Image Enhancement based Improved Multi-scale Hessian Matrix for Coronary Angiography

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Authors:
Kaifeng Chen, Qingbo Yin, Xiao Jia, Mingyu Lu

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Abstract

The coronary angiography image is easy to be affected by many factors, such as vascular thickness varied huge, complex background noise, uneven illumination intensity and so on. The coronary angiography image is more difficult to deal with compared with other similar medical images. By using Hessian matrix multi-scale vascular detection method, the vicinity of blood vessels will yield a lot of background noise, and the small tiny blood vessels become blurred or even lost, which seriously affect the experiment results. In this paper, an improved multi-scale Hessian matrix is presented, combined with morphological top-hat operation for the detection of coronary angiography. The experimental results demonstrate the effectiveness of the proposed method.

References


**Index Terms**

Computer Science  
Image Processing

**Keywords**
Image enhancement; Hessian Matrix; Morphological top-hat; Vessel detection; Coronary angiography