



Rogue DNA Forensic Lab Partial Face Recognition

Rogue DNA's Forensic Lab suite (RFL) provides the following functions. Data can be seamlessly exchanged between each module:

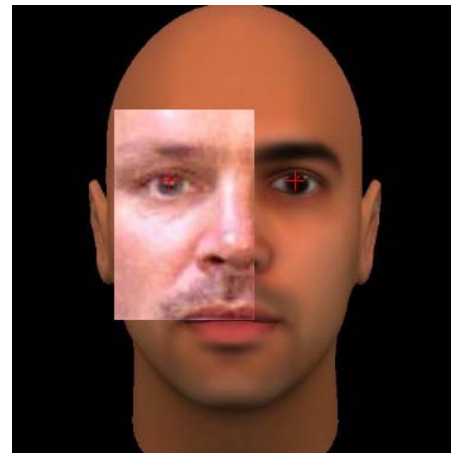
- Face recognition & partial face recognition
- Fingerprint recognition and compliance with biometric standards
- Fingerprints & facial images – conversion of paper prints to electronic
- Biometric Application Server
- Document authentication

Until now, face recognition systems have treated a face as a homogeneous entity, captured various types of information from it, and encoded this as digital representation of it. Rogue DNA's Partial Face Recognition (PFR) system is unique in that it takes just part of a face and matches it against the same parts in a database of complete faces.

This is of real value where only part of a face is available, for example body parts after an explosion, burn victims, a photograph where only part of a face is visible, etc.

To use Partial Face Recognition, the following process is used:

- PFR is an optional module within the RFL face recognition application. All the functionality of full face recognition is available to recognize and match the partial face. Selecting "Partial face" on a pull-down on the Face Screen displays a facial template
- A frontal shot is taken of the facial part
- This image is either pasted or drag-and-dropped onto the facial template. The template itself is a computer-generated generic face
- Once the image is over the relevant area of the template it will have to be resized to match the size of the template. The scroll wheel on a standard mouse is used to make the image larger or smaller.
- The template itself can then be adjusted to change the distance between the eyes, and the position of the nose, etc.



- Once the partial face is deemed to be in the most realistic position the eye centres are manually selected.
- The face is encoded and matched against the same areas on the faces in a pre-encoded database or watchlist
- Matches above a preset threshold are displayed as thumbnails in the display area on the left of the screen.



Partial face recognition. The square eye section is the partial.
Numbers 3, 5, 6, 7 and 8 above are matches

The performance of Partial Face Recognition is clearly affected by the level of detail available on the partial face.

Much like full face recognition, the primary purpose of Partial Face Recognition is to narrow down the list of possible matches to something that an officer can easily scan, i.e. it can make an impossible task quite practical, rather than making a positive ID of a specific individual. The final decision is always the officer's.

Partial Face Recognition works with all major databases, including Oracle, SQL-Server, DB2, and MS-Access. Any database can be accessed in read-only mode as long as the user knows the locations of the facial images. RFL keeps its own database of encode strings so data integrity is not compromised. RFL Face and Partial Face Recognition are available in both 32-bit and 64-bit versions, so extremely large databases can be accessed. The interface can be readily switched to any language.