If the face fits...

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The creators of the EFIT-V forensic facial composite software describe how it works and recent successes with police services in the UK in the current issue of the *International Journal of Electronic Security and Digital Forensics*.

PhotoFIT and Identikit tools for helping the police identify suspects from witness statements were the staple of crime fighting for many years. Even today, however, the computerised versions of these tools rely on reconstructing a face from half-remembered and often poorly described features.

According to Stuart Gibson of the University of Kent, Canterbury, and colleagues there and at the Open University, Milton Keynes, the effectiveness of this feature-based approach is fundamentally limited by the ability of the witness to recall and describe the suspect. However, in recent research Gibson and co-workers developed a new approach that allowed the whole face to be recreated in a much more intuitive way. The EFIT-V software developed from the team's research is now being used by a number of police services in the UK.

"Unlike traditional feature based methods, the approach described here utilises global, whole face, facial characteristics and allows a witness to produce plausible, photo-realistic face images in an intuitive way," Gibson and colleagues explain.

With EFIT-V, the operator asks the witness some very simple questions relating to the age, sex, face-shape and hairstyle of the suspect the police

are hoping to identify, explains Gibson. This information is used to initialise the EFIT-V ystem. In the steps that follow the witness is shown a set of computer-generated [faces](link) from which they must select the face that represents the best likeness to the suspect. Variants of the selected face are then generated and these comprise a new set of images from which another selection is made.

A good likeness to the suspect can be achieved simply by repeating this process a number of times. This new approach, which effectively 'evolves' a facial likeness, latches on to a person's ability to instantly recognise a face when they see it again which is known to be superior to the human capability for recalling in detail a face that was only seen fleetingly, the researchers say.

The witness is not required to provide a detailed verbal description of the face, so a lengthy and potentially tiring interview can be avoided.

Gibson and colleagues point out that controlled trials supported by the UK Home Office demonstrated that the system could double the useful intelligence gained compared with conventional approaches. Twelve UK police services are now using the system successfully.

More information: "New methodology in facial composite construction: from theory to practice" in *Int. J. Electronic Security and Digital Forensics*, 2009, 2, 156-168

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