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ROC Curve analysis for automatic detection of Microaneurysms in the retinal fundus image

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Abstract : Diabetic Retinopathy (DR) is the leading cause of blindness and its diagnosis is very important to protect the vision. DR diagnosis depends on the detection of retinal lesions such as Microanerysms, Hemorrhages, Hard Exudates, Soft Exudates and Neovascularization present in retina images acquired by a fundus camera. In this paper, proposed a method for the detection of retina lesions consists of preprocessing, extraction of candidate region, formation of feature vector and classification. A Total of 24 features are proposed in this paper which contain shape, color, gray and texture based properties of lesions for SVM, kNN and ELM classifier to distinguish MAs and non-MAs. The proposed framework is evaluated using 259 retinal images collected from publicly available database: DIARETDBO, DIARETB1 and DRIVE database. The experimental results reveals the effectiveness of the proposed method and it reduce the workload of ophthalmologist and helpful to diagnose DR clinically.
Keywords : Medical Image processing, Diabetic Retinopathy, NPDR lesions, Blood Vessel Segmentation, Features, Classification.

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