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**Neural fiber layer segmentation algorithm based on improved U-Net retinal image.** (Chinese. English summary) [Zbl 07448773]


Summary: Retinal Nerve Fiber Layer (RNFL) is the most important and early characteristic part of retinopathy. The segmentation of RNFL is of great significance for the evaluation of diabetic retinopathy. Because the contrast of the retinal fiber layer in the retinal image is lower than the background and the edge is not obvious, the segmented image is fractured and difficult to recognize, an RNFL segmentation method based on U-Net is proposed. The combination of Res path, sub-pixel convolution and residual module with original U-NET can better retain edge information, segment RNFL more accurately and reduce the breakage in segmentation. The proposed algorithm is compared with the original U-NET and MultiResUNet. Jaccard, F1, Precision and Recall were selected as evaluation indexes. The results show that the proposed algorithm has better segmentation results than the other two algorithms.

**MSC:**

- 68U10 Computing methodologies for image processing
- 92C55 Biomedical imaging and signal processing

**Keywords:**

RNFL segmentation; sub-pixel convolution; residual; retinal images