

Classification of Retinal Images Based on Statistical Moments and Principal Component Analysis

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Abstract

Early diagnosis of Diabetic Retinopathy (DR) has been suggested as a good measure of preventing blindness associated with Diabetes. Some of the reported methodologies of Retinal Images (RI) classification for early diagnosis of DR have been shown to involve several steps and approaches for effective and accurate diagnosis. Thus, this paper investigates the classification of RI using a two-stage procedure. The first stage includes the extraction of blood vessels from RI belonging to healthy and diabetes retinal images using a modified local entropy thresholding algorithm. In the second stage, different features are extracted including statistical moments and principal components. The set of extracted features is combined into one feature vector and fed into a Sequential Minimal Optimization (SMO) classifier. The obtained result is encouraging with an average accuracy of 68.33 %.

Keywords: Principal component analysis, Biomedical imaging, Computers, Abstracts, Retina, Optimization, Graphics

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