Learn to Segment Retinal Lesions and Beyond







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Abstract



Lesion-Net for Lesion Segmentation

loss_{seg} and loss_{clf}: lesion segmentation loss and lesion classification loss. loss_{clf} can indicate mis-classification of small lesions.



- Longer expansive path: more precise boundaries, more spacial
- •Longer expansive path \neq better: lesions have no objective boundaries while making training harder
- Find a Lesion-Net with proper expansive path⇒ Lesion-Net-16s

Dataset: 12,252 images from local hospitals and EyePACS dataset. Each image is annotated with image-level DR grade and pixel-level lesions. EyePACS part of the test set has been

Lesion gmentation	Lesion classification	DR grading
0.586	0.778	_
0.570	0.757	-
0.553	0.794	-
0.585	0.775	-
_	-	0.774
-	_	0.797
0.591	0.801	0.803

Take-home message

- Lesion-Net is effective for segmenting retinal lesions with imprecise boundaries;
- Multi-task network can simultaneously achieve three
- Multi-task network gets better performance in all three tasks.