An Approach for the Detection of Proliferative Diabetic Retinopathy

Abstract

Proliferative diabetic retinopathy is the most advanced stage of diabetic retinopathy, and is classified by the growth of new blood vessels. These blood vessels are abnormal and fragile, and are susceptible to leaking blood and fluid onto the retina, which can cause severe vision loss. This paper proposes a method by combining prior works of Keith A. Goatman et al. (2011) and Gopal Datt Joshi et al (2011) for the detection of proliferative diabetic retinopathy. First, vessel-like patterns are segmented by using Ridge Strength Measurement and Watershed lines. The second step is measuring the vessel pattern obtained. Many features that are extracted from the blood vessels such as shape, position, orientation, brightness, contrast and
line density have been used to quantitate patterns in retinal vasculature. Based on the features extracted, the segment is classified as normal or abnormal by using Support Vector Machine Classifier. The obtained accuracy may be sufficient to reduce the workload of an ophthalmologist and to prioritize the patient grading queues.

References


Index Terms

Computer Science

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Diabetic Retinopathy  Microaneurysm  Vasculature  Watershed Transformation  Optic Disc