

204. WAVELET FEATURE BASED SVM CLASSIFICATION OF GLAUCOMATOUS IMAGE WITH REMOVAL OF BLOOD VESSELS USING PCA AND GABOR FILTER

M. Sughanya Devi and C. Vinoth Kumar

Department of ECE, SSN College of Engineering, Chennai, India

{sukanyad42@gmail.com, vinothkumarc@ssn.edu.in}

Glaucoma is an eye disorder in which the intraocular pressure within the eye increases rapidly causing damage to the optic nerve. There is no cure for glaucoma at the later stage and it leads to loss of vision. Diagnosing glaucoma is very difficult task because no early warnings will be known until some vision loss has occurred. Therefore early detection of glaucoma is essential to minimize the risk of vision loss. Texture features within images are used for accurate and efficient glaucoma classification. In this paper, Principal Component Analysis is applied to the retinal fundus images in order to reduce the dimension of the images and to differentiate the structures of the retina more clearly. Then the blood vessels are extracted by using Gabor filter, morphological operations and thresholding. The important features are extracted using Discrete Wavelet Transform by applying different wavelet filters namely daubechies, symlet and reverse biorthogonal filters. These features are ranked by filter based ranking strategies and then classified using Support Vector Machine. The energy obtained from the wavelet coefficients are used to classify the normal and glaucomatous image.

Key words: Glaucoma, Principal Component Analysis, Gabor filter, Morphological operations, Discrete Wavelet Transform, Support Vector Machine.

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