



Facial Recognition

From Visiphor's Recognition Software Development Kit (SDK)

With facial recognition technology, part of Visiphor's Recognition SDK, independent software developers now have the capability to develop their own software products and solutions. Your customers will benefit from these added capabilities embedded in your software.

OVERVIEW

Packaged For Your Needs

The Recognition SDK consists of 5 different packages: Image Capture from video, Motion Detection/Collation, Face Finding, Facial Recognition and Pattern Recognition

Build Into Your Software

Build facial recognition capabilities into your software with the SDK

Production Proven

In use by law enforcement and public safety agencies around the world

Non-Tactile

Subject identification requires little or no cooperation from subjects

Combine With Other Biometrics

Add facial recognition to your existing biometric solutions to provide a more robust custom solution

Image Enrollment

Enroll already collected image sets; make this information searchable

Identification

Improve current identification methods with facial recognition

FACIAL RECOGNITION: HOW IT WORKS

Visiphor's facial recognition technology consists of an enrollment component and a run-time linked library. The enrollment component is used to input images (either in batch and single input modes) and their associated codings into a database. The linked library performs the search & compare function that matches a probe image against the database imagery to return useful results. Visiphor's advanced approach to mapping facial contours and geometry is so powerful that it can provide FR mugshot matching against good quality composite sketches. The encoding is performed using Visiphor's proprietary wavelet-based algorithm which converts the detection information into what's known as an encode array—a unique string of binary data that remains relatively unchanged despite varied lighting conditions and head positions, although these can be determinate factors in data accuracy. Additionally, the encode array is unaffected by changes in hairstyle, skin tone and facial hair. The search algorithm is extremely fast, successfully completing searches of more than two million images per minute on modest hardware while still returning usable results. As with any FR application, the results are dependent on the quality and speed of hardware and network components

and quality of source imagery. FR works best with front poses and with minimal obstruction of the face (no hats, no glasses, etc.).

ENROLLMENT

Enrollment is the process whereby still images are encoded and registered with the system. The enrollment process creates a unique signature for each image, a confidence value for the encoding, and a pointer to the original image. Enrollment is possible either by batch or single image encoding depending on a customer's needs.

The SDK offers a video capture capability which can aid in capturing still images from live video. This is useful enroll new images in booking applications.

Although not required, it is recommended that images comply with NIST best practices. (For more information: http://www.itl.nist.gov/iaui/894.03/face/bpr_mug3.html).

IDENTIFICATION

Identification is the process whereby a still image is encoded and compared to the existing enrolled data set. Results are returned in a rank list ordered by a confidence value. Although a person must make the final identification of a subject, the rank list proves extremely helpful when

trying to identify uncooperative subjects or if trying to put together a digital lineup for suspect identification.

Image capture for the purpose of identification can be accomplished through the video capture capability in the SDK. The video capture makes it easier to collect still images to compare against the enrolled image set.

THE RECOGNITION SDK

Facial recognition is just one component of Visiphor's Recognition SDK product. The FR capability in this package provides software developers with the capability to enroll still images and identify newly acquired images (whether from video or still image) against the enrolled image set.

POTENTIAL USES

This technology has many potential uses. Watchlist applications can be made to monitor entrance ways. In this scenario, a notification is triggered if a face matches an enrolled image with a minimum predetermined confidence level.

Another application is for the searching and

retrieval of critical information. Visiphor has created such a product called the InForce Suite. This application combines both text and image search to surface information relevant to the user.

With your imagination, many other applications can be developed with Visiphor's Recognition SDK. Please call to discuss the suitability of the SDK to your particular application needs.

ADDITIONALY USABILITY

Combined Text Search

Your face recognition searches can be filtered using standard associated text data such as sex, race, date-of-birth, and other related descriptors.

Set Point Assist

Match probability can be increased with poor quality imagery using the set point utility to define key facial features to assist the application when necessary (as seen in the screen capture of InForce Suite).

Standardized Hardware and Software

images. Requires only a minimum 8-bit image depth.

Live Video Capture

Non-responsive or non-cooperative subjects can be easily captured, encoded and searched by the system.

A BRIEF HISTORY

Visiphor's history with biometric facial recognition technology dates back to the early days of the company. Due to Visiphor's advanced knowledge surrounding the matching and manipulation of imagery, a police agency in Canada asked Visiphor to develop a way to do the same for mugshots and, in particular, for generation of suspect line-ups. The police were frustrated with the time consuming manual tasks used to verify offender/victim identities, assemble line-ups, and search for prior interactions. Seeing the opportunity, Visiphor pulled together some of the best development minds on FR and policing, and the resulting applications are now in use by law enforcement agencies throughout Canada, the United States and the United Kingdom.

LICENSING

Licensing options vary depending on type of use, the number of images enrolled and the number of end users. Please call Visiphor sales at 604-684-2449 extension 2 to discuss your particular needs.

Runs on Windows-based computing platforms and networks as a cost-effective, off-the-shelf solution. Works with existing image repositories.

Forgiving Parameters

Functions with equal performance on color or grayscale

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ABOVE: Combine text and photo searches to find critical information in Visiphor's InForce Suite