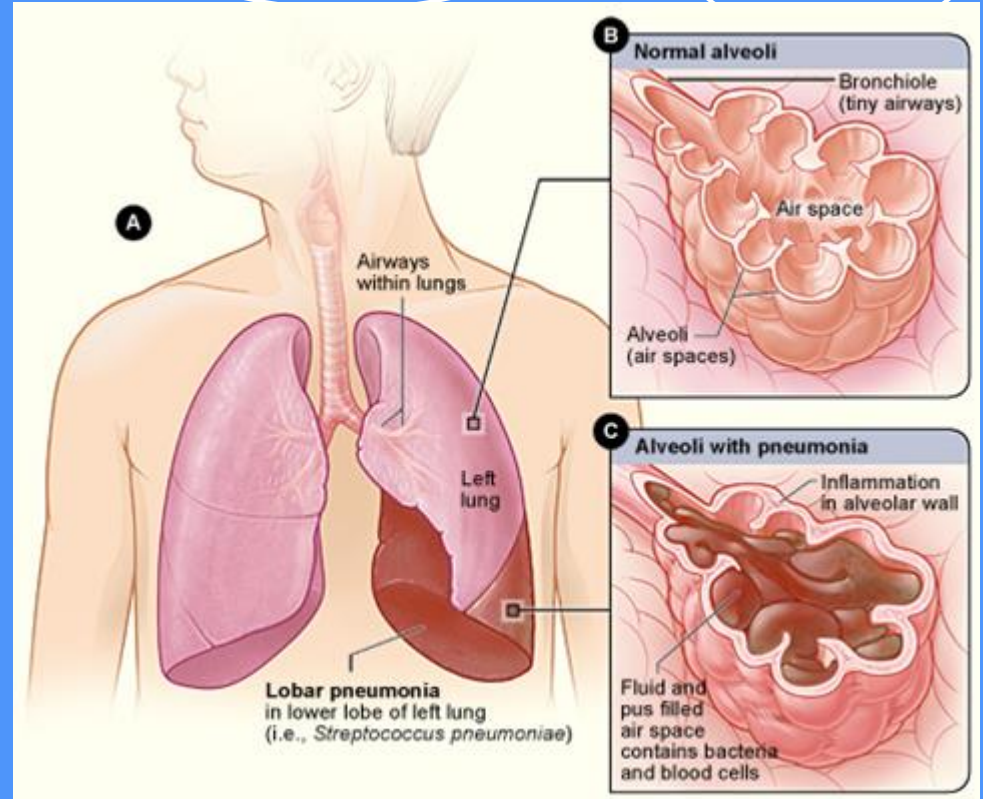


PNEUMONIA CLASSIFICATION: *DETERMINING COVID PATIENT SEVERITY*

Samantha Knee
March 15, 2021

BUSINESS PROBLEM

- Pneumonia – outcome of COVID-19
- Global shortage of healthcare workers and hospital capacity
- Can we build a model to determine if someone has pneumonia?



BUSINESS VALUE

- Hired by an understaffed COVID clinic
- Triage patients and determine who's at risk for hospitalization

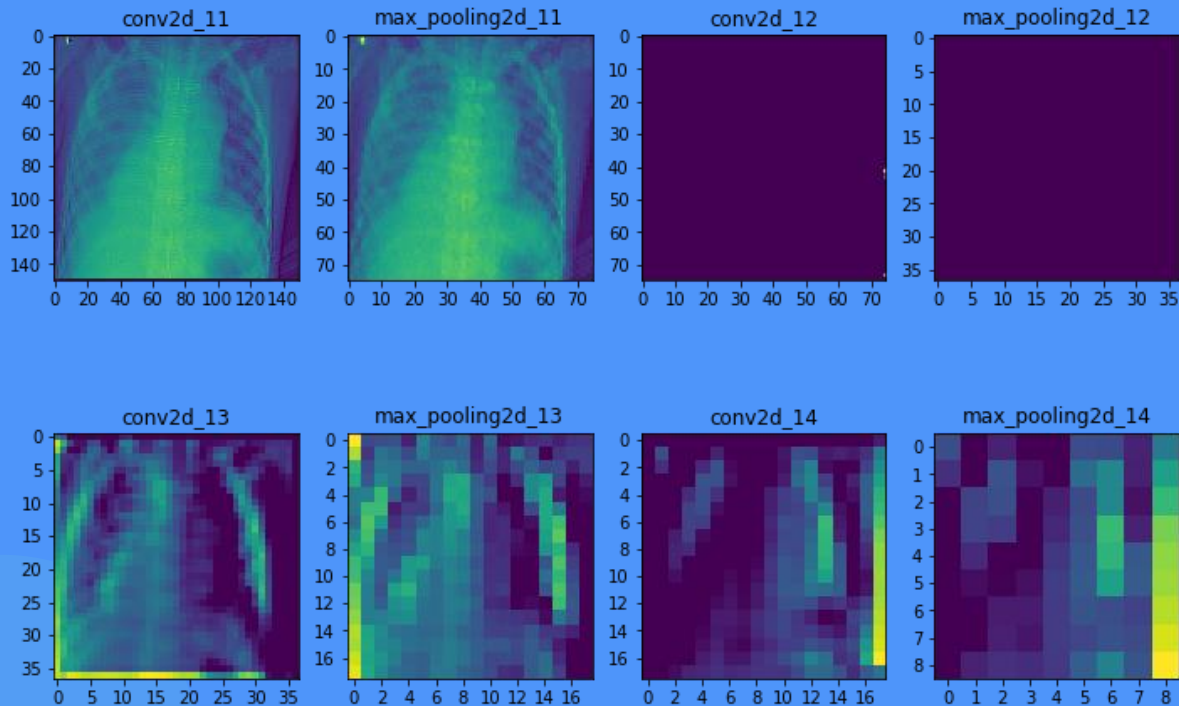
Pneumonia



Normal



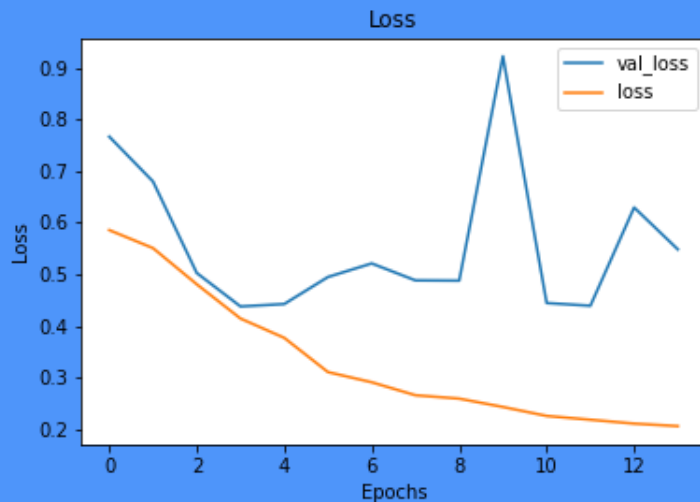
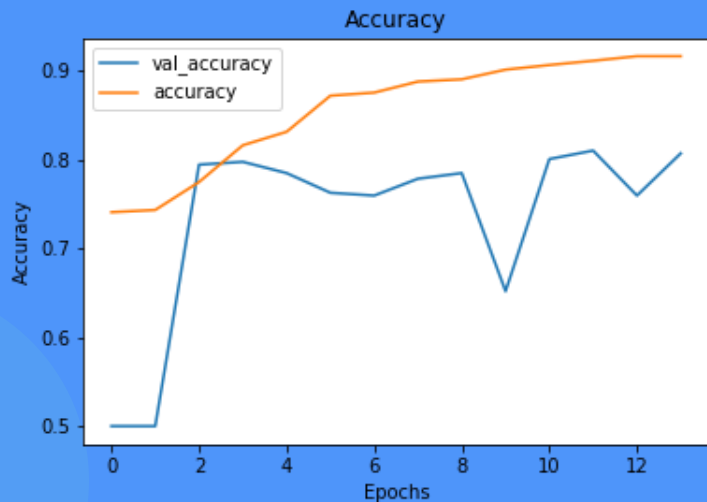
METHODOLOGY



- 10+ iterations of models
- Convolutional Neural Network (CNN)
- Regularization to prevent overfitting

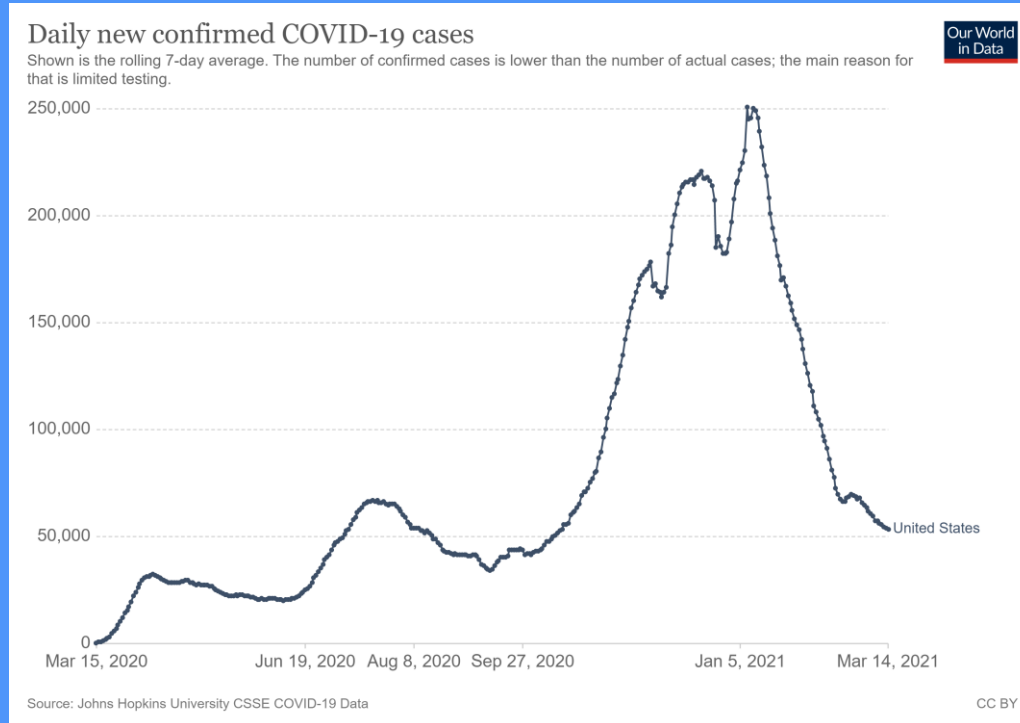
RESULTS

	Training	Validation	Testing
Loss	0.18	0.55	0.16
Accuracy	0.92	0.81	0.92



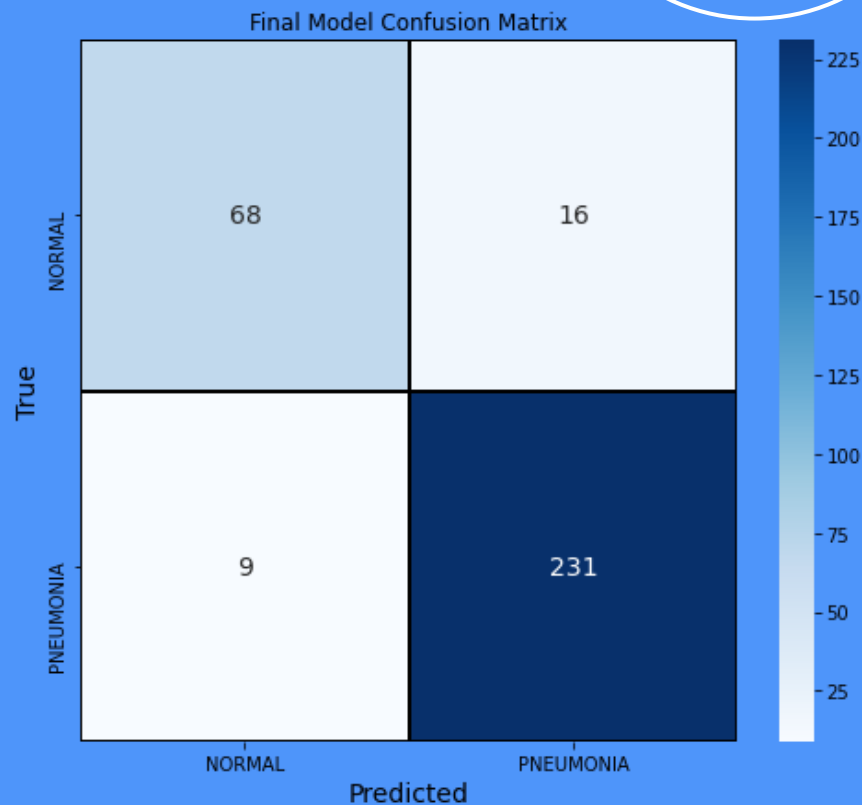
RECOMMENDATION 1

- Use model in times of case spikes



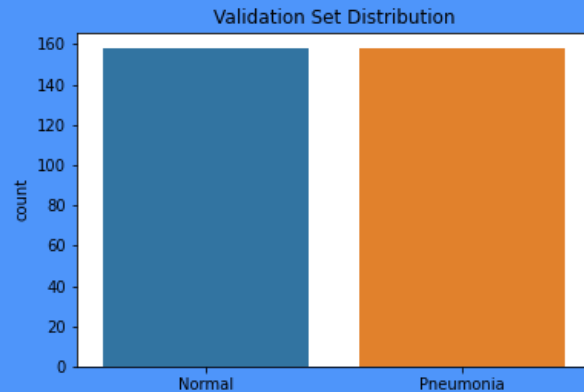
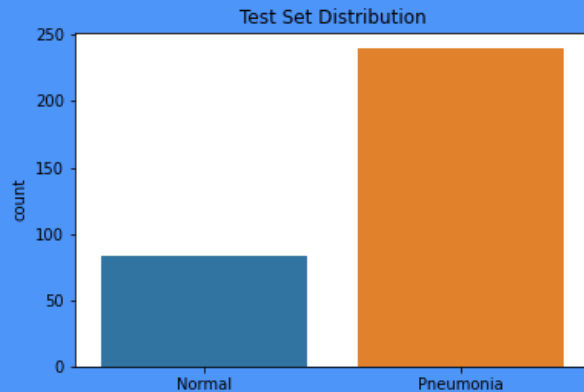
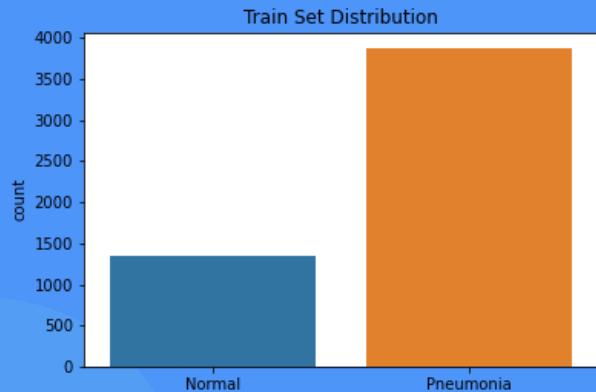
RECOMMENDATION 2

- Use multiple models to determine treatment



RECOMMENDATION 3

- Continue training the model



FUTURE WORK

**TRANSFER
LEARNING**



**RE-SPLIT
DATASET**



**PROLONG MODEL
TRAINING**



THANKS!

Do you have any questions?

samanthaknee24@gmail.com

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