

# The Subtle Effects of Blood Circulation Can Be Used to Detect Deep Fakes | IEEE Spectrum

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...recent research promises to give the upper hand to the fake-detecting cats, at least for the time being.

This work, done by two researchers at Binghamton University (Umur Aybars Ciftci and Lijun Yin) and one at Intel (Ilke Demir), was published in IEEE Transactions on Pattern Analysis and Machine Learning this past July. In an article titled, “FakeCatcher: Detection of Synthetic Portrait Videos using Biological Signals,” the authors describe software they created that takes advantage of the fact that real videos of people contain physiological signals that are not visible to the eye.

In particular, video of a person’s face contains subtle shifts in color that result from pulses in blood circulation. You might imagine that these changes would be too minute to detect merely from a video, but viewing videos that have been enhanced to exaggerate these color shifts will quickly disabuse you of that notion. This phenomenon forms the basis of a technique called photoplethysmography, or PPG for short, which can be used, for example, to monitor newborns without having to attach anything to a their very sensitive skin.

[...]

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