سیویلیکا - ناشر تخصصی مقالات کنفرانس ها و ژورنال ها
گواهی ثبت مقاله در سیویلیکا
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عنوان مقاله:

Driver Identification Using Face Liveness Detection

محل انتشار:

اولین کنفرانس بین المللی هوش مصنوعی و خودروی هوشمند (سال: 1402)

تعداد صفحات اصل مقاله: 15

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خلاصه مقاله:

This research indicates an innovative car security system based on the liveness detection of the driver's face. Conventional security systems that rely on face images are vulnerable to spoofing attacks. We address this problem by considering the liveness detection step before face recognition to alleviate the probability of system failure. We applied two well-known neural networks MobileNetV۲ and ResNet۵۰ for liveness detection. Our experimental results show that these two networks have similar accuracy of ۹۹% for the dataset of final antispoofing while the memory size of weights in MobileNetV۲ is one-tenth of ResNet۵۰. For removing unnecessary information of the image, a face detection step is conducted using Haar cascade method. The experimental re-sults show that Haar cascade is an appropriate face detector with small memory usage and low computational overload in comparison with MTCNN and Retina Face. Classification of driver's images as authentic or unauthentic is conducted by VggFace network. A comparison of VggFace with FaceNet network shows that the two networks have similar accuracies while VggFace weights size is smaller which makes it more acceptable for practical use.

کلمات کلیدی:

Car security systems, Face Recognition, Face liveness detection, deep neural networks.

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