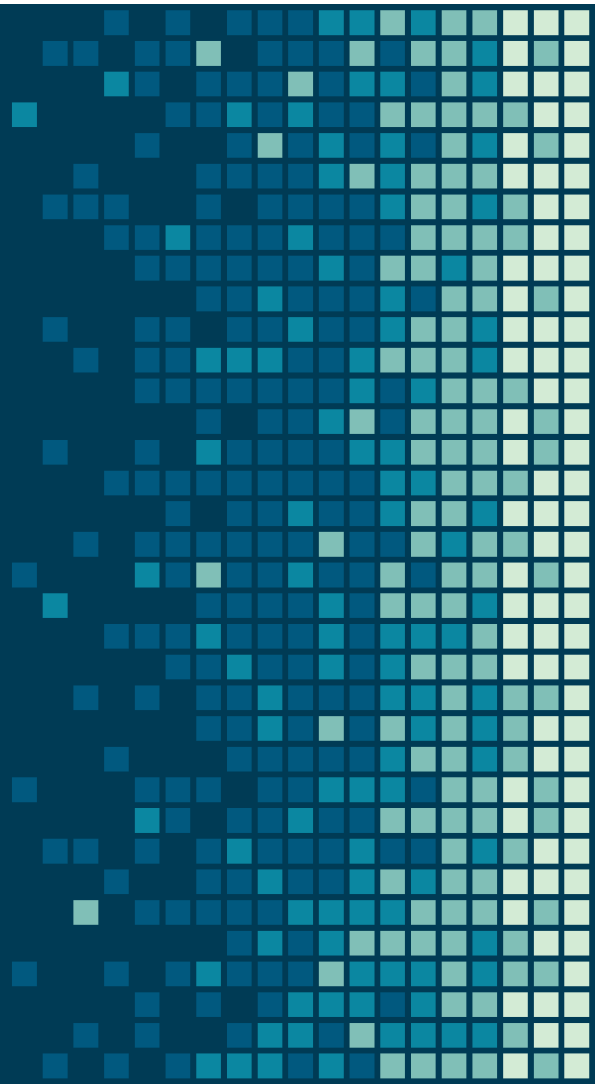
# Classifying Pneumonia with CNNs

– Juico Bowley



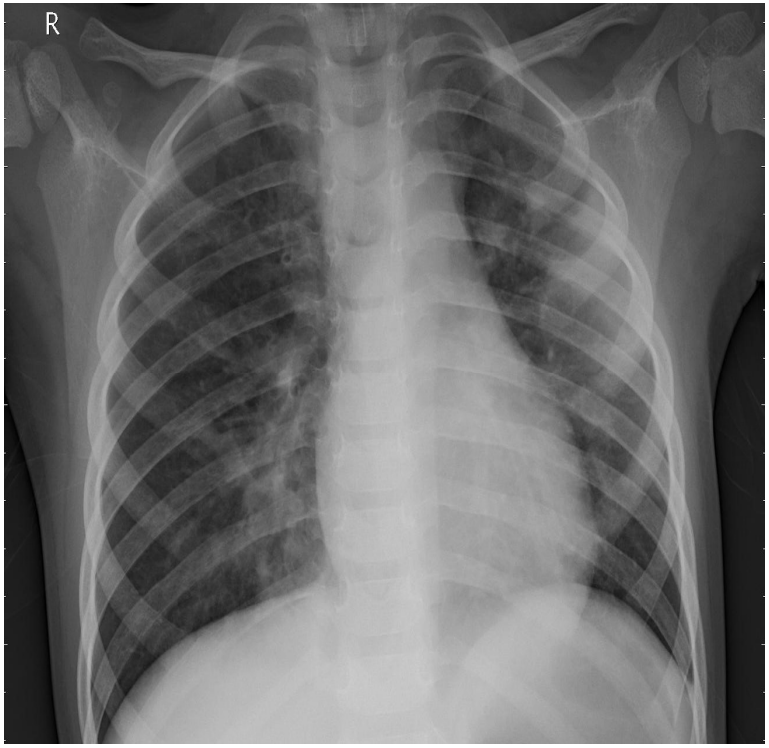
# Outline

1. Objective
2. Dataset
3. Examples
4. CNN Structure
5. Results
6. Recommendations
7. Future Work

# Objective

**The goal** is to aid Radiologists in working more efficiently.

**Pneumonia** is an infection of the lungs characterized by the symptoms of fever, cough, and shortness of breath.

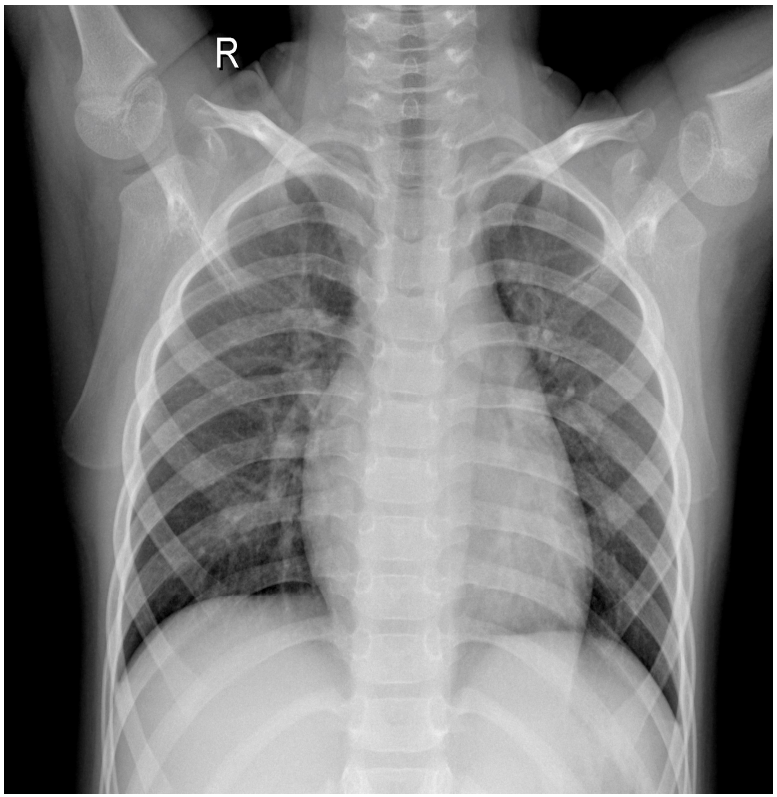


# Total Dataset

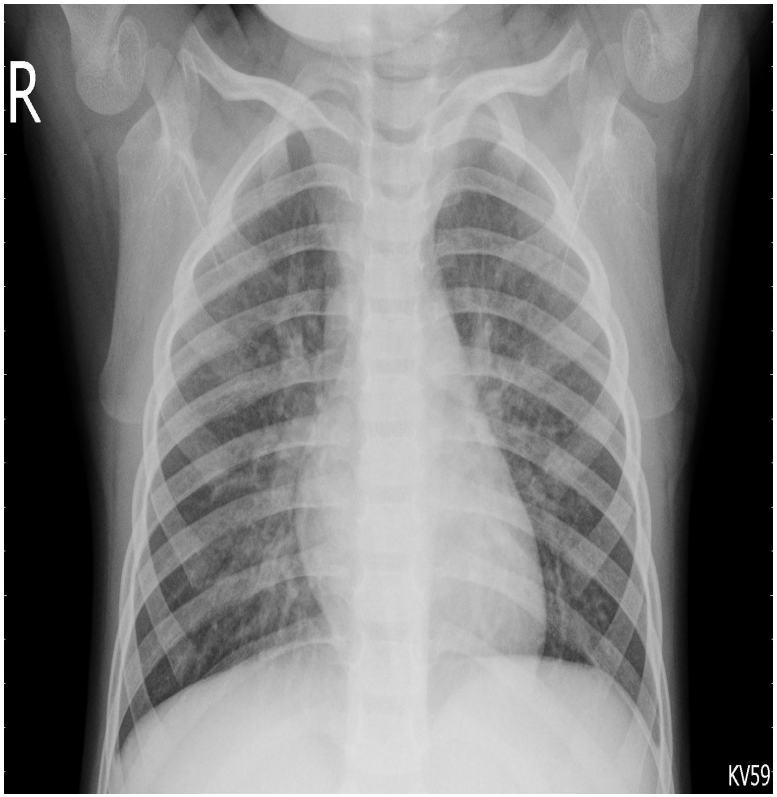
1,583 Normal

4,283 Pneumonia

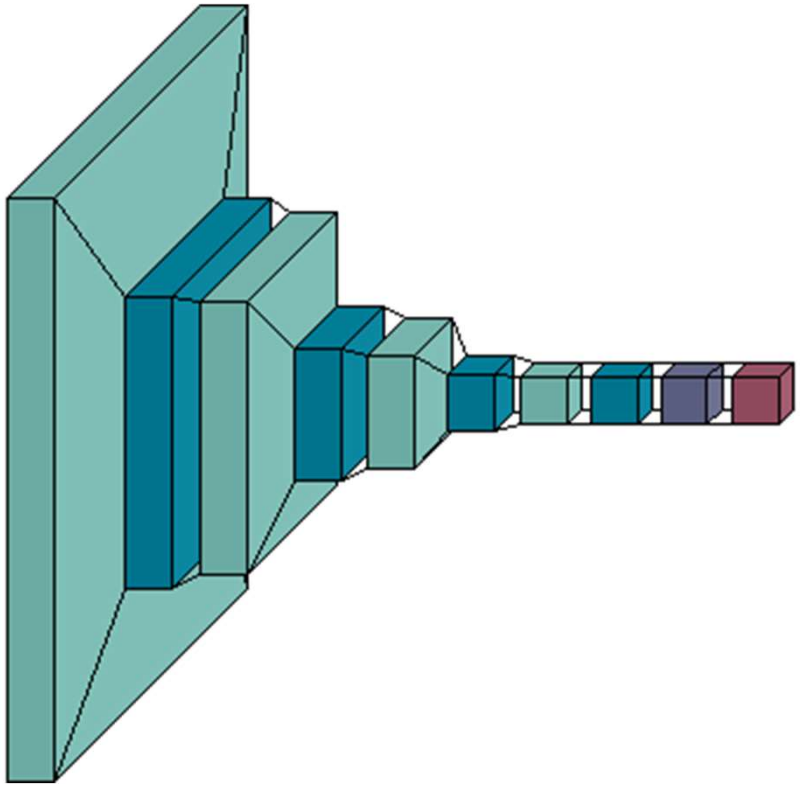
## Normal




## Pneumonia



# Network Topology



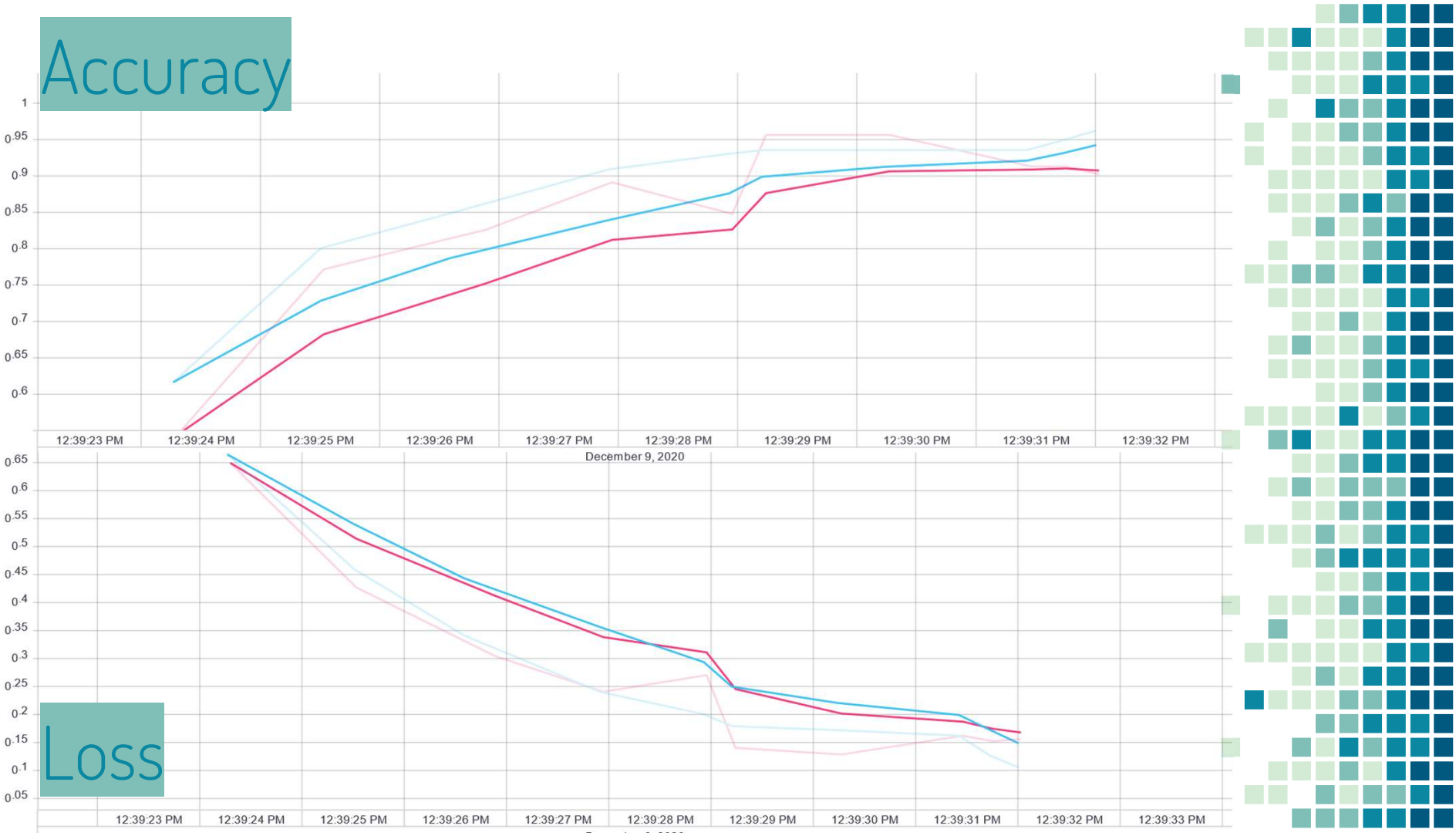
Convolutional Layer

Max Pooling Layer

Flatten Layer

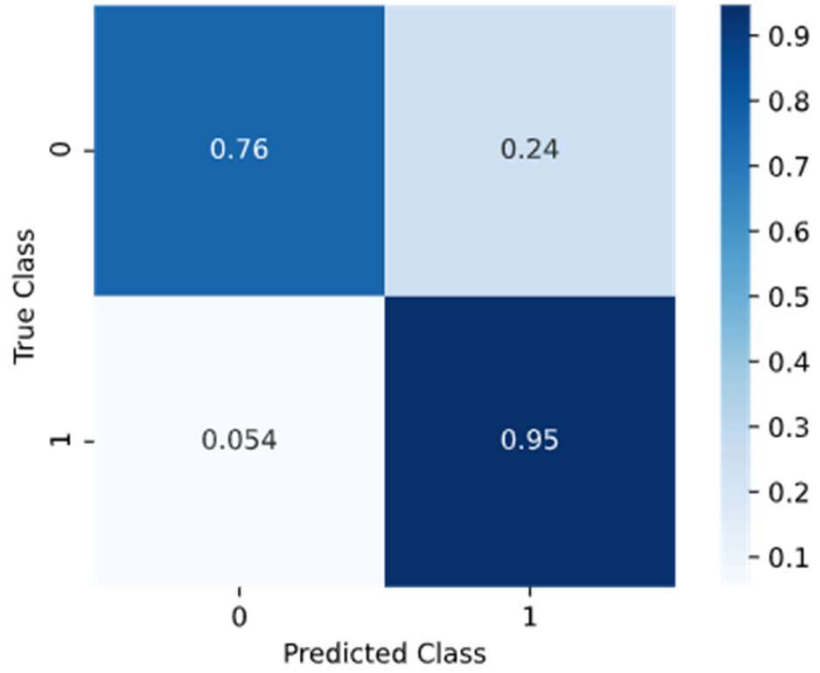
Dense Layer

A CNN is a machine learning model that mimics how we see things as humans.

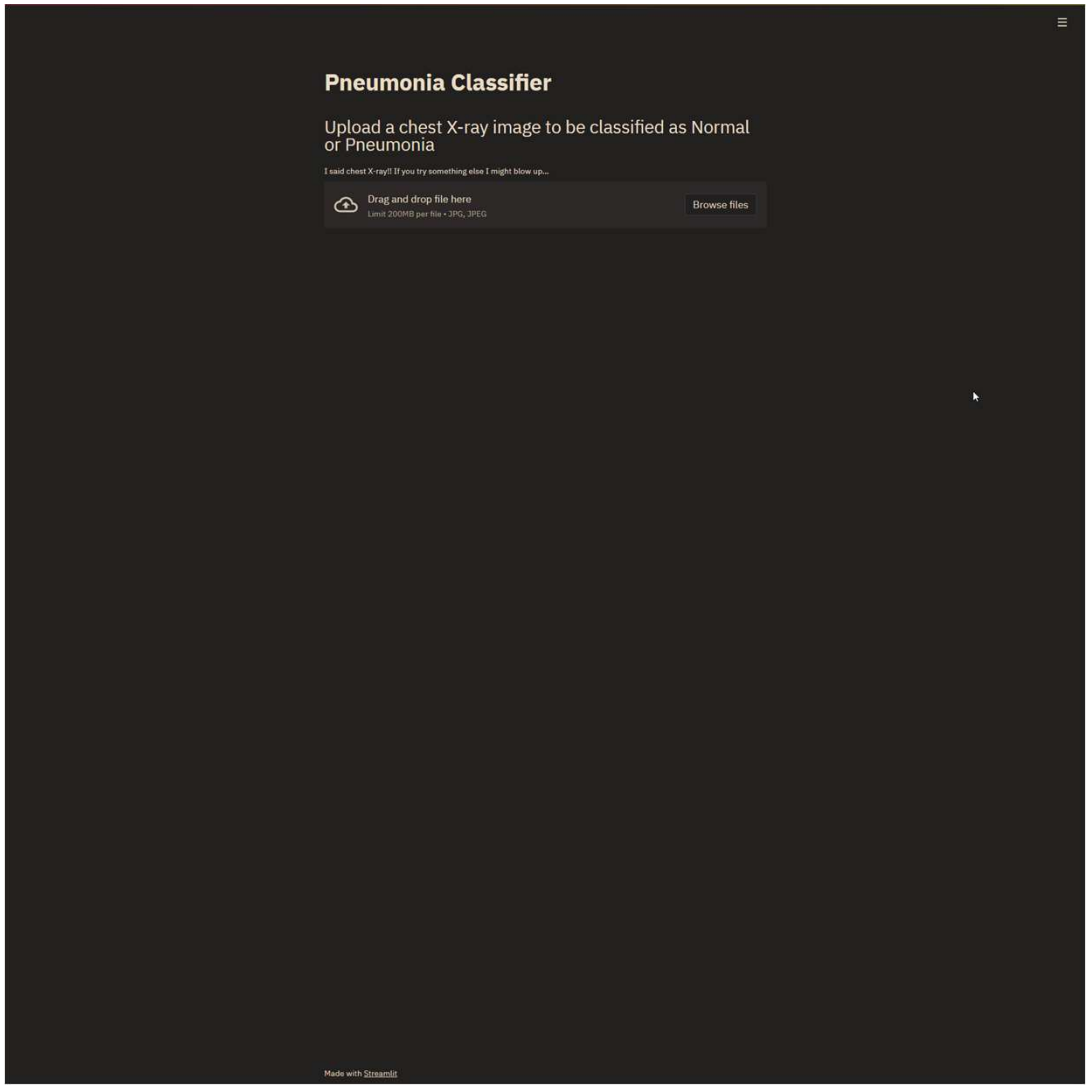

Accuracy
1
0.95
0.9
0.85
0.8
0.75
0.7
0.65
0.6
12:39:23 PM
12:39:24 PM
12:39:25 PM
12:39:26 PM
12:39:27 PM
12:39:28 PM
12:39:29 PM
12:39:30 PM
12:39:31 PM
12:39:32 PM
December 9, 2020
0.65
0.6
0.55
0.5
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
Loss
12:39:23 PM
12:39:24 PM
12:39:25 PM
12:39:26 PM
12:39:27 PM
12:39:28 PM
12:39:29 PM
12:39:30 PM
12:39:31 PM
12:39:32 PM
12:39:33 PM

# Results

| | precision | recall | f1-score | support |
|---|---|---|---|---|
| 0.0 | 0.89 | 0.76 | 0.82 | 234 |
| 1.0 | 0.87 | 0.95 | 0.91 | 390 |
| accuracy | | | 0.88 | 624 |
| macro avg | 0.88 | 0.85 | 0.86 | 624 |
| weighted avg | 0.88 | 0.88 | 0.87 | 624 |




# Web Tool Example



# Recommendations

# Future Work

# THANK YOU!

## Any questions?

You can find me at:

github.com/Juicob