Thermal imaging camera scans for drunks

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Thermal imaging technology might one day be to identify drunks before they become a nuisance in bars, airports or other public spaces. Georgia Koukiou and Vassilis Anastassopoulos of the Electronics Laboratory, at University of Patras, Greece, are developing software that can objectively determine whether a person has consumed an excessive amount of alcohol based solely on the relative temperature of different parts of the person's face.

Writing in the *International Journal* Electronic Security *and Digital Forensics*, the team explains how such a system sidesteps the subjective judgements one might make based on behaviour and so allow law enforcement and other authorities to have definitive evidence of inebriation.

The team explains how they have devised two algorithms that can determine whether a person has been drinking alcohol to excess based on infrared thermal imaging of the person's face. The first approach simply involves measuring pixel values of specific points on the person's face, which are the compared to values in a database of scans of sober and inebriated people. Given that alcohol causes dilation of blood vessels in the surface of the skin hot spots on the face can be seen in the thermal imaging scans, which can be classified as drunk or sober regions. Similar technology has been used at international borders and elsewhere to ascertain whether a person was infected with a virus, such as flu or SARS.

In their second approach, the team assesses the thermal differences

between various locations on the face and evaluates their overall values. They found that increased thermal illumination is commonly seen in the nose in an inebriated individual whereas the forehead tends to be cooler. This second system relies on the algorithm "understanding" what different parts of the face are present in the thermal image. The two techniques working in parallel could be used to quickly scan individuals entering public premises or attempting to buy more alcohol, for instance. The team points out, however, that the second technique does not need a thermal image of the sober person to determine whether that individual has been drinking.

More information: "Drunk person identification using thermal infrared images" in *Int. J. Electronic Security and Digital Forensics*, 2012, 4, 229-243

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