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Abstract

Despite the recent success of convolutional neural networks for computer vision applications, unconstrained face recognition remains a challenge. In this work, we make two contributions to the field. Firstly, we consider the problem of face recognition with partial occlusions and show how current approaches might suffer significant performance degradation when dealing with this kind of face images. We propose a simple method to find out which parts of the human face are more important to achieve a high recognition rate, and use that information during training to force a convolutional neural network to learn discriminative features from all the face regions more equally, including those that typical approaches tend to pay less attention to. We test the accuracy of the proposed method when dealing with real-life occlusions using the AR face database. Secondly, we propose a novel loss function called *batch triplet loss* that improves the performance of the triplet loss by adding an extra term to the loss function to cause minimisation of the standard deviation of both positive and negative scores. We show consistent improvement in the Labeled Faces in the Wild (LFW) benchmark by applying both proposed adjustments to the convolutional neural network training.

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