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.
- A Osareh, in Automated identification of diabetic retinal exudates and the optic disc, ed. by . Ph. D. dissertation (Department of Computer Science, Faculty of Engineering, University of Bristol, Bristol, UK, 2004)
- M Niemeijer, MD Abramoff, BV Ginneken, Segmentation of the optic disc macula and
- AD Fleming, KA Goatman, S Philip, JA Olson, PF Sharp, Automatic detection of retinal
PubMed Abstract | Publisher Full Text
- D Welfer, J Scharcanski, CM Kitamura, MM Dal Pizzol, LWB Ludwig, DR Marinho,
Segmentation of the optic disk in color eye fundus images using an adaptive morphological
- M Niemeijer, B van Ginneken, F Ter Haar, MD Abramoff, Automatic detection of the optic
disc, fovea and vascular arch in digital color photographs of the retina. Proceedings of the
- S Sekhar, W Al-Nuaimy, AK Nandi, Automatic localization of optic disc and fovea in
retinal fundus. 16th European Signal Processing Conference (2008)
- M Park, JS Jin, S Luo, Locating the optic disk in retinal images. Proceedings of the
- F Ter Haar, in Automatic localization of the optic disc in digital color images of the human
- SF Barrett, E Naess, T Molvik, Employing the Hough transform to locate the optic disk.
- K Lee Lerner, BW Lerner, The Gale Encyclopedia of Science, 3rd edn (Thomson-Gale,
2004), p. 1569
- A Osareh, B Shadgar, Automatic blood vessel segmentation in color images of retina.
- J Staal, MD Abramoff, M Niemeijer, MA Viergever, B van Ginneken, Ridge-based vessel
Publisher Full Text
- A Hoover, V Kouznetsova, M Goldbaum, Locating blood vessels in retinal images by

Index Terms

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Keywords

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circular Hough transform.