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Proceedings - 5th International Conference on Computer and Communication Engineering: Emerging Technologies via Comp-Unication Convergence, ICCCE 2014

4 February 2015, Article number 7031608, Pages 92-95

5th International Conference on Computer and Communication Engineering, ICCCE 2014; Sunway Putra HotelKuala Lumpur; Malaysia; 23 September 2014 through 24 September 2014; Category numberE5413; Code 110844

## Classification of retinal images based on statistical moments and principal component analysis (Conference Paper)

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### Abstract

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Early diagnosis of Diabetic Retinopathy (DR) has been suggested as a good measure of preventing blindness associated with Diabetes. Some of the reported methodologies of Retinal Images (RI) classification for early diagnosis of DR have been shown to involve several steps and approaches for effective and accurate diagnosis. Thus, this paper investigates the classification of RI using a two-stage procedure. The first stage includes the extraction of blood vessels from RI belonging to healthy and diabetes retinal images using a modified local entropy thresholding algorithm. In the second stage, different features are extracted including statistical moments and principal components. The set of extracted features is combined into one feature vector and fed into a Sequential Minimal Optimization (SMO) classifier. The obtained result is encouraging with an average accuracy of 68.33 %. © 2014 IEEE.

### Author keywords

Classification Order moments Principal Component Analysis (PCA) Retinal images  
Sequential Minimal Optimization (SMO)

### Indexed keywords

Engineering controlled terms: Blood vessels Classification (of information) Computer aided diagnosis Diagnosis  
Eye protection Image analysis Image classification Ophthalmology Optimization

Diabetic retinopathy

Order moments

Principal Components

Retinal image

Sequential minimal optimization

Statistical moments

Thresholding algorithms

Two stage procedure

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**ISBN:** 978-147997635-5  
**Source Type:** Conference Proceeding  
**Original language:** English

**DOI:** 10.1109/ICCCE.2014.37  
**Document Type:** Conference Paper  
**Volume Editors:** Gunawan T.S.  
**Sponsors:** Felda Wellness Corporation, Malaysia Convention and Exhibition Bureau (MyCEB), Malaysian Industry-Government Group for High Technology, University Putra Malaysia, Yayasan Kesejahteraan Bandar  
**Publisher:** Institute of Electrical and Electronics Engineers Inc.

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