1. Introduction

Detect Pneumonia from chest X-ray images by using deep learning. There are two kinds of labels, normal and pneumonia. Implement dl model architecture and show the accuracy.

2. Experiment setups

a. The detail of your model

Architecture: Desnet161

Loss: Cross Entropy

Learning rate: 1e-4

Optimizer: Adam

Weight decay: 1e-4

b. The detail of you Dataloder

Batch size = 10

Preprocess:

```
transform.Resize(255),
transform.CenterCrop(224),
transform.RandomHorizontalFlip(),
transform.RandomRotation(10),
transform.RandomGrayscale(),
transform.RandomAffine(translate=(0.05,0.05), degrees=0),
transform.ToTensor()
```
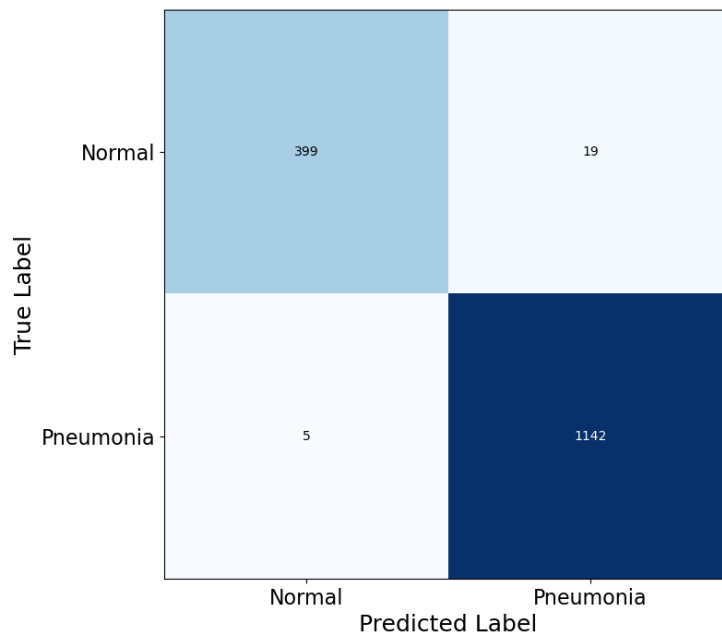
3. Experiment result

a. Highest testing accuracy and F1-score (Screenshot)

```
train - loss:0.010312205204623303,  accuracy0.9958915365653246
Recall :  0.995640802092415
Precision :  0.983634797588286
F1 - score :  0.9896013864818024
Best accuracy 0.9859424920127795
```

b. Ploting the comparsion figure
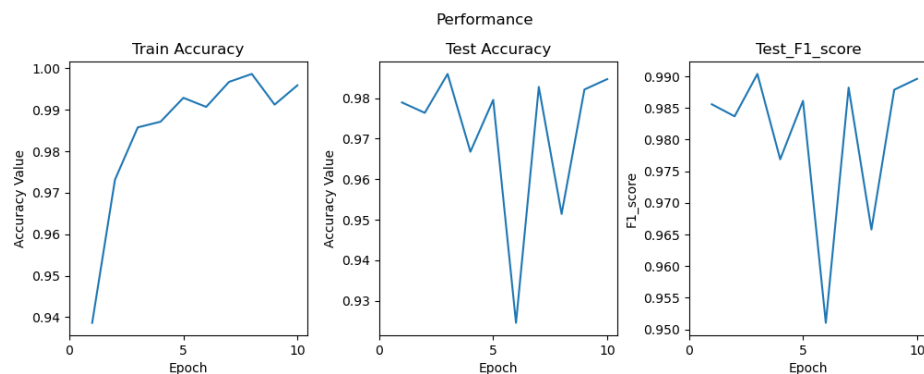
c. Anything you want to present

   the distribution of normal and pneumonia isn't balanced.

4. Discussion

a. Anything you want to share

The best accuracy is beyond 98%, which means that desnet161 is a good architecture for detecting pneumonia from chest X-ray images

5. Github Link

https://github.com/x112358/2022-Research-Project-in-Application-of-Artificial-Intelligence-on-Medical-Imaging.git

file place: in lab1

(https://github.com/x112358/2022-Research-Project-in-Application-of-Artificial-Intelligence-on-Medical-Imaging/tree/main/lab1)