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A PROJECT REPORT ON :

AUTOMATIC EXUDATE DETECTION FROM NON-DILATED DIABETIC RETINOPATHY RETINAL IMAGES USING FUZZY C-MEANS CLUSTERING

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ABSTRACT

Exudates are the primary sign of Diabetic Retinopathy. Early detection can potentially reduce the risk of blindness. An automatic method to detect exudates from lowcontrast digital images of retinopathy patients with non-dilated pupils using a Fuzzy CMeans (FCM) clustering is proposed. Contrast enhancement preprocessing is applied before four features, namely intensity, standard deviation on intensity, hue and a number of edge pixels, are extracted to supply as input parameters to coarse segmentation using FCM clustering method. The first result is then fine-tuned with morphological techniques. The detection results are validated by comparing with expert ophthalmologists' hand-drawn ground-truths. Sensitivity, specificity, positive predictive value (PPV), positive likelihood ratio (PLR) and accuracy are used to evaluate overall performance.