

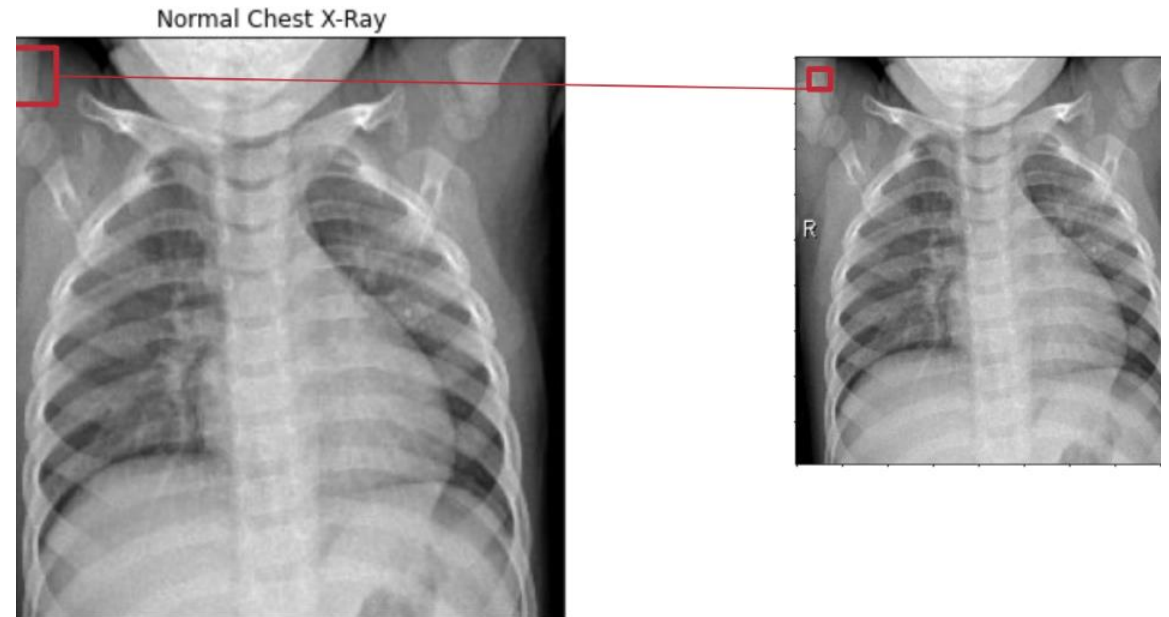
DETECTING PNEUMONIA IN CHEST X-RAYS

▶ SAAD RAEES

▶ MUHAMMAD QAYYUM

What is Pneumonia

- ▶ An acute respiratory infection that affects the lungs.
- ▶ About 1 million adults in the US seek hospital care due to pneumonia every year and about 50,000 die from this disease according to the American Thoracic Society.



Normal Chest X-Ray

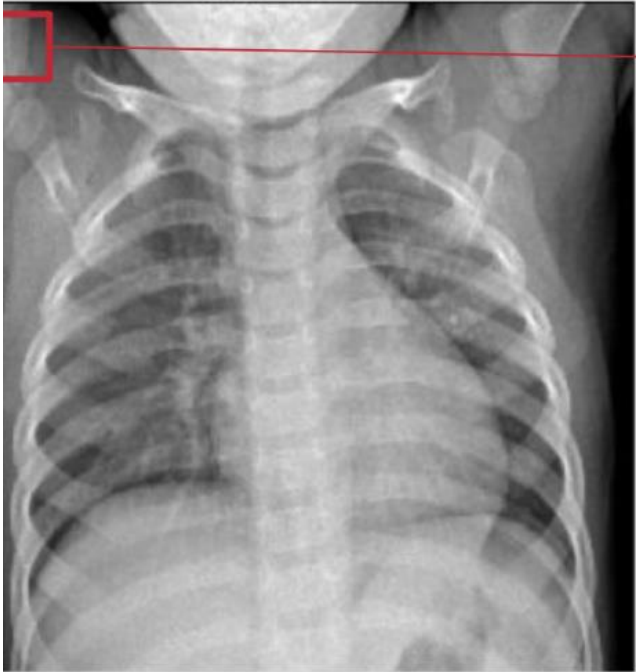


Pneumonia Chest X-Ray

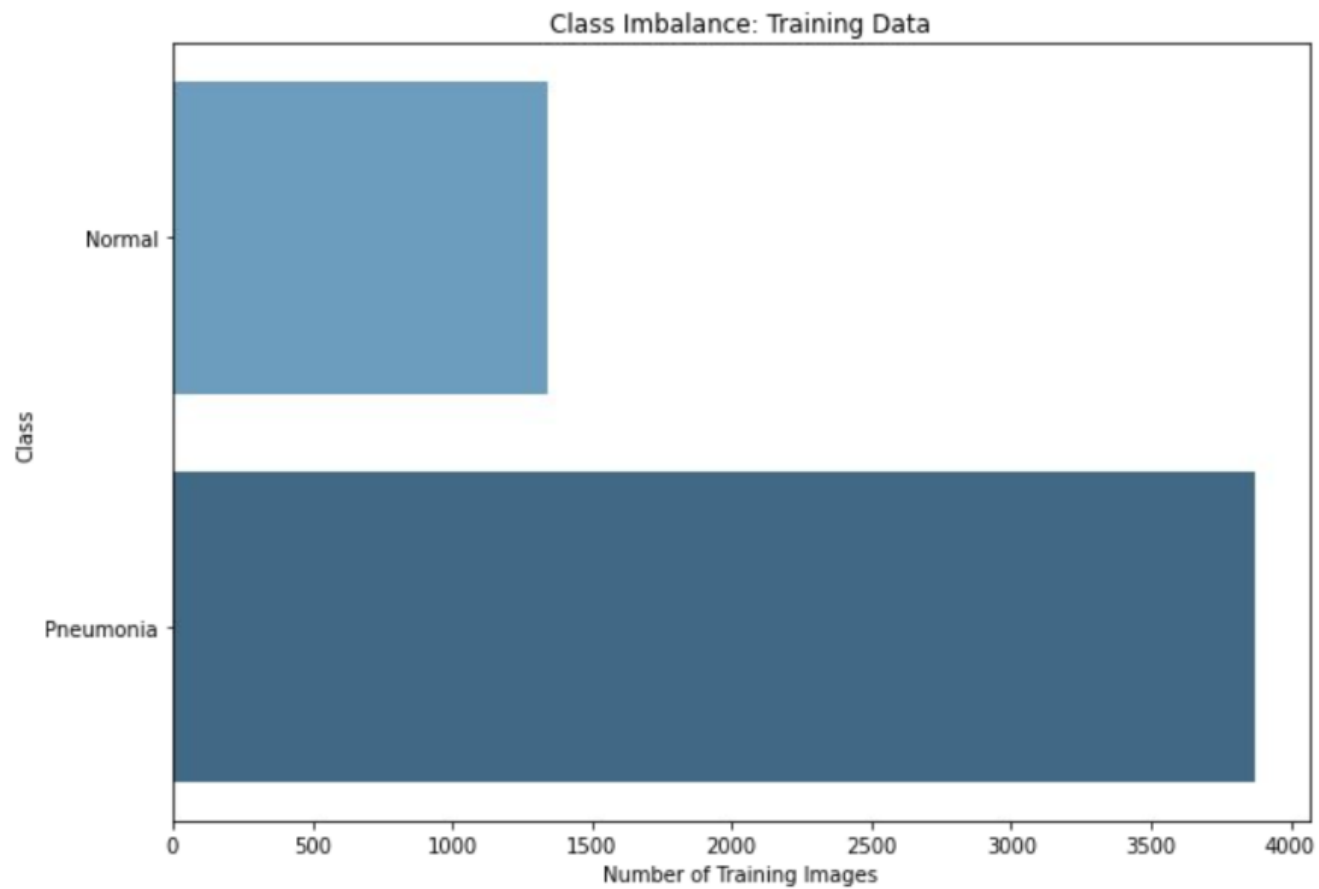


Reading Chest X-Rays

Normal Chest X-Ray



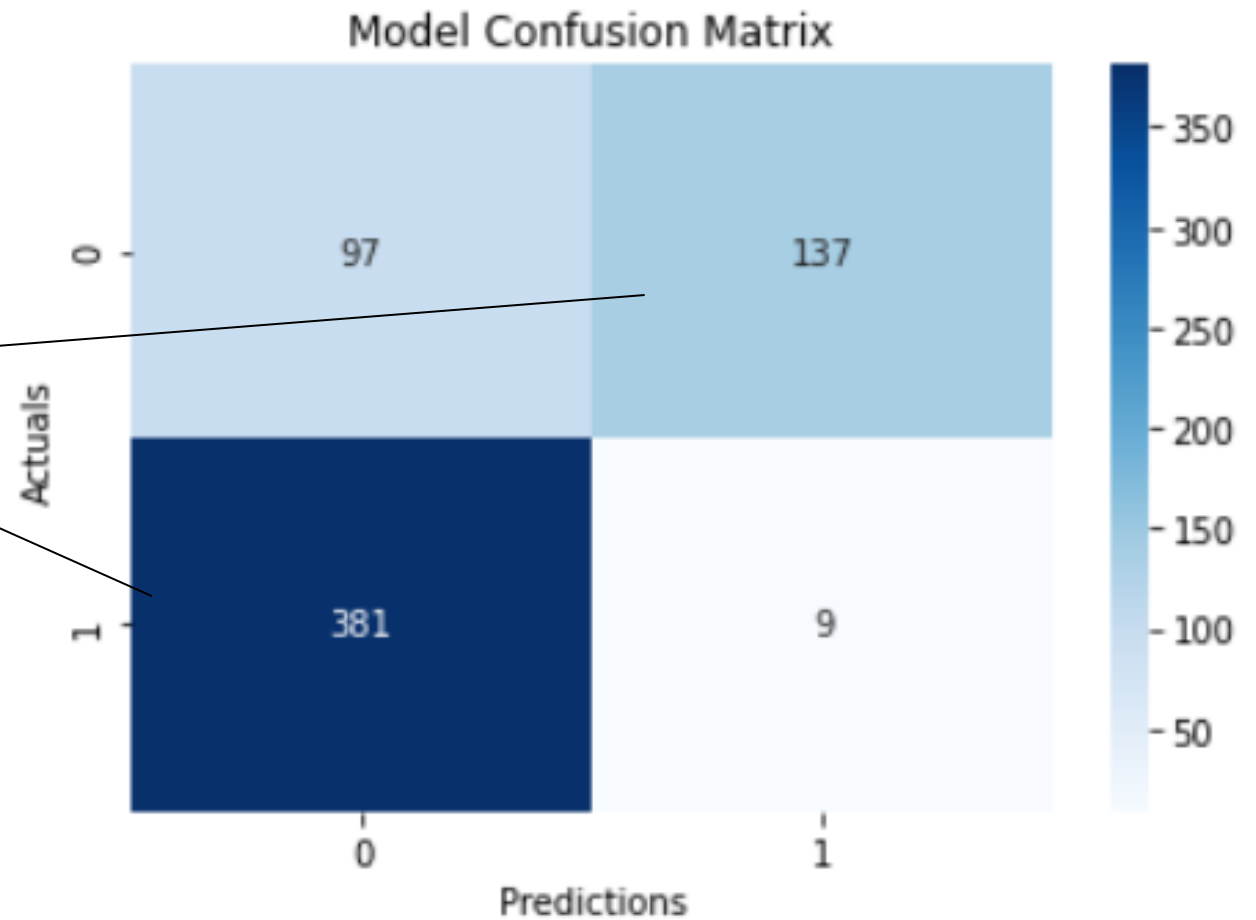
What is
Convolutional
Neural
Network



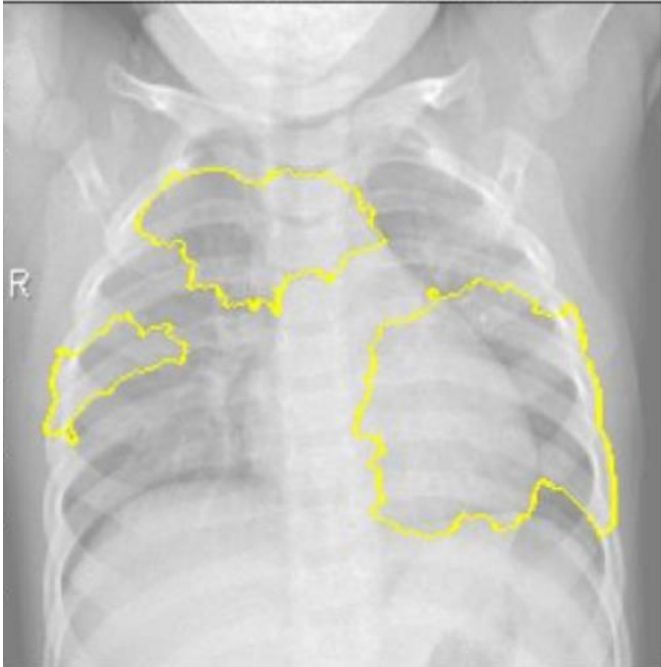
The Challenge

The Results

- ▶ We want to reduce false negatives and false positives
- ▶ Overall accuracy is 82%



Correct Normal Classification



Incorrect Pneumonia Classification



The Results

Recommendations

- ▶ Use the CNN model to improve efficiency.



RECOMMENDATIONS

- ▶ Ask tech to crop out diaphragm before feeding into the model
- ▶ Save images as 224 x 224 pixels before uploading to the model



FUTURE WORK

- ▶ Pre-processing:

- ▶ Remove Diaphragm
- ▶ Make Images Smaller

- ▶ Fine Tuning:

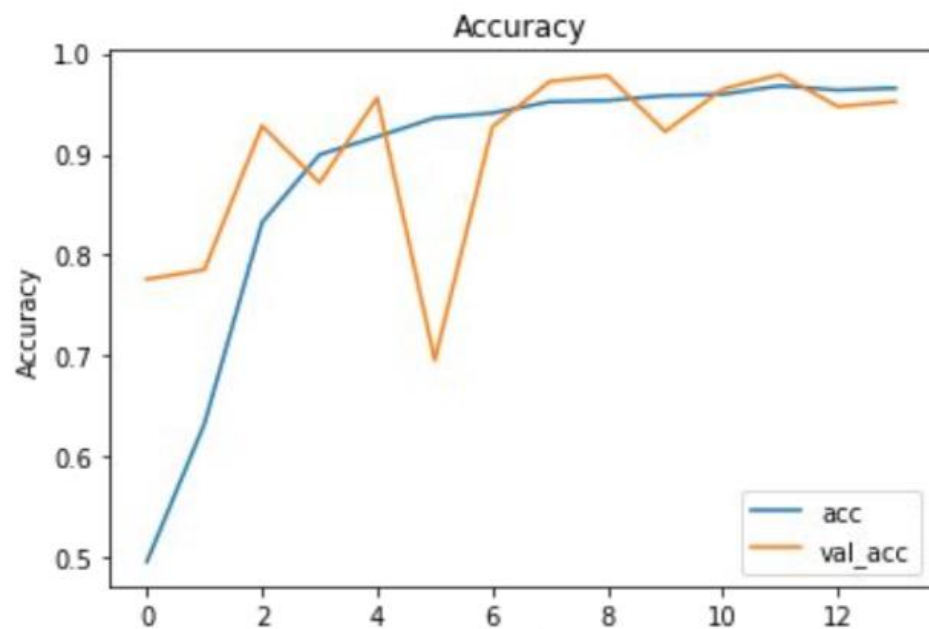
- ▶ Unfreezing certain layers of transfer-learning base

- ▶ More Research:

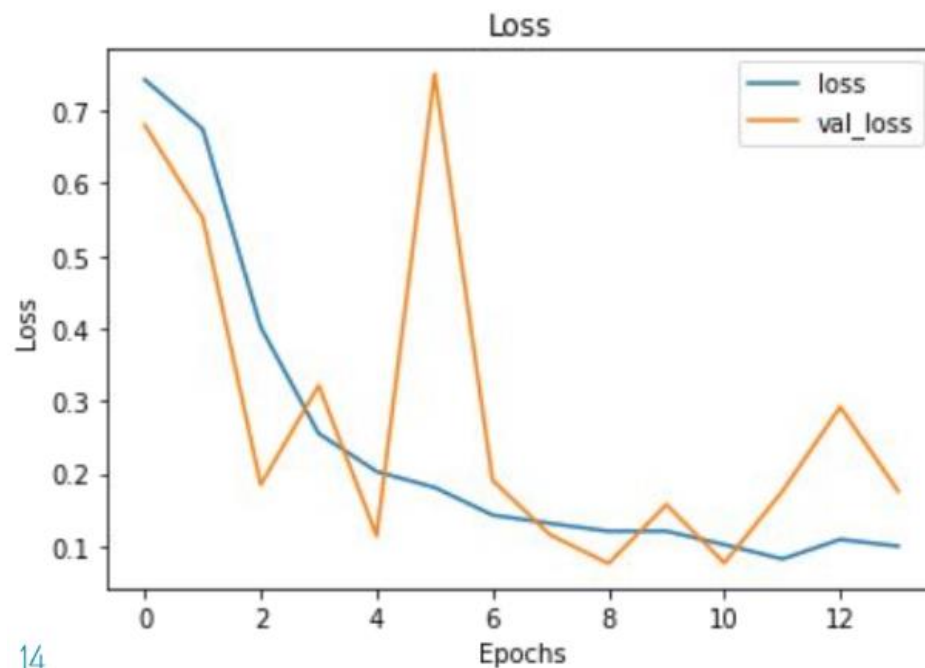
- ▶ Research more successful tuning methods

THANKS!

- ▶ Any Questions?
- ▶ SAAD RAEES
- ▶ MUHAMMAD QAYYUM



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Appendix: Model Validation