Pneumonia Chest X-ray Diagnosis System

Andy Wang

INTRODUCTION

Pneumonia: Inflammation of the air sacs in the lung

- 16% of all death of children under 5 years old in the world

- Most common reason for US children to be hospitalized

- Most common cause of hospital admission for US adults
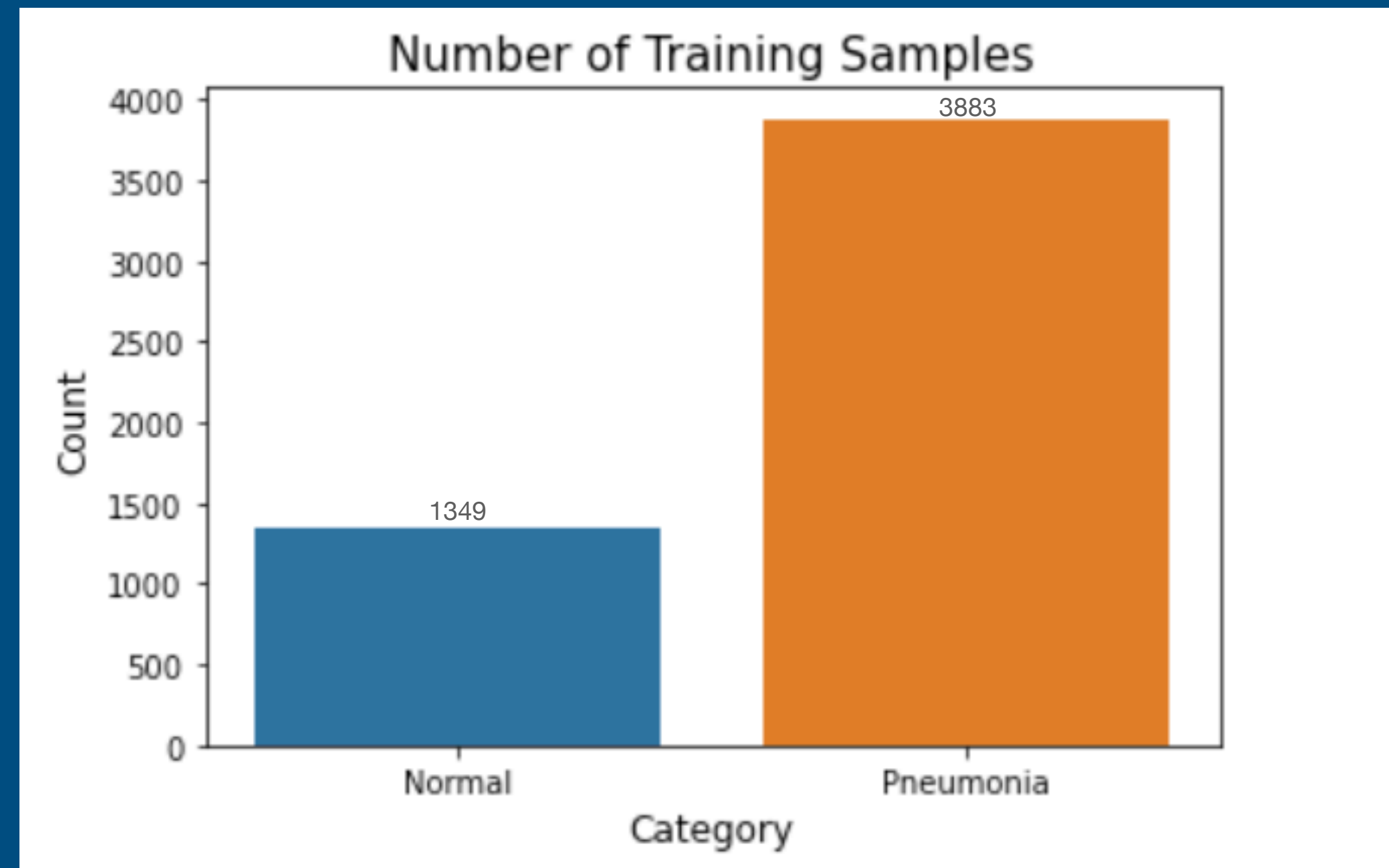
American Thoracic Society

GOAL

Build a deep learning model to aid
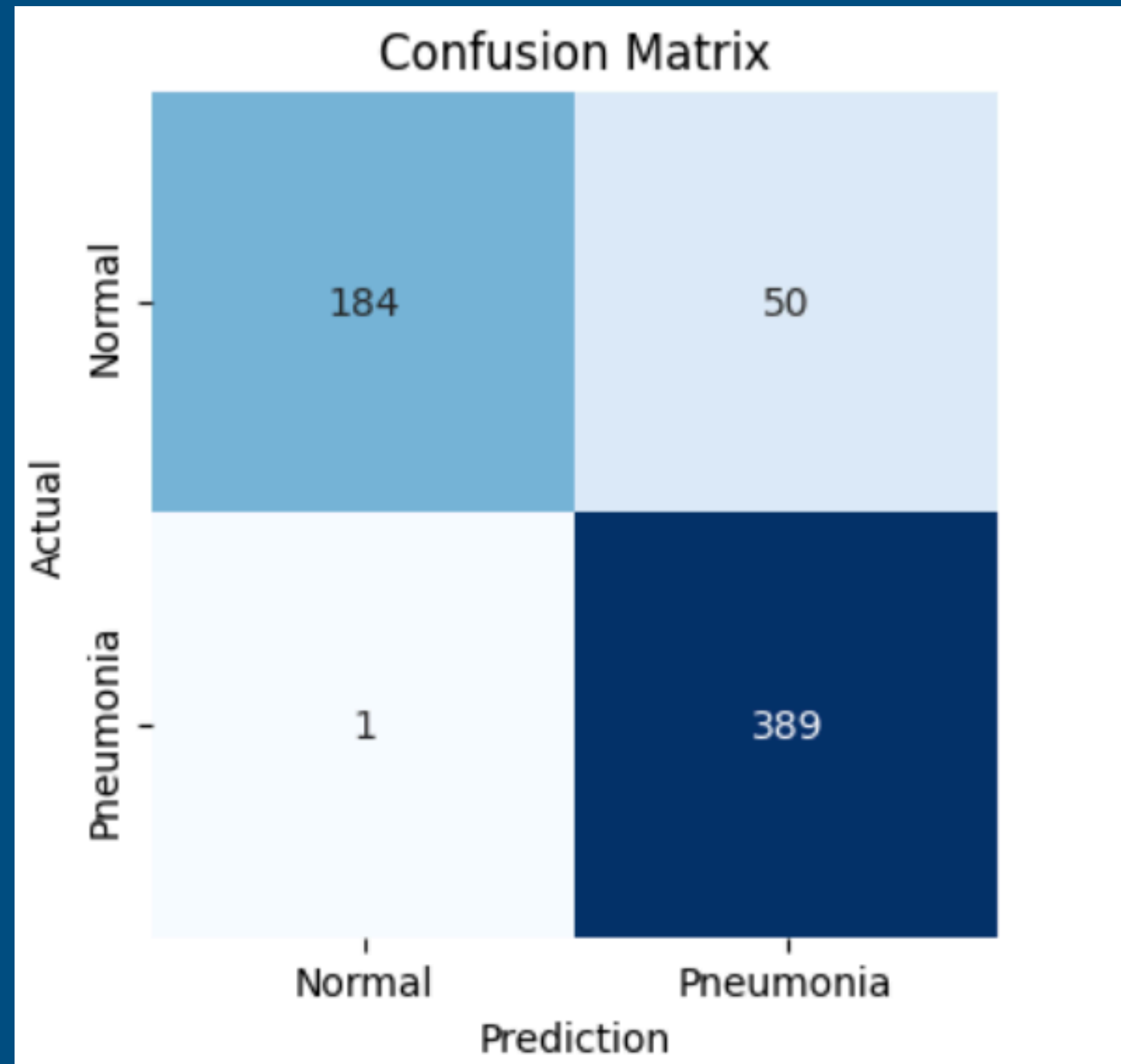in rapid evaluation of chest X-ray

DATA

Pneumonia Chest X-ray Image dataset from Kaggle

RESULT

	Transfer learning - Model 2	Transfer learning - Model 3	Transfer learning - Model 5
Recall	1	1	1
Precision	0.86	0.89	0.87
Accuracy	0.90	0.92	0.91

RESULT

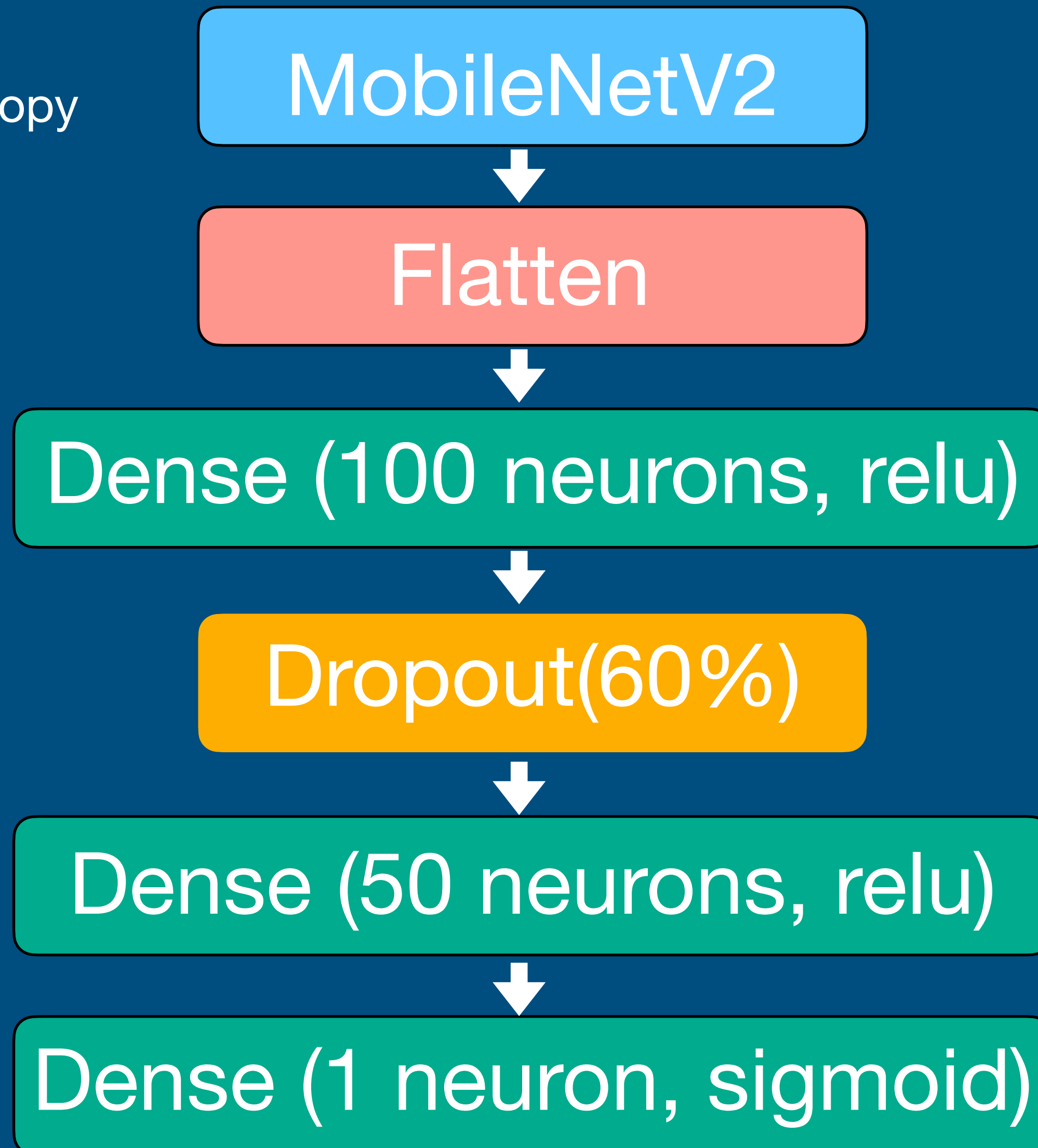Confusion Matrix

FUTURE WORK
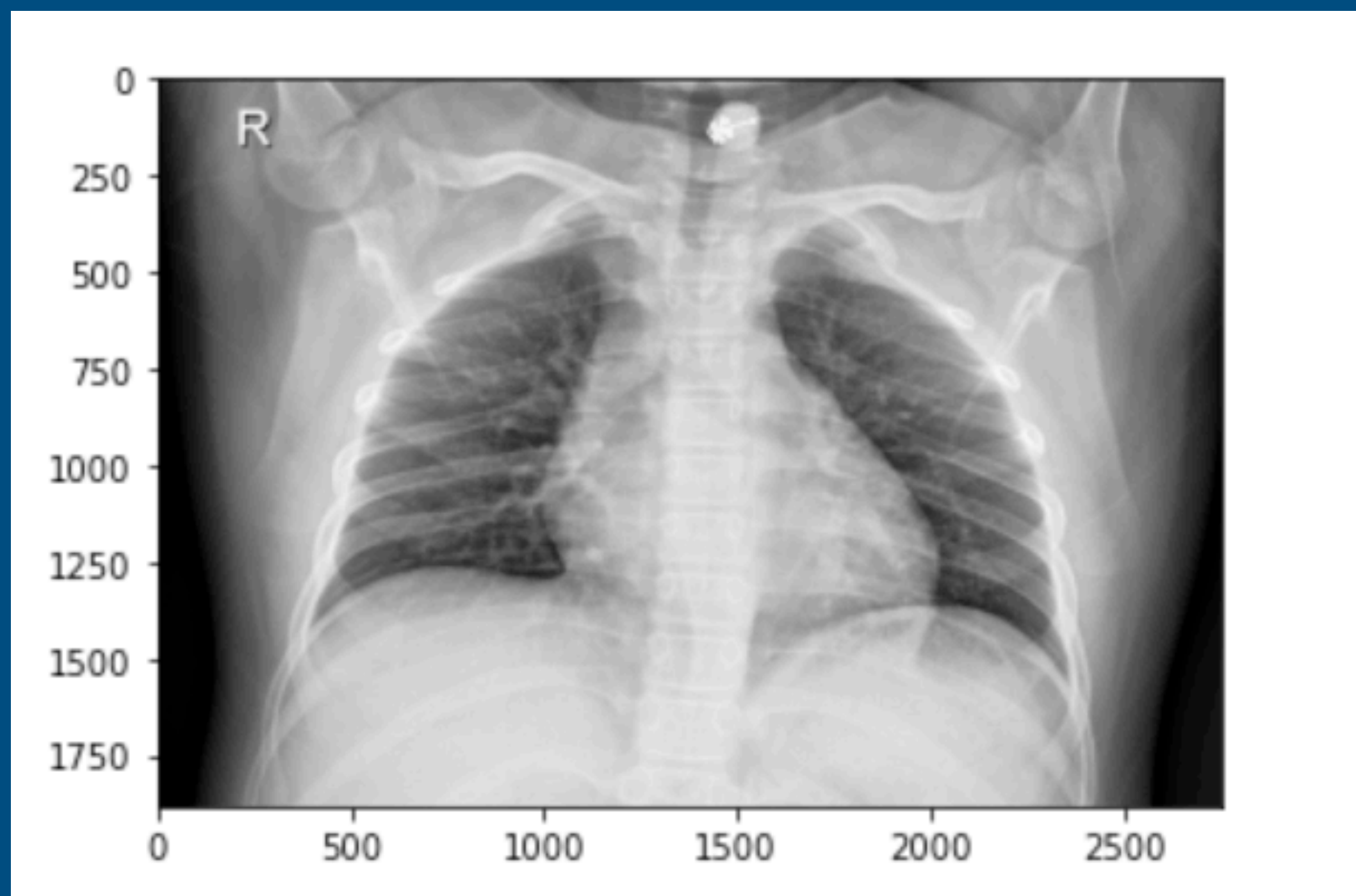
- Adding more training images

- Using the AUC metric in Keras

Thank you

APPENDIX

- Optimizer: Adam
- Loss function: binary cross entropy
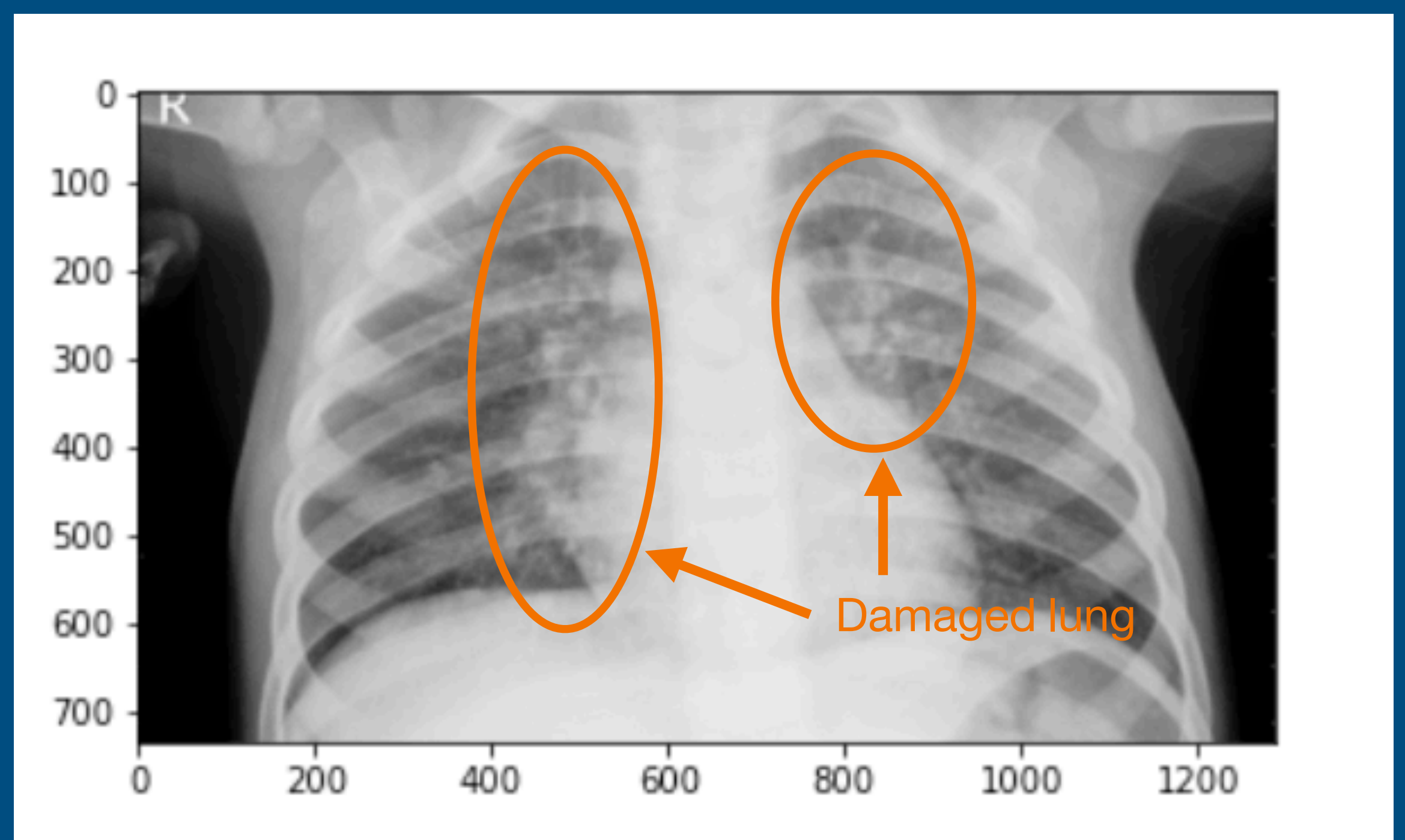- Metric: accuracy

MobileNetV2

↓

Flatten

↓

Dense (100 neurons, relu)

↓

Dropout(60%)

↓

Dense (50 neurons, relu)

↓

Dense (1 neuron, sigmoid)

APPENDIX

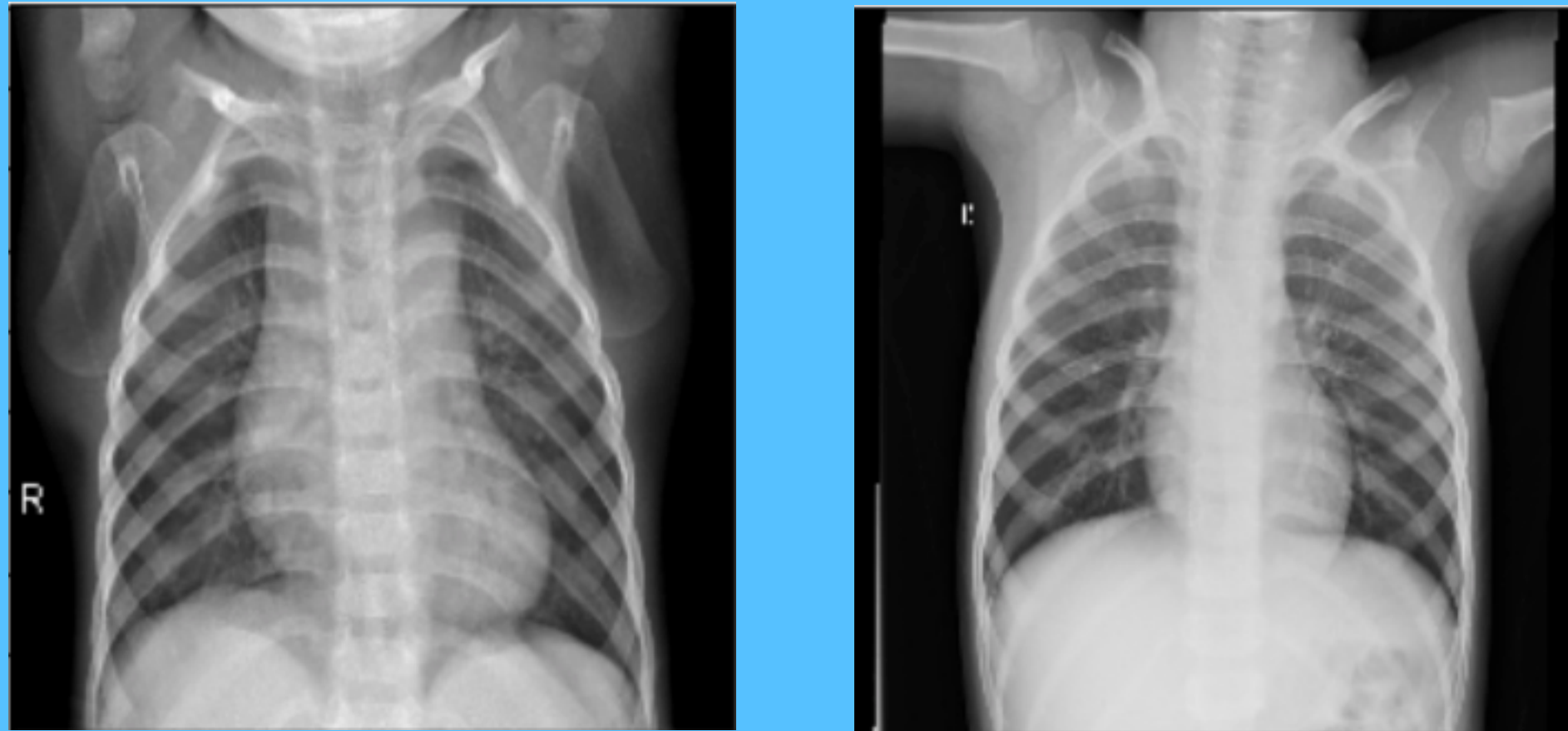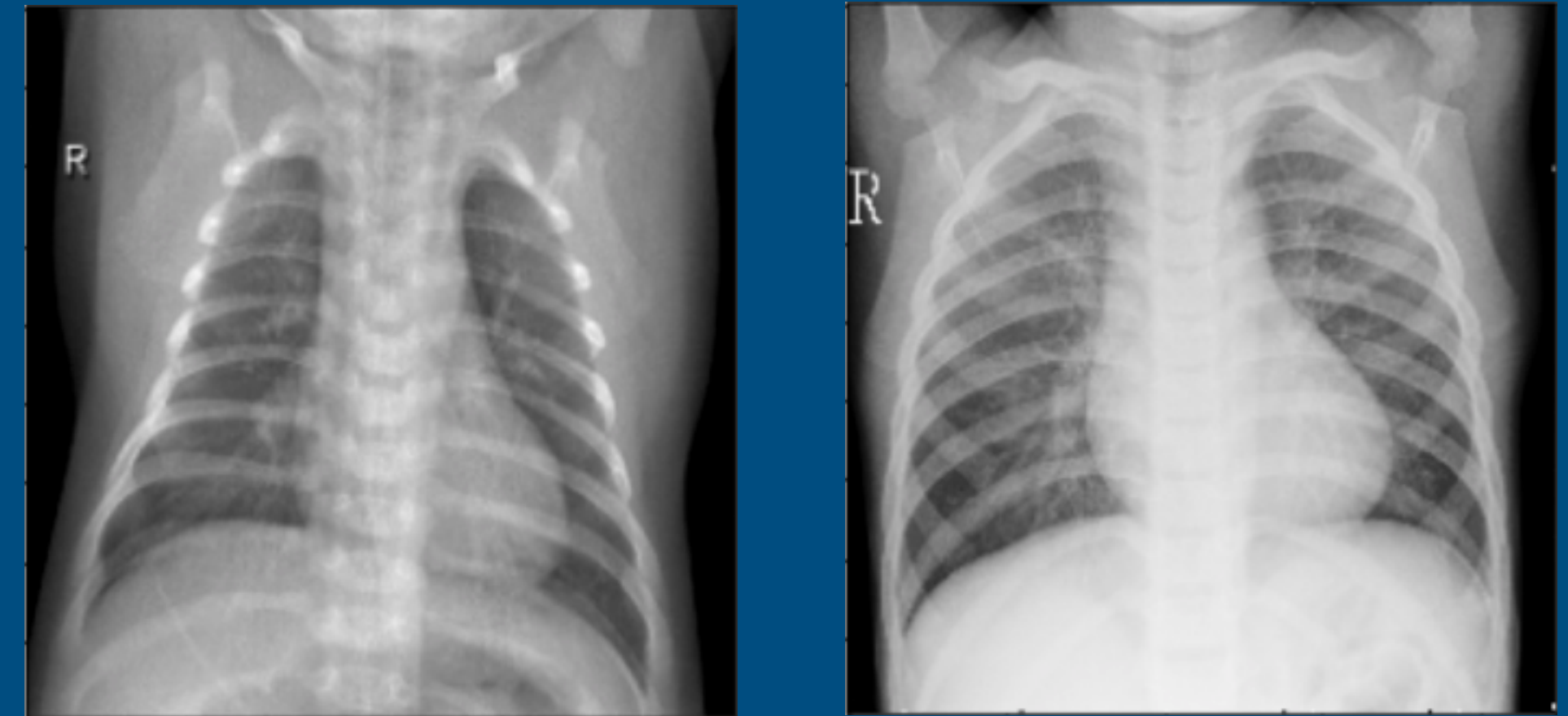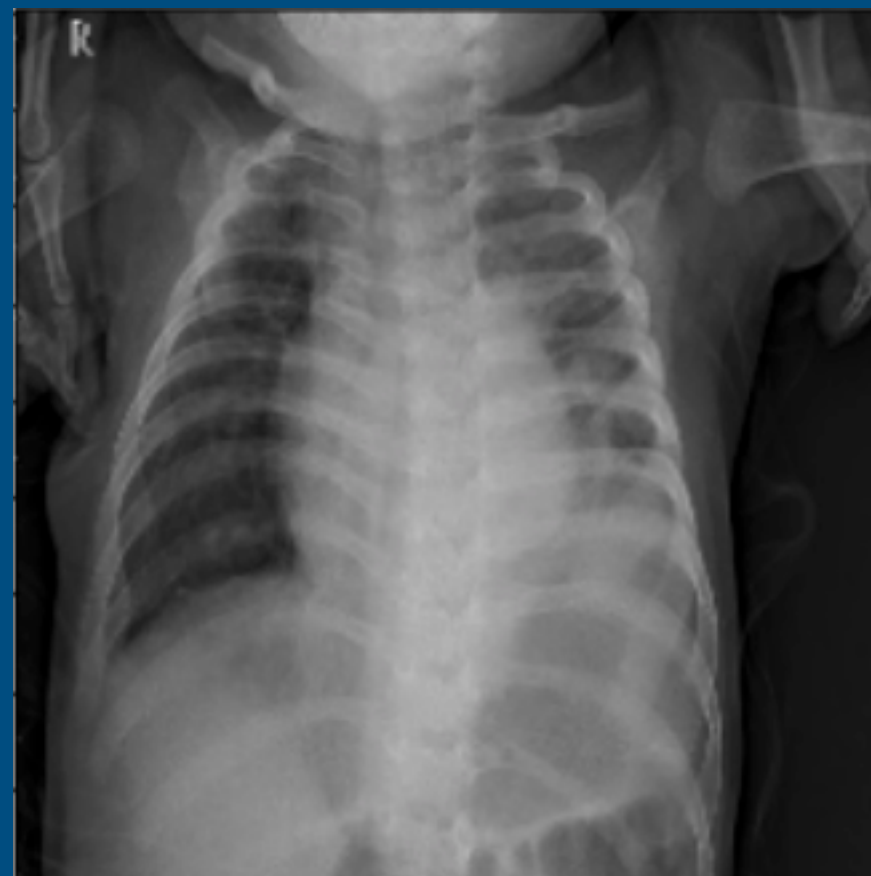## Normal

Pneumonia

Damaged lung

APPENDIX

True Negative

False Positive

False Negative

True Positive