ASSIGNMENT 2

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1 Part 1

1.1 Read all training data and apply preprocessing such as normalize, resize, or augment. Print out the image size, min, max and mean of both original image and the pre-processed image (You will only need to show the value of one example image). (10%)

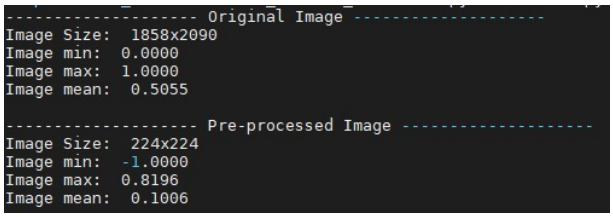

Figure 1: Image info of a image

2 Part 2

Please try at least one classifier to classify whether the image is normal or pneumonia, and use the validation set to evaluate the performance.

2.1 Please list the detail settings of your method. (20%)

I tried many architecture of my model, finally, I choose ResNet101 from PyTorch as a pretrained model. And add a dense layer with Sigmoid activation layer. Batch size is 32 and epoch is 15.

2.2 Please report the following four metrics. (5% for each)

- Accuracy: 87.50%
- Sensitivity (Recall): 100.00%
- Precision: 80.00%
- ROC Curve:

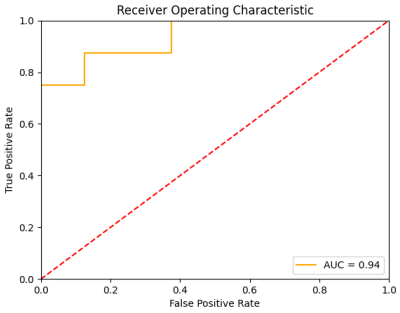

Figure 2: ROC Curve of Validation set.

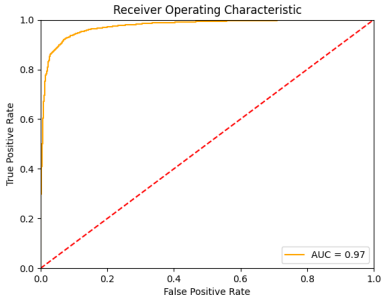

Figure 3: ROC Curve of Training set.

3 Summary (10%)

In this assignment, I learned how to pre-processed medical images and use the pretrained model to do classification. Also, I tried to do some augmentation of images to enhance the model.