Abstract

Master’s attestation work on:

«Reliability research of human Identification using face recognition technology»

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Relevance

Man-made environment has reached an ideal position in the last 3-5 years for a revolutionary and lightning development of technologies which in the last century would have gone years. Experience of biometric technology - another proof of that. We can expect that in the very near future password and pin-codes yielding place to new, more reliable means of authorization and authentication. Among them face recognition technology, development of which is gaining speed with each passing year. But on the reliability of face recognition is inferior to some other biometric features, such as retina or fingerprint. Theme of the diploma work is relevant today due to the rapid proliferation and development of face recognition technology.

Objective

The aim of the diploma work is to investigate the reliability of access control systems, and factors that affect it and opportunities for reducing the influence of the established factors.

Tasks to be solved

Investigate the reliability of existing access control systems with facial recognition;

Identify the factors that affect the reliability of face recognition;

Explore the possibility of increasing the reliability of facial recognition systems, given the attention to their scope.

Scientific novelty

Scientific novelty of the work consists in identifying sources of unreliability of face recognition systems, investigate their effects in different environments, and proposals for reducing the influence of factors of unreliability of such systems. The influence of such factors was investigated: confidentiality of information stored, image quality and environmental conditions, lighting standards, methods of face standards building and their sizes.

The practical achievments

A program of recognition of persons to carry out experiments on the influence of factors on the reliability of access control systems using face recognition technology. The program is implemented in C + + and OpenCV software library using the method of principal components, which gives recognition accuracy of 95% at the pictures in the same conditions. Thus, the program is, first, cross-platform, and secondly, it can be used not only for experiments, and for practical purposes.

Conclusion

According to the results of experiments conducted with a written program that uses the most common methods of face recognition, we can get conclusions about the unreliability of the methods considered and the possibility of reducing the factors considered in work on the reliability of face recognition.

The work contains 120 p., 30 pic., 14 sources.

Keywords: face recognition, reliability, access control, biometric, OpenCV, eigenfaces.