

BIOMETRICS. Recognizing people by looking at their faces is something we do every day. But facial recognition is also the principle behind a biometric technology that meets emerging security requirements.

FACIAL RECOGNITION: PORTRAIT OF A PROMISING TECHNOLOGY

Out of all biometric technologies, facial recognition is undoubtedly the most easily accepted by the general public. It is the most widely used and most natural: nobody minds seeing their photo on an ID card, transportation pass or healthcare system card. With the ongoing progress in biometric technologies, this type of identification is also becoming automated. The technology is based on a comparison of a person's face with his or her photo stored in the system's memory, to make sure that it's really the same person.

After several years of design work, the facial comparison engine developed by Sagem Sécurité (Safran group) hit 100% accuracy on one of the tests used by the National Institute of Standards and Technology (NIST) in the United States.

Multiple applications

Facial recognition is used today for three main applications. First, to issue identity cards, most often in associa-

tion with another biometric identifier, such as fingerprints. This is the case in Guatemala, where Safran was selected at the end of 2008 to supply a complete biometric ID card system. "Facial recognition is used when the quality of fingerprints is insufficient," notes Claude Bauzou, product manager at Sagem Sécurité.

The second major use is border control, in which the photo on a biometric passport (which includes a digital photo) is compared with the face of the passport holder. Australia is a real pioneer in this field, and has already fitted its main airports with the SmartGate system developed by Sagem Sécurité, capable of automatically performing this operation in a couple of seconds. Since being installed, Australia's SmartGate systems have already checked more than 150,000 passengers.

The third, and far less common application is for the police. In this case, it is used to help identify people having committed criminal acts, based on shots from a surveillance camera for instance.

Growing use

Although comfortable and well accepted by the public, facial recognition systems do not yet offer the ability to distinguish people as well as fingerprints or the iris. Furthermore, a new beard, sunglasses, a broad smile and other factors can disturb the identification process. However, error rates are still fairly low, and the technology continues to progress.

For instance, Safran coordinated a European research project, 3D Face, which aimed to develop a 3D facial recognition system. "The advantage of 3D is that it captures faces even on the move, without having to ask subjects to stand still and look at the camera," explains Jean-Christophe Fondeur, head of R&T at Sagem Sécurité. The prototype systems based on this research work are now being tested at airports in Berlin (Germany) and Salzburg (Austria). Initial results are excellent.

These advances herald new uses for facial recognition. For example, authorities are considering the use



FINGERPRINT AND IRIS RECOGNITION

In the world of biometric recognition systems, fingerprints are still the most widely used characteristic. Not only do they combine precision, comfort and low cost, but fingerprints don't change over time. However, in certain countries they are saddled with a negative "police state" image. Iris recognition, although well behind in popularity, about on a par with facial recognition, is actually more accurate than fingerprints. The main drawback is that it requires people to place their eye in front of a reader, which is not always very pleasant. But, once again, technology is improving. Safran is at the cutting edge of both of these technologies, and continues to develop innovative and highly capable solutions.

of facial recognition systems that check passports at borders to also help identify internationally wanted persons whose faces are already on record. Another possible application is monitoring people released on probation. Likewise, secure access to public buildings could be made much easier and more user-friendly thanks to this technology, which guarantees security without all the usual restrictions. ■