Abstract

Diabetic retinopathy is a widespread disease that may cause blindness. Early diagnosis and treatment will reduce its side effects and protect the eye. In this paper, a new algorithm for exudates detection is proposed. In the preprocessing step, the green channel of the color image is used, and then median filter followed by Contrast Limited Adaptive Histogram Equalization (CLAHE) is applied. The K-means clustering technique is used to select exudates objects. Optic disc is localized using maximum entropy filter and morphological closing. It is demonstrated that combining the K-means with CLAHE of the median filtered image results in 99.39% correct exudates. Experimental results show a reliable and accurate method for segmenting exudates from color retinal images. Performance of the proposed method is evaluated using a set of 52 images from a publicly available dataset STARE.

References

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Index Terms

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Keywords

Diabetic Retinopathy  Exudates detection  Entropy filter  K-means clustering