

ID got you, under the skin: Automated thermal face recognition based on minutiae extraction

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Forget fingerprints or iris recognition, the next big thing in biometrics will be a thermal imaging scan that maps the blood vessels under the skin of your face for instantaneous face recognition that would be almost impossible to spoof.

Writing in a forthcoming issue of the *International Journal of Computational Intelligence Studies*, a team at Jadavpur University in Kolkata, India, explains how the pattern of blood vessels just beneath the skin of our faces is as unique as a fingerprint, iris or other characteristic. It can be revealed easily with an infra-red thermal imaging camera. Rubber fingerprints can be made to simulate another person's dabs while contact lenses can be fabricated to spoof someone's iris so that an impostor could bypass biometric security measures.

However, it would be almost impossible to create a realistic mask for an impostor to wear that simulated the pattern of blood vessels in someone's face because no matter how good the mask, the [thermal imaging camera](#) would be able to see the impostor's blood vessels in their skin too and they would be unmasked, figuratively speaking.

Ayan Seal and colleagues have developed a [computer algorithm](#) that can analyze the minutiae of the blood vessels revealed by an infra-red scan of a person's face. The thermogram readily reveals the pattern of blood vessels almost down to the smallest capillary with an accuracy of more

than 97%. Such a degree of precision would suffice even for high-security applications provided the thermogram scan was tied to second or third forms of identity, such as photo ID, security card, PIN number etc.

Face recognition is widely accepted by security systems, law enforcement and legal agencies, thermal imaging takes this fundamental [human trait](#) to a lower, subcutaneous, level.

More information: "Automated thermal face recognition based on minutiae extraction" in *Int. J. Computational Intelligence Studies*, 2013, 2, 133-156

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