

Tightening up facial biometrics

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Facial biometrics for security applications is an important modern technology. Unfortunately, there is the possibility of "spoofing" a person's face to the sensor or detection system through the use of a photograph or even video presented to the security system. A team from China has now developed a counter-measure that could preclude face

spoofing and make such biometric security systems far less prone to abuse. The team reports details in the *International Journal of Computational Science and Engineering*.

Fei Gu, Zhihua Xia, Jianwei Fei, Chengsheng Yuan, and Qiang Zhang of Nanjing University of Information Science and Technology, explain how anti-spoofing technology usually looks to illumination differences, colour differences, or textures differences to spot issues with the presented face to determine whether or not the face is a photo or video rather than a live human in front of the [security](#) camera. However, even these approaches are vulnerable.

In order to make a stronger anti-spoofing system, the team has proposed a method based on various feature maps and convolution [neural networks](#) for photo and video replay attacks. They explain that facial contour and specularly reflected features are taken into account when verifying a face so that depth and width can be determined, aspects of a living face that are not present in a photograph. Their proof of principle shows remarkable performance against multiple datasets and shows that the method can defend not only photo attack, but also video replay attack with a very low error rate.

More information: Fei Gu et al. Face spoof detection using feature map superposition and CNN, *International Journal of Computational Science and Engineering* (2020). [DOI: 10.1504/IJCSE.2020.107356](https://doi.org/10.1504/IJCSE.2020.107356)

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