

# Shifty, but secure eyes

August 29 2012

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A biometric security system based on how a user moves their eyes is being developed by technologists in Finland. Writing in the *International Journal of Biometrics*, the team explains how a person's saccades, their tiny, but rapid, involuntary eye movements, can be measured using a video camera. The pattern of saccades is as unique as an iris or fingerprint scan but easier to record and so could provide an alternative secure biometric identification technology.

Martti Juhola of the University of Tampere and colleagues point out that fingerprint and [face recognition](#) are perhaps the most usual biometric means to verify identity for secure access to buildings and computer resources and even at international borders. Other techniques such as iris scanning are also occasionally used in some circumstances. The most obvious disadvantage of such biometrics is that they might be forged through the use of an image or prosthetic. The team points out that the advent of high-quality video cameras and web cameras means that a dynamic biometric, such as monitoring [eye movements](#) is now viable. It would be much more difficult to spoof an individual's pattern of saccades than to emulate their iris with contact lenses or their fingerprints with patterned silicone pads other means.

The team has studied otoneurological eye movements for several years and has recognised that certain statistical values that can be extracted from the data for such movements are, in combination, unique for each of us. "Saccades are probably the simplest eye movements to detect with signal analysis," the team says. They are the fastest eye movements and very easy to trigger by asking an individual to look at one target and then

another on a computer screen, for instance the team explains.

Preliminary tests suggest that a verification could be undertaken in as little as 30 seconds as 30-40 saccades are recorded, giving accuracy of 90% or even close to 100% at its best, the team says.

**More information:** "Biometric verification of subjects using saccade eye movements" in *Int. J. Biometrics*, 2012, 4, 317-337

Provided by Inderscience Publishers

Citation: Shifty, but secure eyes (2012, August 29) retrieved 1 May 2024 from <https://phys.org/news/2012-08-shifty-eyes.html>

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