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Segmentation of optic disc in fundus images

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Successful optic disc (OD) segmentation is an important task for automated detection white lesions related to diabetic retinopathy. Therefore, exudates detection is our major purpose, but we must extract the OD prior to the process because it appears with similar color, intensity and contrast to other characteristics of the retinal image. The retinal image consists of blood vessels that emerge from the OD. The presence of these blood vessels may act as a disturbance for the detection of OD. This paper presents a novel method for segmentation of the OD in retinal images. The methodology includes localization of OD center, followed by elimination of vascular structure using inpainting method. Finally, an active contour model was applied to boundary OD segmentation. The results are compared with a ground truth image from the ophthalmologist. The source retinal image for performing this work is obtained from the publicly available DRIVE and MESSIDOR database. This method offers a successful segmentation of OD which may help in diagnosis of various retinal abnormalities.

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