Abstract

In this paper, a method for automatic detection of microaneurysms in digital eye fundus image is described. To develop an automated diabetic retinopathy screening system, a detection of dark lesions in digital fundus photographs is needed. Microaneurysms are the first clinical sign of diabetic retinopathy and they appear small red dots on retinal fundus images. The number of microaneurysms is used to indicate the severity of the disease. Early microaneurysm detection can help reduce the incidence of blindness. Here, we have discussed a method for the automatic detection of Diabetic Retinopathy (ADDR) in color fundus images. Different preprocessing, feature extraction and classification algorithms are used. The performance of the automated system is assessed based on Sensitivity and Specificity. The Sensitivity and Specificity of this approach are 94.44 % and 87.5 %, respectively.

References

- Giri Babu Kande, April, 2010. Feature Extraction from Fundus Images to Analyse Diabetic Retinopathy. Research and Development Cell Jawaharlal Nehru Technological University Hyderabad Kukatpally, Hyderabad – 500 085, India.

Automatic Detection of Diabetic Retinopathy in Non-dilated RGB Retinal Fundus Images

Diabetes. Diabetes Care, Volume 31, Number 2.
  - Some retinal fundus database are taken from DIARETDB1 diabetic retinopathy database and evaluation protocol and the URL is http://www2. it. lut. fi/project/imageret/diaretdb1/index.html
  - Some images are taken from Image Science Institute, University Medical Center Utrecht and the URL is http://www. isi. uu. nl/Research/Databases/DRIVE/download. php
  - University of IOWA, Netherlands has released some retinal fundus images and the URL is http://roc. healthcare. uiowa. edu/index. php
  - University of LINCOLN, United Kingdom has released some retinal fundus images and the URL is http://reviewdb. lincoln. ac. uk/REVIEWDB/Download. aspx

Index Terms

Computer Science  Pattern Recognition
Keywords
Diabetic Retinopathy  Microaneurysms  Fundus Image  Sensitivity  Specificity