



INFORMATICS INSTITUTE OF TECHNOLOGY  
in Collaboration with  
UNIVERSITY OF WESTMINSTER (UOW), UK

**An application to identify Diabetic Retinopathy using  
digital color fundus photography**

A Dissertation By

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## Abstract

Diabetic patient population is rising against to the world population. All the diabetic patients are at a risk of developing Diabetic Retinopathy. As author highlights along in this research this circumstance could damage the retina, back of the eye and might lead to complete blindness. Therefore, early detection of this health matter and the treatments are required to avoid this serious complication.

Therefore, author has proposed a screening system in order to identify the earliest Diabetic Retinopathy pathology Microaneurysm, during Non-Proliferative Retinopathy which is known as the first stage of Diabetic Retinopathy. The proposed system utilized an image processing approach to preprocess image, Segment and extract features which are appropriate for detection of Microaneurysm regions. Furthermore, machine learning approach will be use to classify the selected regions. Number of feature vectors were identified for the classification. a novel method of segmentation vessels using thresholding approach was attempted.

Subject Descriptors:

I.4 Image Processing

I.2.6 Artificial Intelligence

I.2.1 Applications and Expert Systems

Key Words:

Image Processing, Image Classification, Machine Learning, Expert System