Abstract

Diabetic retinopathy is the most common cause of blindness in the industrial countries. The first symptoms related to this disease is the appearance of small reddish spots on the retina, called micro-aneurysms (MAs). In this paper, we propose a practical algorithm for detecting MAs in color retinal images. The algorithm is based on a combination of image processing techniques like top-hat transform, CFAR threshold and region growing for segmenting MAs, as well as geometric and color features extraction for distinguishing MAs from other small targets. The algorithm is especially designed for low-resolution images such that it can be used on low-cost ophthalmic imaging systems for mass screening program.