Localizing Optic Disk using LBP, SIFT and ICA

Abstract

Various eye diseases such as diabetic retinopathy and glaucoma are very chronic, they have to be detected in early stage, so that harmful effects of such diseases can be minimized, also biometrics authentication plays a crucial role in daily life activities. So retinal fundus photography is commonly used in above mentioned area of problems. Because of Time-consuming and resource-intensive process, degradation of such images takes place. This paper presents a novel method to automatically localize one such feature: the optic disk. The proposed method consists of various steps: in the first step, a circular region of interest is found by first isolating the brightest area in the image by means preprocessing, and in the second step, the Hough transform is used to detect the main circular feature (corresponding to the optical disk) within the positive horizontal gradient image within this region of interest and we done this feature extraction with the SIFT and LBP algorithm. Initial results on a database of fundus images show that the proposed method is effective and favorable in relation to comparable techniques. The whole simulation result takes place in the MATLAB environment.
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Index Terms

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