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Automated diabetic retinopathy detection using radial basis function

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Abstract

Diabetic mellitus is a major reason of visual impairment an around the world. Early automatic diagnosis of diabetic retinopathy (DR) may avoid vision loss and blindness. The goal of this paper is to automatically detect retinal image as Non DR or DR based on radial basis function (RBF) neural network classifier. This experiment address to explore ophthalmic features such as blood vessels, exudates & microaneurysms and it's segmented from retinal background using A-IFS histon based segmentation method. This obtained feature set delivers to train RBF neural network. The Receiver operation characteristics (ROC) curve is plotted based on evaluated result. The projected experiment has been done on 130 DIARETDB0 & 89 DIARETDB1 retinal images database by using RBF neural network. The experiment perceive the accuracy of 71.2%, Sensitivity 0.83 & Specificity 0.043 for DIARETDB0 and the accuracy of 89.4% Sensitivity 0.94 & Specificity 0.16 for DIARETDB1.

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