Preprocessing of Fundus Image using Enhanced Hybrid Median Filter (ENHYME)

Abstract

Detection of Optic disc (OD) in a fundus image is a foremost important step in the process of screening the diabetic retinopathy[1,2,3]. Hard Exudates detection algorithms usually find lot of false positives since the intensity and color distribution of OD will much resemble that of a Hard Exudates region[4,5]. So, most of the Exudates detection algorithms will miss classify the pixels at the OD region as Hard Exudates[6]. In our previous works, we used Genetic Algorithm(GA)[7,8] to find the OD location and size and reduced overall time, even doing the search on the entire problem space and also removed false hard exudates. In this work we are improving Hard Exudates detection accuracy using gradient index mapping technique applied on two similar planes of the RGB. An appropriate preprocessing will yield an accurate result in the further research stage. The new preprocessing algorithm is termed as Enhanced Hybrid Median Filter shortly named as ENHYME. The database used for this preprocessing is DIARETDB1[9] for evaluation and comparision with the existing methods.

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Preprocessing of Fundus Image using Enhanced Hybrid Median Filter (ENHYME)


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**Index Terms**

Computer Science Image Processing

**Keywords**

Diabetic Retinopathy Hard Exudates Optic Disc Detection.