Study of Retinal Biometrics with Respect to Peripheral Degeneration with Clinically Significant Features

IJCA Special Issue on International Conference on Electronic Design and Signal Processing

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ICEDSP - Number 1

Year of Publication: 2013

Authors:
Srikanth Prabhu
Chandan Chakraborty
R. N. Banerjee
A. K. Ray

Abstract

Retinal biometrics has been very handy in most parts of the world with respect to diabetic
In diabetic retinopathy, the most complicated part comes when patients lose their eye sight. This is called as Macular Degeneration. Macular Degeneration comes in two stages. The first stage is when clinically significant features are present on the retina, the second stage is when non clinically significant features are present on the retina. Clinically significant features are present near the macula which is the center of retina. Non clinical features which are also called artifacts which are distortions on the retina are present on the periphery. In this paper the main focus has been on the clinically significant features. The clinically significant features are micro-aneurysms, hemorrhages and exudates. In this paper the main concentration has been on the degeneration of macula. The macula is the region of illumination on the retina. The extraction of micro-aneurysms has been based on the red component of the retinal image. Similarly the extraction of hemorrhages and exudates has been based on the other color components. The extraction of macula has been based on the texture of retinal images. The goal of this paper is to devise a method which constricts the region of the macula depending on high or low intensity regions. Based on this goal, the two main objectives which were defined are fixing the regions of macula and then deciding on which stage of diabetes, the person is in. Lots of research has been done in the area of extracting the basic diabetic features which are based on filters like the gabor filter. The scope in the area of extracting the macula has been very limited because the intensities of the vessels and macula is same in the gray scale image. Therefore in this paper an attempt has been made to extract the macula using textures. The most serious stage of diabetes is blindness where macular degeneration is seen. Keeping in mind the real life threats from macular degeneration, efforts have been made in this paper to correlate biometrics and macular degeneration with respect to retinal images. With respect to classification of retinal images, macular degeneration gives lot of insight into the reasons for blindness of a person.

References

IEEE transactions on Medical Imaging, Vol 4, No 5, pp 6-11.

**Index Terms**

Computer Science  
Electronic Design And Signal  
Processing

**Keywords**

(x y) As Image  
Theta For Angle  
X And Y For Coordinates  
Sqrt For Square Root  
Arctan For Calculating Inclination