

Smartphone face recognition 'improved' by copying the brain

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Shows the owner's face 'average' – an image derived from many photos of a person – being encoded into the system.

Face recognition security on smartphones can be significantly improved if users store an 'average' photo of themselves, according to new

research by scientists at the University of York.

A research team led by Dr David Robertson, of the Department of Psychology's FaceVar laboratory at York, found that combining different pictures of the user, rather than a single 'target' image, leads to much better recognition across all kinds of daily settings. The research is published in the journal *PLOS ONE*.

The researchers examined the performance of the 'face unlock' system on Samsung Galaxy phones. They found that the system was generally very good at rejecting imposters, but that it often failed to recognise the genuine owner too. However, performance could be greatly improved, often to perfect levels, if users stored an 'average' of their own photos – formed by morphing together several different photos of the user.

The idea for this technique comes from studies of human face recognition. It is understood that the brain forms abstract representations of the faces it knows, and that people are very good at recognising their family and friends over a range of conditions. If it is possible to copy these representations, then automatic face recognition can improve. Using 'average' images is a simple way to do this.



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Dr Robertson said: 'We chose to study the Samsung Galaxy because it is a very popular phone which comes with working [face recognition](#) technology. However, we expect this technique to work across a wide range of phones and other automated recognition devices. It is very interesting that performance can be so much improved by copying a simple trick performed by the brain.'

Provided by University of York

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