U-net

Preprocessing

Original image (4288 × 2848) is cropped to (3500 × 2848) in x direction to minimize black areas in fundus images. Then, images are padded to (3500 × 3500) and resized to (640 × 640) through bicubic interpolation(protect image details and smooth) for the network input. We also did data augmentation by flipping, rotating, adding Gaussian noise and changing image brightness. Then, each image is divided 255 to bound values into [0,1] for normalization.

U-net Structure

We mainly use U-net structure, and modified it. Our U-net max-pooled 6 times and adjust the structure to our image size. The input size is 640x640x3. After max-pooling, it is down-sampling to 10x10x512. Then up-sample the image to 640x640x32. Finally, we apply 1x1 convolutional layer and sigmoid function to output image with size of 640x640x1. The detail is shown on PPT.

Training和result 部分可以照着ppt念。