

基于恒定空间分辨率离散序列小波变换的眼底血管造影图像拼接方法

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将恒定空间分辨率离散序列小波变换 (discrete sequence wavelet transform, DSWT) 应用于眼底吲哚青绿血管造影 (indocyanine green angiography, ICGA) 图像的拼接, 解决了传统基为2的DSWT会导致分解结果的空间分辨率下降的问题。提出对图像小波分解细节逼近和平滑逼近分别使用加权平均拼接和直接平均拼接进行处理的策略, 以得到兼顾视觉效果和保真性的拼接结果。并且针对眼底图像背景光照不一致, 提出在小波域进行处理的策略。实验结果表明拼接算法效果良好。

A FUNDUS IMAGE MOSAICING STRATEGY BASED ON SPACE RESOLUTION INVARIANT DISCRETE SEQUENCE WAVELET TRANSFORM

Space resolution invariant discrete sequence wavelet transform was applied to image mosaicing in fundus indocyanine green angiography (ICGA) thus removing the mosaicing seam without the decrease of space resolution caused by classic discrete sequence wavelet transform (DSWT) based 2. The average-weighted strategy was used to fit the wavelet low frequency parts together, and the direct average strategy to the high frequency parts to compromise visual effect and fidelity. In addition, a method of the precessing in wavelet field was used to avoid the influence on the fundus image resulted from inhomogeneous background light. The result of persent experiments is satisfactory.

关键词

小波变换 (Wavelet transform); 图像配准 (Image registration); 图像拼接 (Image mosaicing); ICGA