An accurate approach for localization and segmentation of an optic disk (OD) in the retinal images is one of the most imperative tasks in an automated screening system. The retinal fundus images analysis is extensively used in the diagnosis and treatment of several eye diseases such as glaucoma and diabetic retinopathy. This research brings out a new algorithm that has not been used before to detect and segment the optic disk in all categories of retinal images, specifically healthy retinal images plus anomalous, or in other words fundus images affected due to diseases. The technique adopted for the separation of the optic disk is centered on histogram specification, mathematical morphological operations includes erosion as well as dilation along with proper thresholding and detection of circles using the Hough Transform technique. The proposed procedure has been tested on standard databases provided for ophthalmic image processing researches on internet, Diaretdb0, Diaretdb1 and local databases collected from the National Eye Hospital and the Vision Care (Pvt) Ltd. The proposed algorithm is able to locate the OD in 90% of all tested images.
References


Index Terms

Computer Science

Information Sciences

Keywords

Optic disk, Retinal Images, Automated detection, Histogram specification, Hough transform, Morphology, Segmentation.