorithm is changed.

Blue Watchlist

A watchlist comprising of known persons that can be used to test system performance. For example, to measure the TRR, police officers and staff may be placed on a Blue Watchlist and 'seeded' into the crowd who walk through the zone of recognition during a deployment.

Candidate image

An image of a person from the watchlist returned as a result of an alert.

Deployment

The use of an LFR application, as authorised by an AO, to locate those on an LFR watchlist.

Deployment record

An amalgam of the LFR application, the written authority document and the LFR cancellation report. This sets out the details of a deployment, including, but not limited to:

- location
- dates and times
- deployment and watchlist rationale
- legal basis
- necessity
- proportionality
- safeguards
- watchlist composition
- authorising officer
- resources
- relevant statistics
- outcomes
- summary of any issues

Environmental factors

An external element that affects LFR application performance, such as dim lighting, glare, rain or mist.

Faces per frame

A configurable setting that determines the number of faces that can be analysed by the LFR application in each video frame.

Facial recognition

This technology works by analysing key facial features, generating a mathematical representation of these features, and then comparing them against the mathematical representation of known faces in a database to generate possible This is based on digital images (either still or from live camera feeds).

False negative (missed alert)

Where a person on the watchlist passes through the zone of recognition but no alert is generated. There are a number of reasons that false negatives occur, including application, subject and environmental factors, and how high the threshold is set.

LFR engagement officer

An officer whose role is to undertake the adjudication process following an alert, which may or may not result in that officer undertaking an engagement. These officers will also assist the public by answering their questions and helping them to understand of the purpose and nature of the LFR deployment.

LFR operator

An officer or staff member whose primary role is operating the LFR system. They will consider alerts and, via the adjudication process, will assist LFR engagement officers in deciding whether an alert should be actioned.

Person(s) of interest

A person on a watchlist.

Probe image

A facial image that is searched against a watchlist.

Retrospective facial recognition (RFR)

A post-event use of facial recognition technology, which compares still images of faces of unknown subjects against a reference image database in order to identify them.

Subject factor

A factor linked to the individual, such as:

- demographic factors (for example, sex or ethnicity)
- wearing a heard covering
- smoking
- eating
- looking down at the time of passing the camera

System factor

A factor relating to the LFR application such as the algorithm.

Threshold

The configurable point at which two images being compared will result in an alert. The threshold needs to be set with care to maximise the probability of returning true alerts while keeping the false alert rate to an acceptable level.

Urgency

In the context of authorising an LFR deployment, a deployment that is related to an:

- imminent threat-to-life or serious harm situation
- intelligence or investigative opportunity with limited time to act, where the seriousness and potential benefits support the urgency of action

Watchlist

A set of known reference images against which a probe image is searched. The watchlist is normally a subset of a much larger collection of images (reference image database) and will have been created specifically for the LFR deployment.

Zone of recognition

A three-dimensional space within the field of view of the camera and in which the imaging conditions for robust face recognition are met. In general, the zone of recognition is smaller than the field of view of the camera, so not all faces in the field of view may be in focus and not every face in the field of view is imaged with the necessary resolution for face recognition.

Tags

Digital intelligence and investigation