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Robust Face Anti-spoofing with Depth Information

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Abstract

With the prevalence of face authentication applications, the prevention of malicious attack from fake faces such as photos or videos, i.e., face anti-spoofing, has attracted much attention recently. However, while an increasing number of works on the face anti-spoofing have been reported based on 2D RGB cameras, most of them can not handle various attacking methods. In this paper we propose a robust representation jointly modeling 2D textual information and depth information for face anti-spoofing. The textual feature is learned from 2D facial image regions using a convolutional neural network (CNN), and the depth representation is extracted from images captured by a Kinect. A face in front of the camera is classified as live if it is categorized as live using both cues. We collected a face anti-spoofing experimental dataset with depth information, and reported extensive experimental results to validate the robustness of the proposed method.

Keywords: Face anti-spoofing, depth information, convolutional neural network

1. Introduction

Face recognition has been widely applied in public security system, access control system, login system, entry administration system, etc. Traditional face recognition only recognizes the faces from collected images but can not identify whether the faces are from real persons in front of the camera or not.

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