

Supplemental Materials for MICCAI-MMAC Challenge

[Team name] [leader Codalab username] [Task 1]

1. Method summary table

Table 1. Summary of the proposed method in task 1. TTA: Test-Time Augmentation;

External dataset	Pre-training weights	Data pre-processing	Input dim	Data augmentation	Model architecture	Loss function	Optimizer	Batch size	Learning rate scheduler	Post-processing
DRIVE, STARE	ImageNet	Dividing by 255.	512 x 512	Cropping, vertical flipping, random brightness, MixUp, TTA	UNet + VGG16	Smooth L1	AdamW	4	PolyLR	Ensemble by averaging.

2. Method Pipeline

(The image has a minimum dpi of 600.)

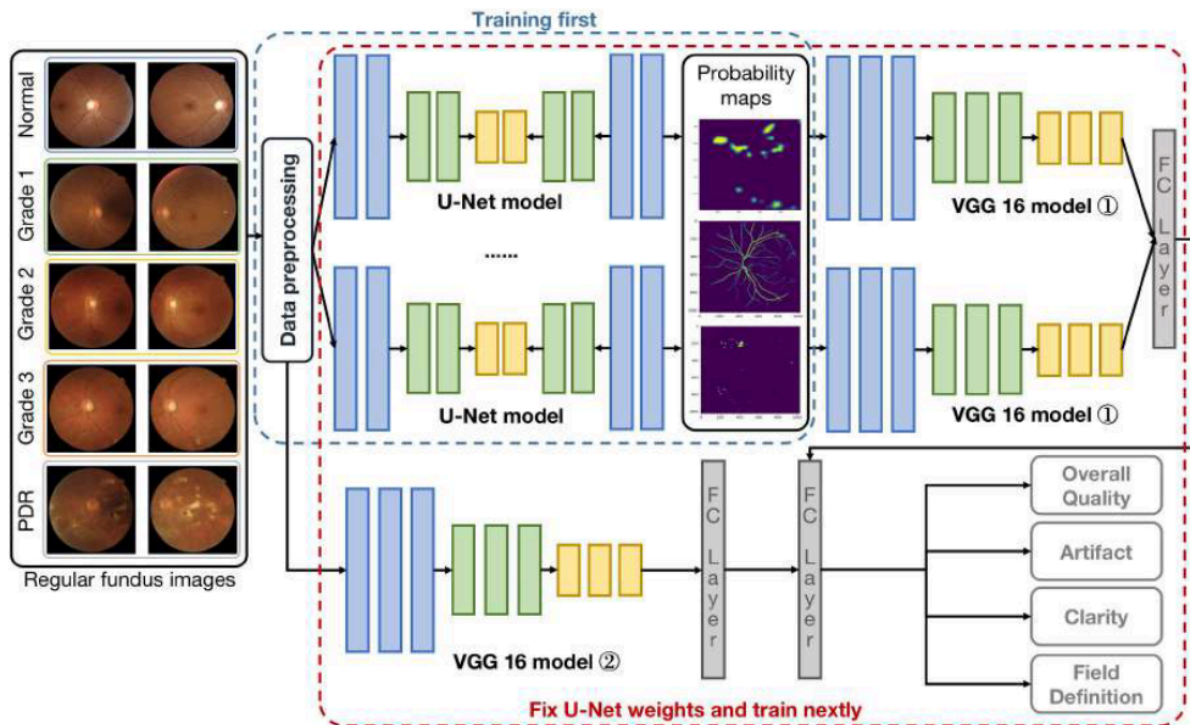


Figure 1. The framework of our proposed method.

(Equations can also be included.)

We handled the DR image quality estimation through three steps. First, we proposed a preprocessing method to handle the regular fundus images, and then, we used U-Net [1] to generate the probability maps. Third, we fixed U-Net and VGG [2] models to score image quality classification results. In preprocessing procedure, we first selected the smallest rectangle that contained the entire eyes in fundus images, and next, we splitted the whole image into four parts and pad black corner by diagonal-flip. The processed images were used for training. In model development, we constructed a framework to assess the image quality. Firstly, the handled retinal images were cut into patches, and the image patches were sent into a U-Net model to generate probability map of blood vessels, lesions or abnormalities according to ground truth labels. Furthermore, the probability maps and the raw images are fed into two VGG models to obtain image quality levels, including overall quality, artifact, clarity, and field definition. The proposed method framework is shown in Figure 1.

Reference

[1] Ronneberger, O., Fischer, P. & Brox, T. (2015). U-Net: Convolutional networks for biomedical image segmentation. In Proc. MICCAI, 234–241.

[2] Simonyan, K. & Zisserman, A. (2015). Very deep convolutional networks for large-scale image recognition. In Proc. ICLR.

This example, including the figure and the description paragraph, is from this paper:

Liu R, Wang X, Wu Q, et al. Deepdrid: Diabetic retinopathy—grading and image quality estimation challenge[J]. Patterns, 2022, 3(6).

[Team name] [leader Codalab username] [Task 2]

1. Method summary table

2. Method Pipeline

[Team name] [leader Codalab username] [Task 3]

1. Method summary table

2. Method Pipeline