IDENTIFYING PNEUMONIA FROM X-RAY IMAGES

Hogan Byun
hoganbyun@gmail.com

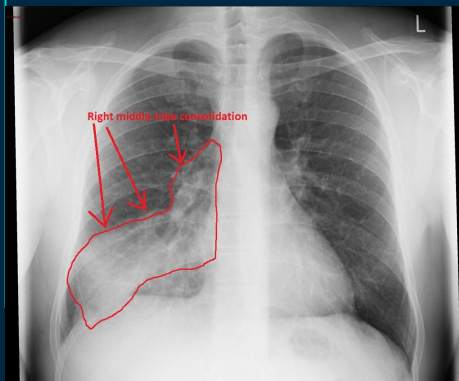# GOAL

Create a model that can classify whether a person has pneumonia using chest x-rays

IDENTIFYING PNEUMONIA

Pneumonia

White spots in lung indicate infection

Healthy

THE PROCESS – OSEMN

01 Obtain Data

02 Scrub Data

03 Explore Data

04 Modeling

05 Interpret

THE DATA

Obtained on Kaggle (originally from Kermany et al.):
https://www.kaggle.com/andrewmvd/pediatric-pneumonia-chest-xray

Total of 5,856 chest x-rays
(4,273 Pneumonia, 1,583 Healthy)

THE MODEL

Convolutional Neural Network:

Training	Validation	Test
Accuracy: 89.18%	Accuracy: 90.91%	Accuracy: 87.20%
Loss: .8408	Loss: .7220	Loss: .7364

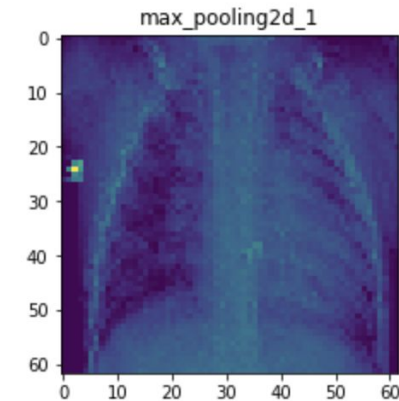Used to help model learn and improve

Used to test model accuracy at every model version
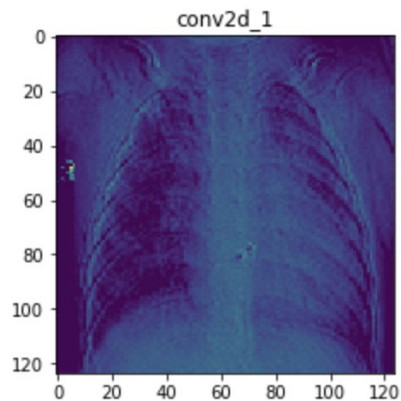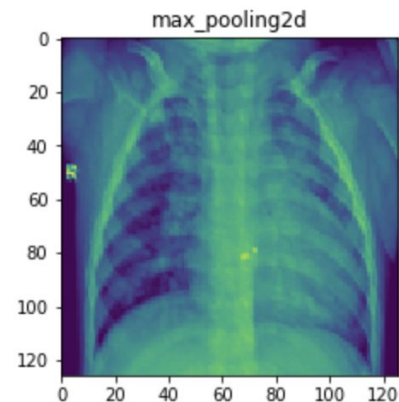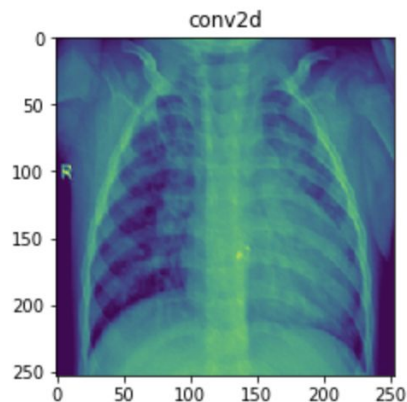
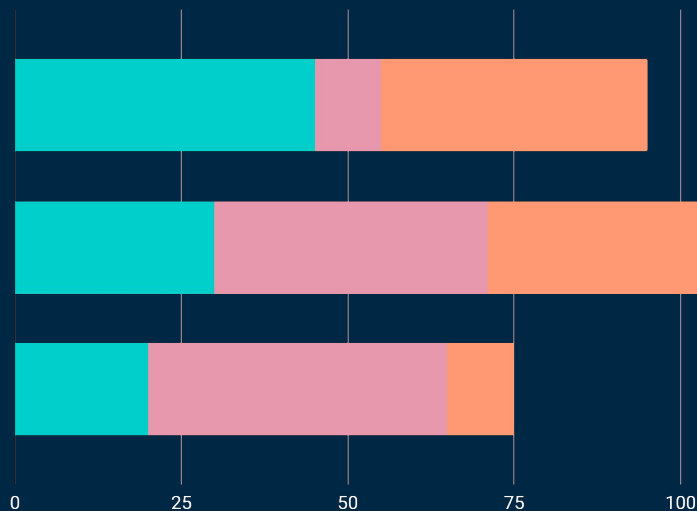Used to verify model accuracy after model is complete

THE MODEL

7 layers total

As layers progress, more abstract patterns are recognized

FUTURE WORK

IMPROVE MODEL
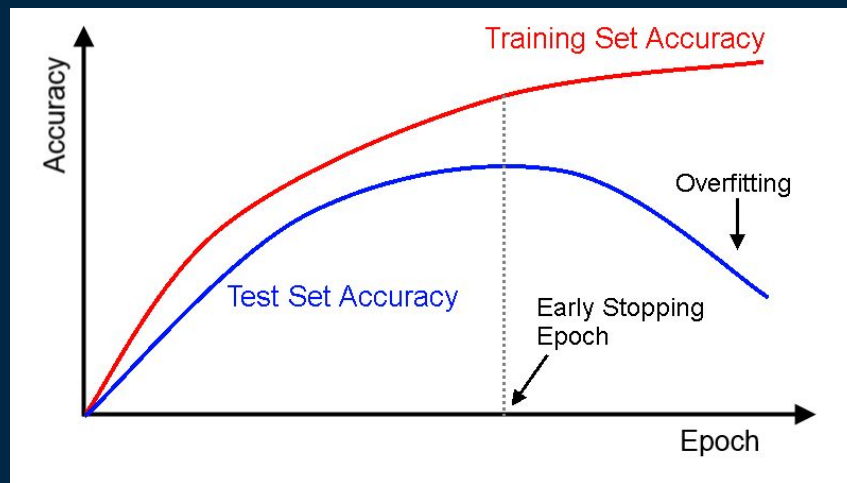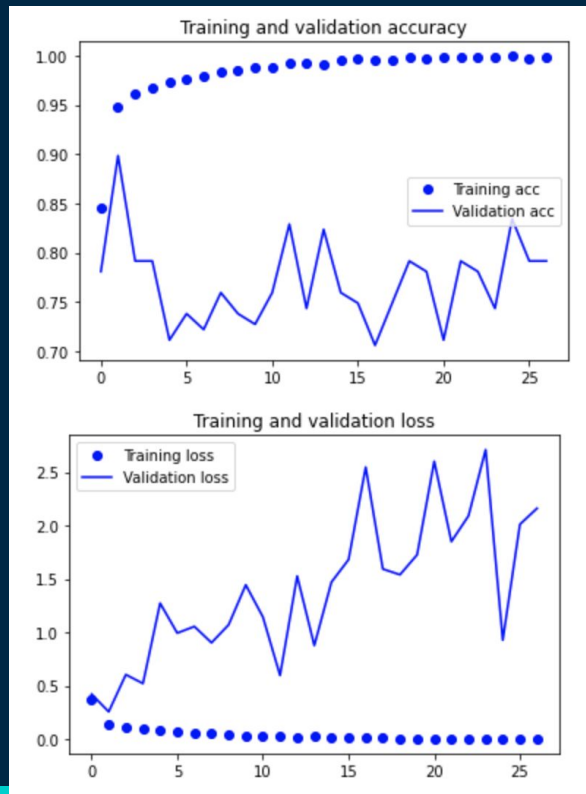Model could have better results. Overfitting needs to be addressed

DIFFERENTIATE PNEUMONIA
Creating a model that recognizes bacterial and viral pneumonia

EXPAND TO OTHER DISEASES
Generalized or specific

FUTURE WORK

Ideally want training and validation curves to be as close as possible

Issue: Convergence very early in modeling, which leads to possibly skipping over the actual best weights

Do you have any questions?

hoganbyun@gmail.com
410 236 4663

THANK YOU!