Binary Classification of X-Rays with Convolutional Neural Networks

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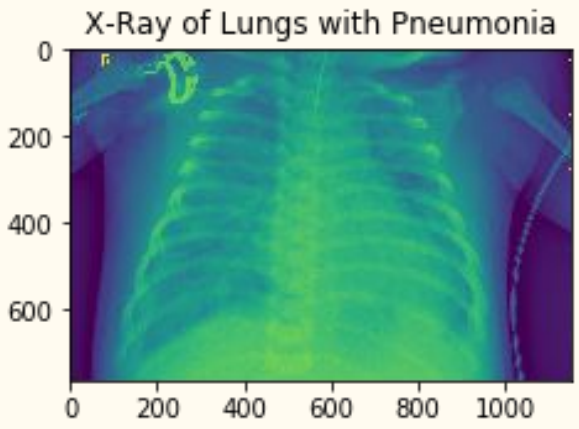
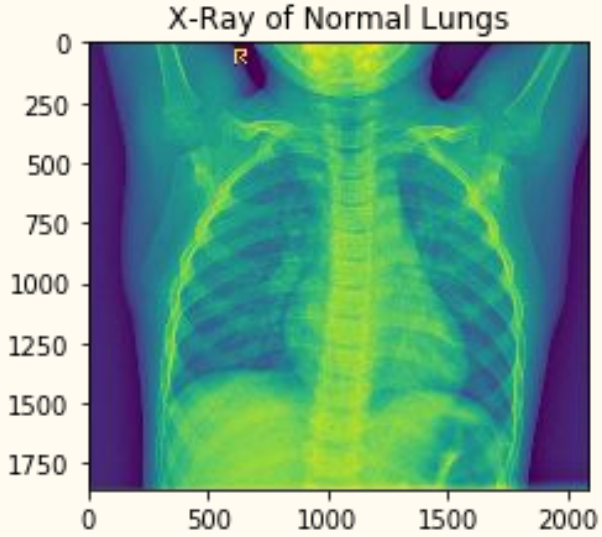
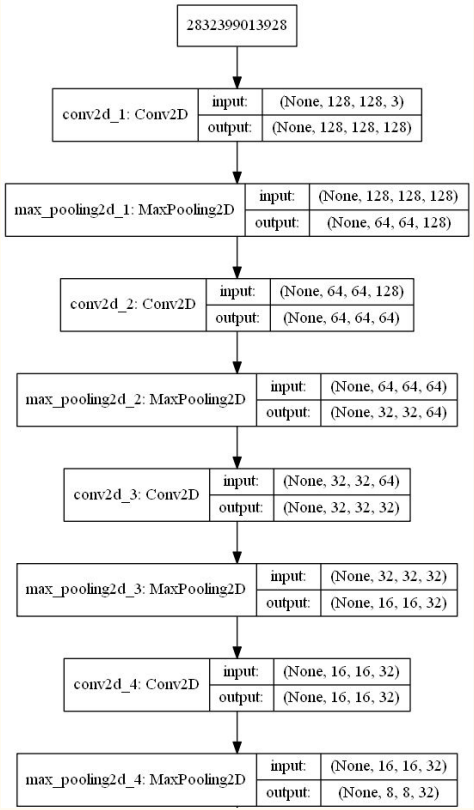
Kyle Aguilar

The Dataset

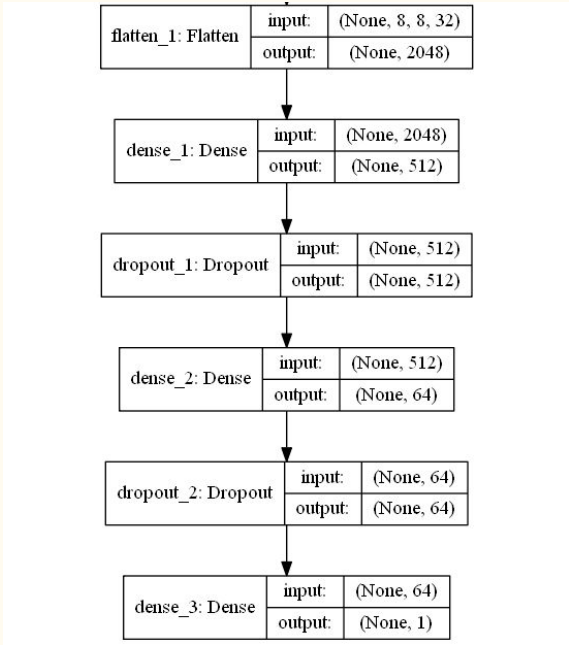

X-Ray of Lungs with Pneumonia
0
200
400
600
0
200
400
600
800
1000


X-Ray of Normal Lungs
0
250
500
750
1000
1250
1500
1750
0
500
1000
1500
2000

Neural Networks: An Introduction

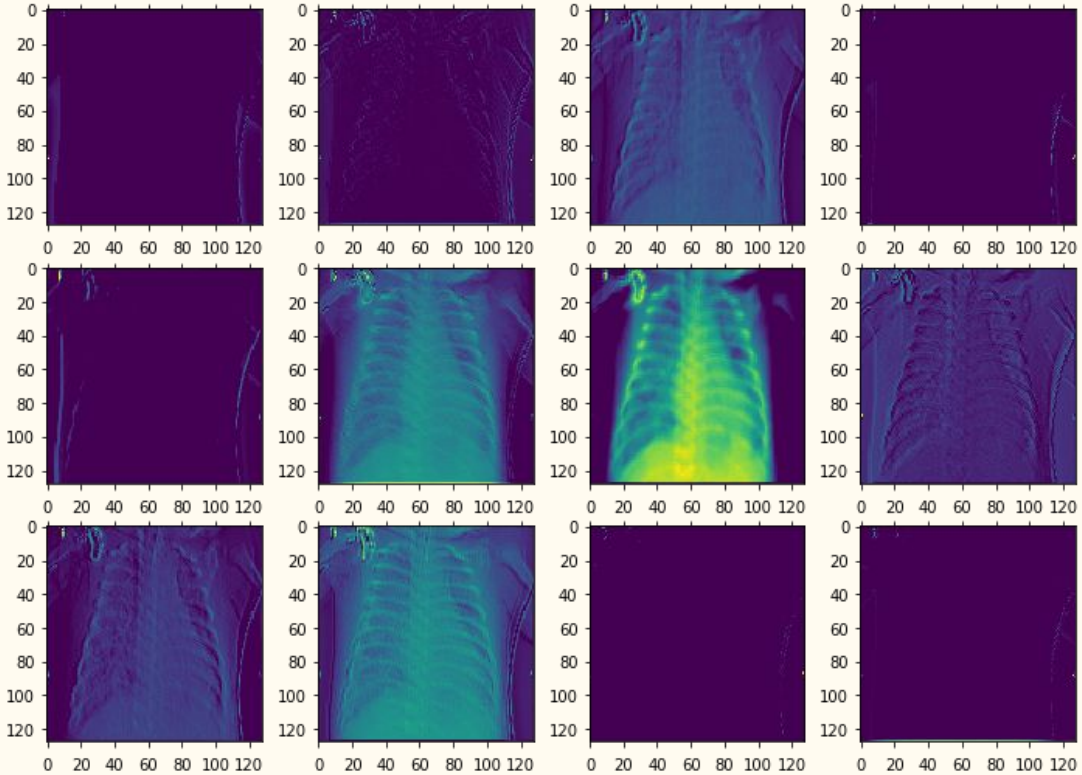


Convoluted Layers

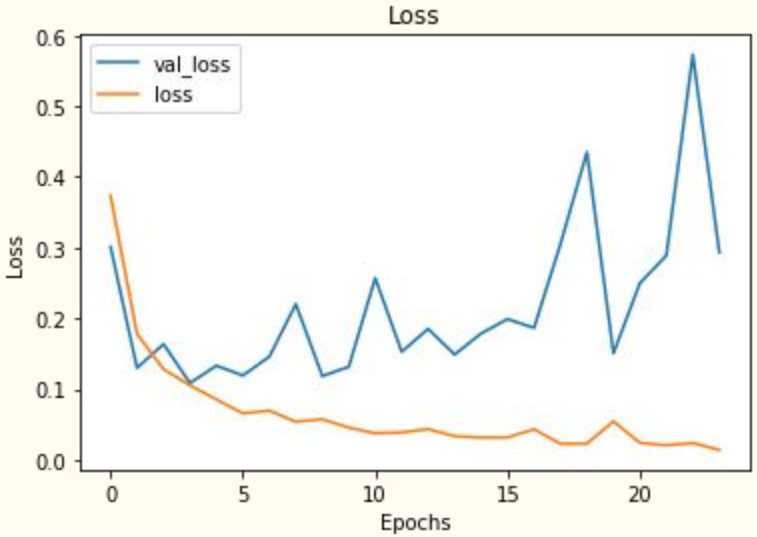


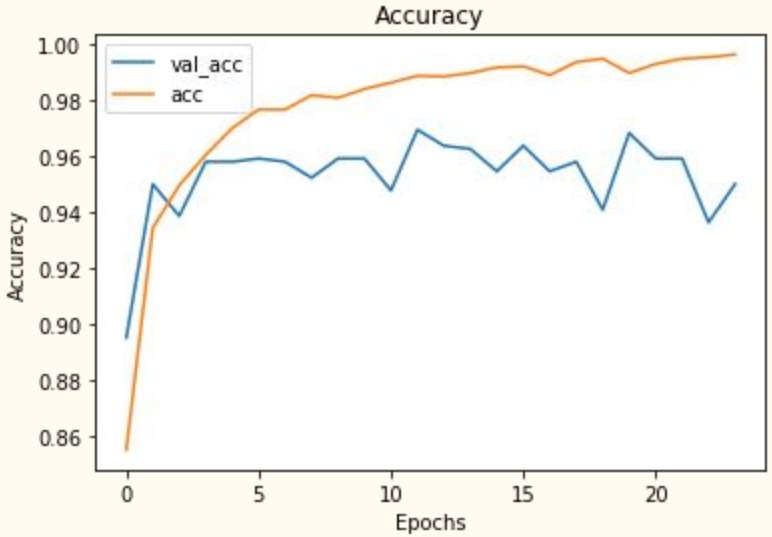
Dense Layers

Neural Networks (con't)

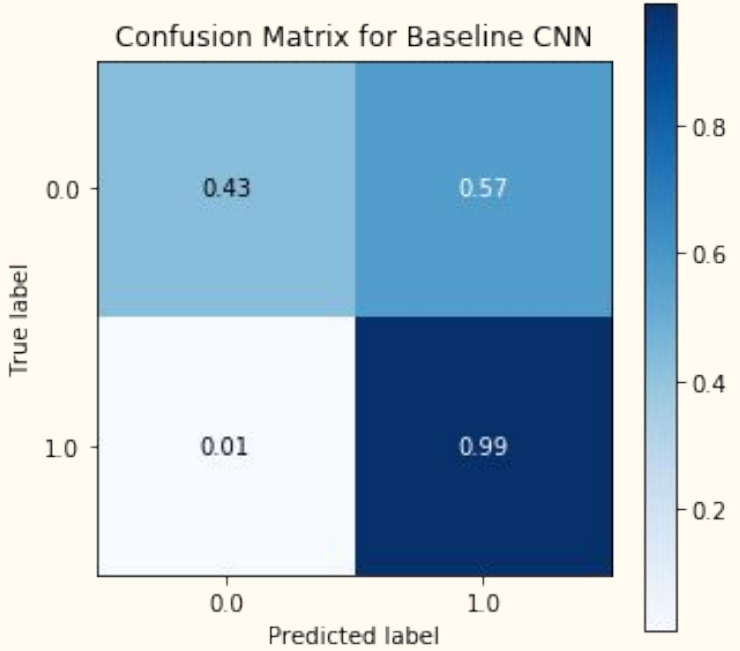


Iterating Over CNNs





Evaluating Model Performance



Evaluating Model Performance (con't)

	precision	recall	f1-score	support
Normal	0.93	0.43	0.59	237
Pneumonia	0.83	0.99	0.90	640
accuracy			0.84	877
macro avg	0.88	0.71	0.75	877
weighted avg	0.85	0.84	0.82	877

Future Work

X-Rays From Other Angles

Other Chest X-Ray Diagnosis

Medical Imagenet Training

Thank you.