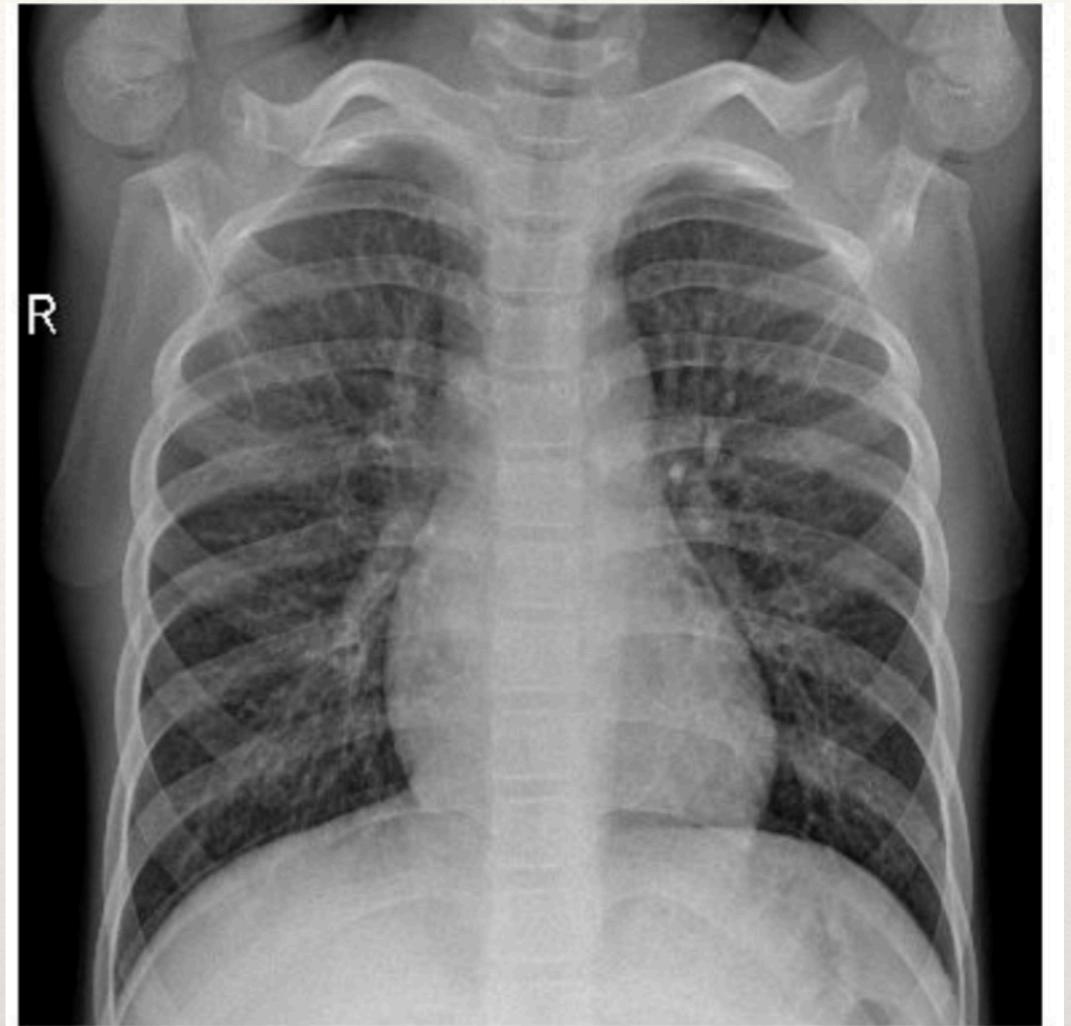


X-Ray Image Classification with Deep Learning

Mod4 Project
Kristine Petrosyan
Flatiron School

PROBLEM STATEMENT



IDENTIFY PNEUMONIA FROM GIVEN
X-RAY IMAGE

BUSINESS VALUE



IMAGE CLASSIFICATION
MODELS



MINIMUM
HUMAN ERRORS

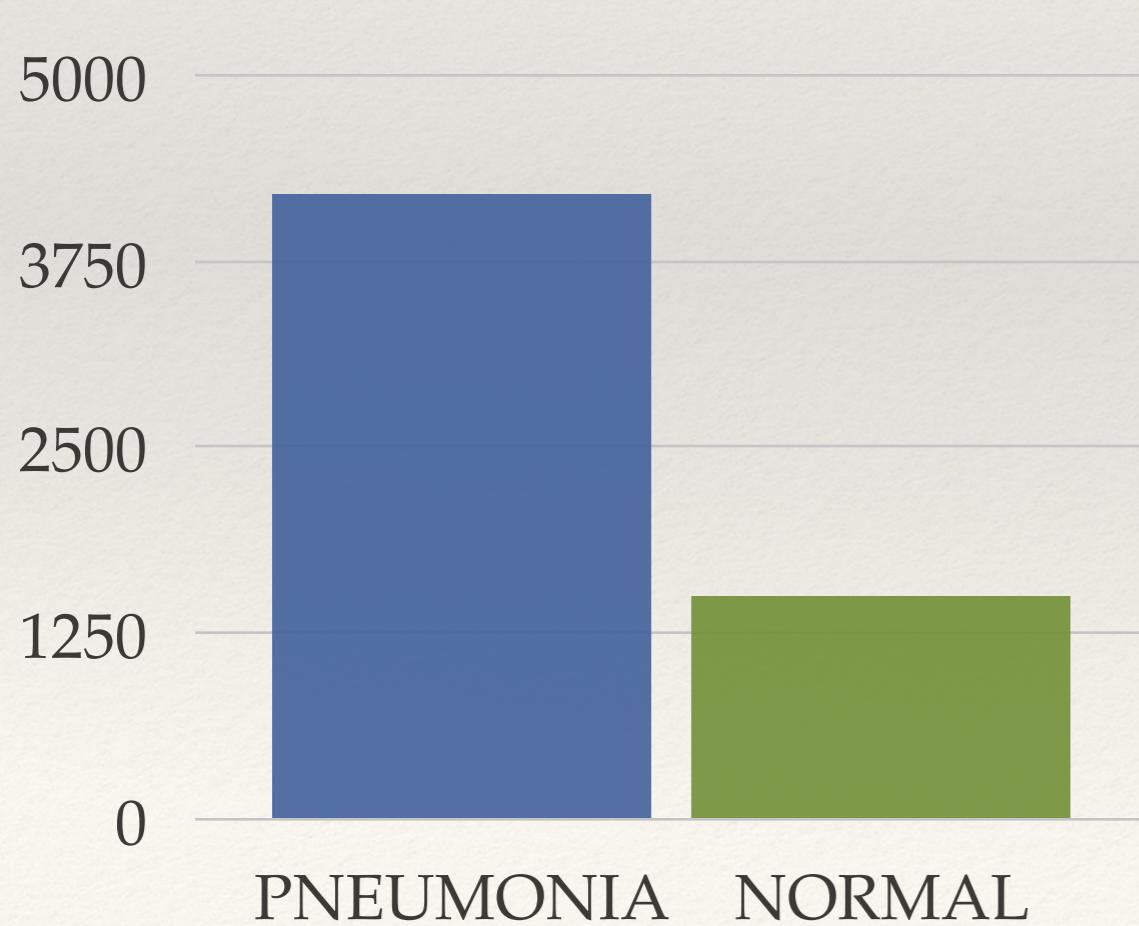


BETTER TREATMENT
MORE PRECISE DIAGNOSIS

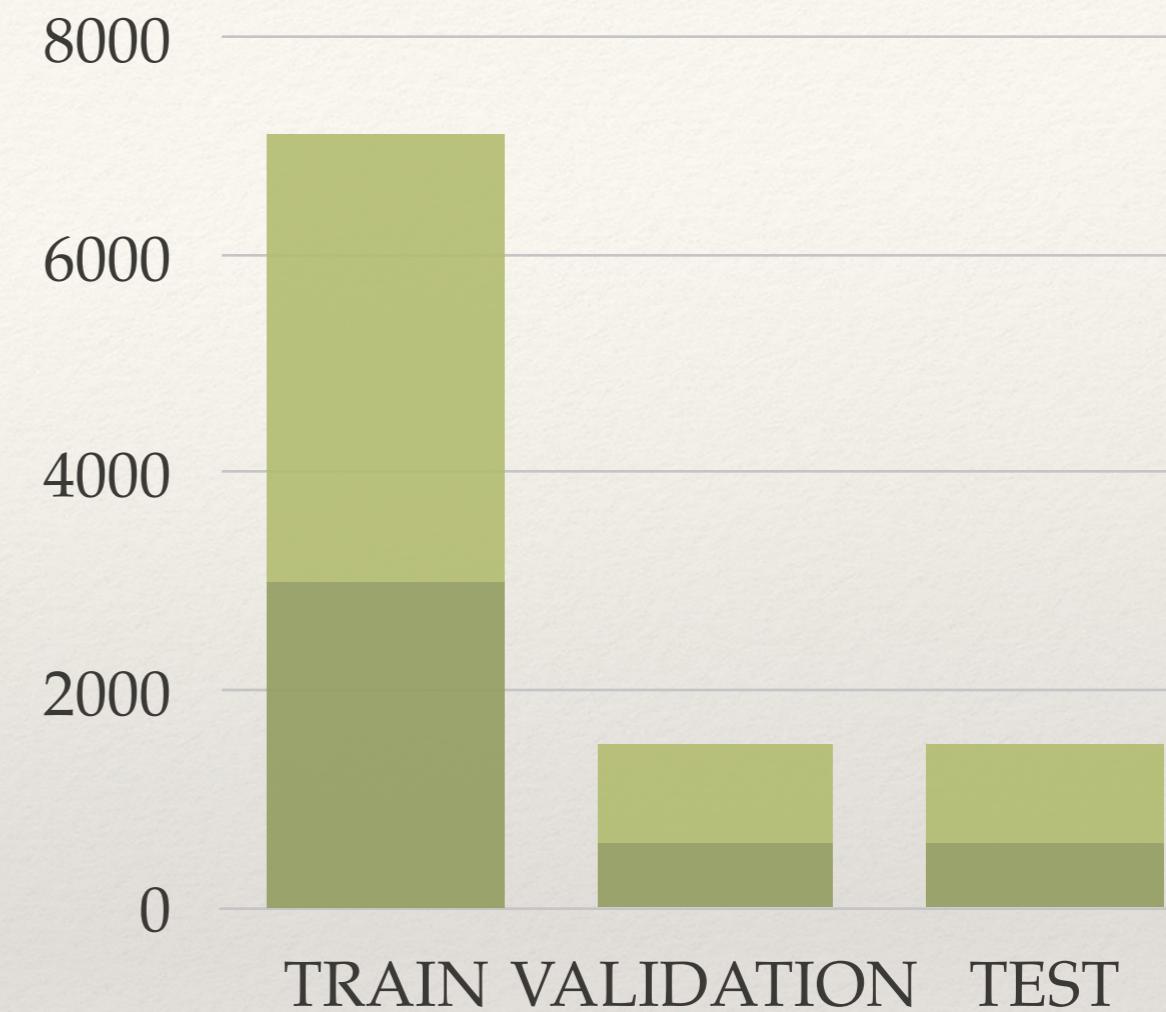


LOW COST / RISK / TIME

Data Understanding



DATA DISTRIBUTION



METHODOLOGY

DIVIDE THE DATASET INTO 3 SETS
TRAIN / VALIDATION / TEST WITH 70% /
15% / 15% RATIO

APPLY DIFFERENT NEURAL NETWORK
MODELS

AS EVALUATION METRIC ARE
CHOSEN ACCURACY, RECALL FOR

THRESHOLD FOR SENSITIVITY AND
SPECIFICITY IS 90%

MODEL COMPARISON

	Baseline Model	Regularized Model	CNN Model	Deep CNN Model	Xception Model	VGG inspired Baseline	VGG3	VGG5
Accuracy	77%	77%	82%	75%	55%	72%	53%	69%
Sensitivity	41%	41%	53%	99%	77%	100%	79%	100%
Specificity	99%	99%	98%	32%	18%	25%	10%	18%

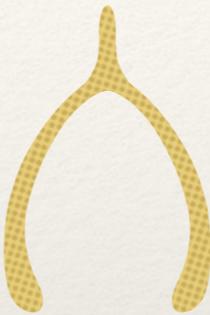
FUTURE WORK



Afterwards our model should be used by medical experts to do diagnosis and decide further treatment options.



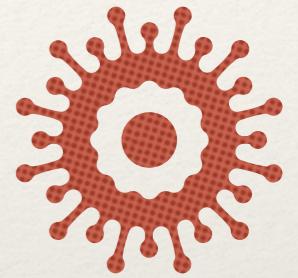
To get higher accuracy score should implement oversampling method



Dataset can be augmented and we can balance our target variable



More transfer learning models can be trained to get better accuracy and recall scores



COVID-19 dataset will be applied as test data to detect COVID-19 cases

THANK YOU



ANY QUESTIONS?

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