



## Future gazing - biometric techniques

Television and films have long used biometric security techniques to amaze and transport audiences into the future.

From voice recognition to finger printing to retinal scans and DNA. I am reminded of a scene in *GATTACA* where every employee had to press their thumb to a device which took a small blood sample to verify their identity before being granted access to the building.

While nothing I have read suggests that biometric security is going to be as invasive as blood samples, in fact it is quite the opposite, it does seem that the application of biometric technology is rapidly expanding.

But first things first, what is Biometric Security?

A security system that uses automated methods of identifying or authenticating the identity of a living person based on a physiological or behavioural characteristic.

A physiological characteristic is a relatively stable physical characteristic, such as a fingerprint, hand silhouette, iris pattern or blood vessel pattern on the back of an eye.

### *behavioural characteristic*

A behavioural characteristic is more a reflection of an individual's psychological makeup, such as how one speaks, how one types or writes.

Behavioural based systems will usually update their biometric reference each time it is used due to the variability of the characteristics over time.

Biometric characteristics are unique to a particular person and can be used as an alternative to traditional username and passwords or in place of passphrases for digital certificates.

It is important to understand the difference between identification and authentication. Identification matches the biometric presented by a person against all biometric samples in a database.

This is called a one-to-many match and

once a match is found the person is identified. Authentication involves a one-to-one match, where a live biometric presented by a person is compared to a stored sample previously given by that individual.

In this case, the sample can be either in a central database or carried by the person, for example on a smart card or it could be stored in the device itself.

### *initial contemplation*

A behavioural biometric that on initial contemplation seems unreliable is that of a person's signature.

I never seem to be able to sign the same way twice, however, biometric signatures are being used in the legal arena (Miami-Dade County Traffic Court and Federal Court in Tampa Florida).

A biometric signature is behavioural biometric that analyses the way a person signs his/her name.

The signing features such as speed, velocity and pressure exerted by a hand holding a pen are as important as the static shape of the finished signature.

The signature can be captured using a variety of devices from palmtop computers to digitising tablets to computer screens.

The fact that a person never signs the same way twice does not matter as a person's signature adheres within certain boundaries unique to each individual.

### *biometric signature*

When a biometric signature is applied to an electronic document, the signature appears on the document.

Underlying that visual representation is the additional biometric data that can be used to compare with a previously provided sample.

In this way biometric signatures are generally used in an authentication rather than an identification capacity.

While biometric signatures can be used to authenticate the person signing a document, other security measures are needed to ensure that the electronic signature was applied to the document in question and that the document has not changed since the signature was applied.

Further, the biometric signature should not be capable of being lifted from the document and used elsewhere. In other words the biometric signature needs to be bound to the document.

Finally, the signature templates used to authenticate a submitted document need to be well secured.

There are a number of biometric options available, but for electronic documents, biometric signatures would appear to have an advantage: cultural acceptance.

The signature has long been accepted as a person's recognition and agreement on the contents of a document.①

Links:

[www.afb.org.uk](http://www.afb.org.uk) – Association for Biometrics

[www.penop.com](http://www.penop.com) – Communication Intelligence Corporation

[www.cybersign.com](http://www.cybersign.com) – Cyber Sign

[www.law.gov.au/aghome/advisory/eceg/ecegreport.html](http://www.law.gov.au/aghome/advisory/eceg/ecegreport.html) - Electronic Commerce: Building The Legal Framework, Report Of The Electronic Commerce Expert Group To The Attorney General, 31 March 1998

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