PNEUMONIA DETECTION

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Data Science Flex

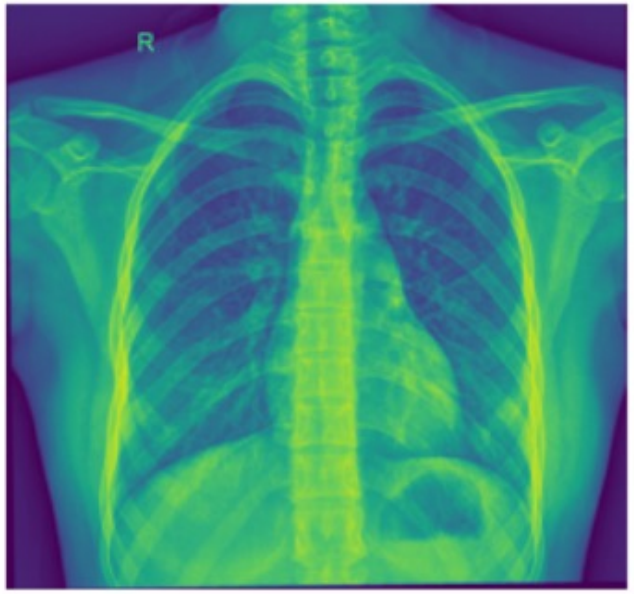
THE PURPOSE

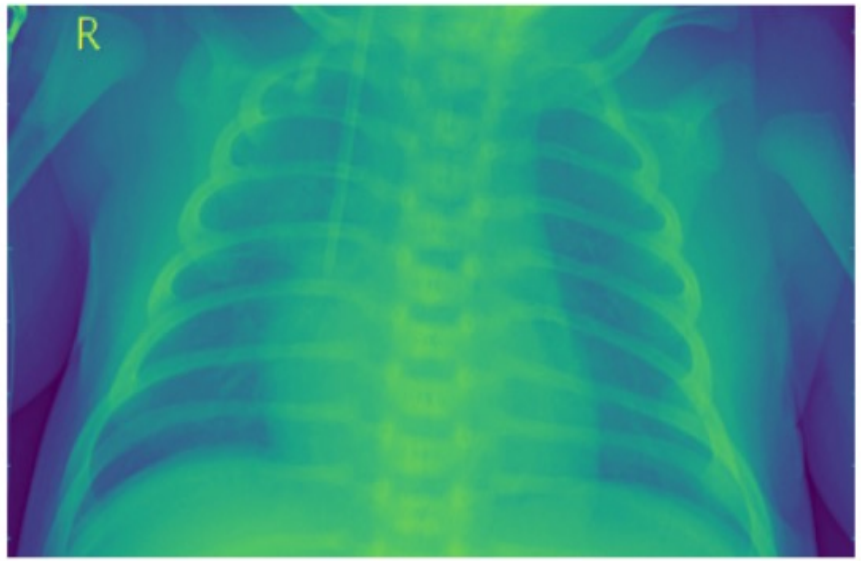
- Predicting pneumonia with X-Ray images for HealthWorx, a telehealth company
- Responsible for 15% of all deaths in kids under 5 in 2017

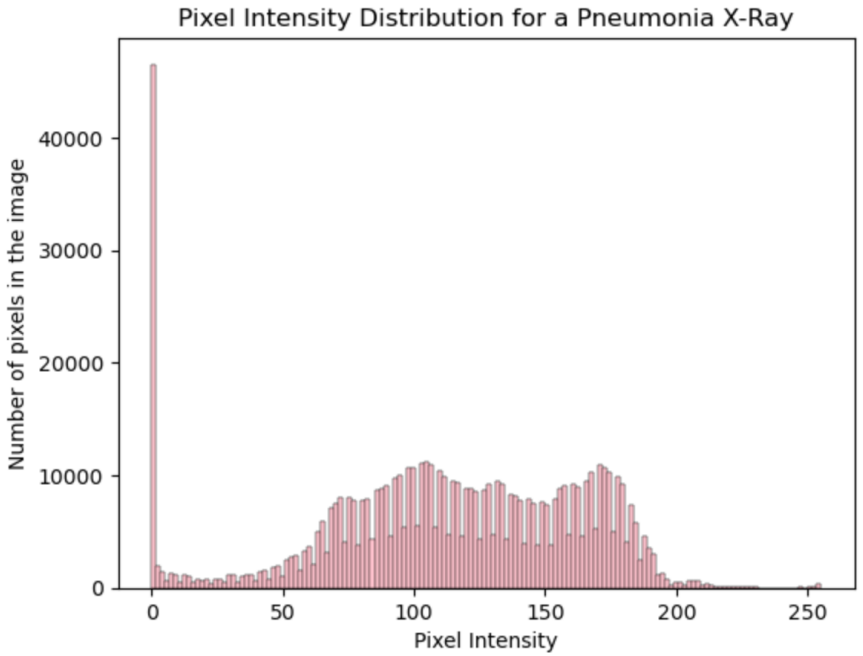
  (World Health Organization)
- Decrease emergency room wait times and get faster care
- 5,860 total X-Ray images in dataset

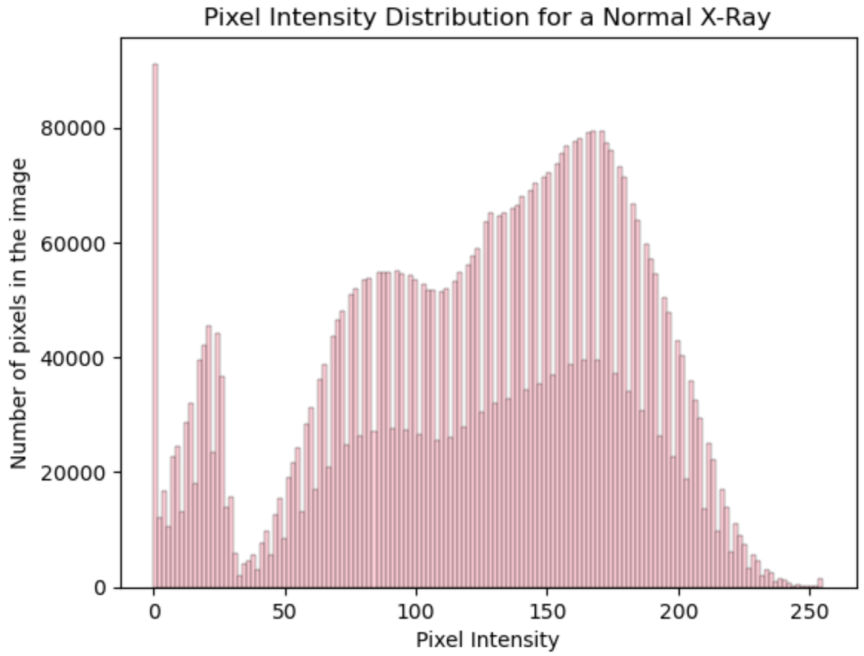
```
train_set:
---------
Pneumonia = 3476
Normal = 942


val_set:
---------
Pneumonia = 409
Normal = 409


test_set:
---------
Pneumonia = 390
Normal = 234
```

PNEUMONIA OR NOT?





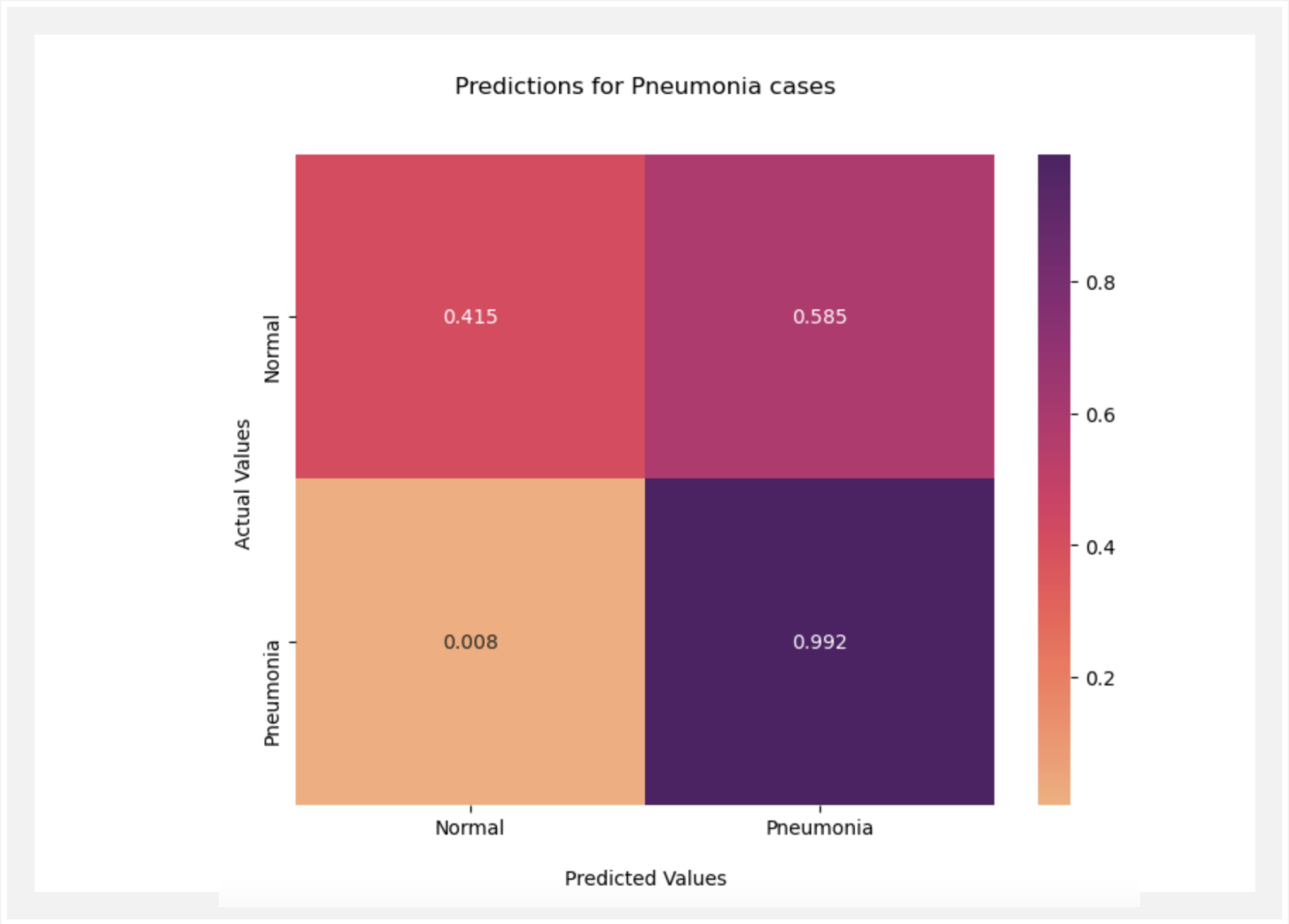




PIXEL INTENSITY COMPARISON

FINAL CONFUSION MATRIX

- - 99.2% true positive rate
- - .08% false negative rate
- - 59.5% false positive rate



RECOMMENDATIONS

- - Use Inception V3 for modeling purposes
- - Generate patient data to ensure we're training the model on diverse demographics
  - - Age, sex, race, smoking history

  - With more time, try other models, and with more resources, use more X-Ray images

QUESTIONS

If there are questions after the conclusion of the presentation, I can be reached at deannagould4@gmail.com.