# Pneumonia Model Analysis

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### Summary

Predicting if someone has pneumonia

#### Cost Trade-off:

- Future health risks
- Wasted resources/time/money

### **Outline**

- Business Problem
- Data Understanding
- Limitations
- Model/Evaluation
- Conclusion
- Next Steps

#### **Business Problem**

- Diagnostic Imaging Center; explore Neural Networks
- Goal: predicting pneumonia in patients
- Increased accuracy/efficiency/decreased workload →
  - company growth/better patient care

### Data Understanding

- Medical center located in Guangzhou, China.
- "Chest X-ray images (anterior-posterior) were selected from retrospective cohorts of pediatric patients of one to five years old from Guangzhou Women and Children's Medical Center, Guangzhou."
- 6,000 images, 2 categories

#### Limitations

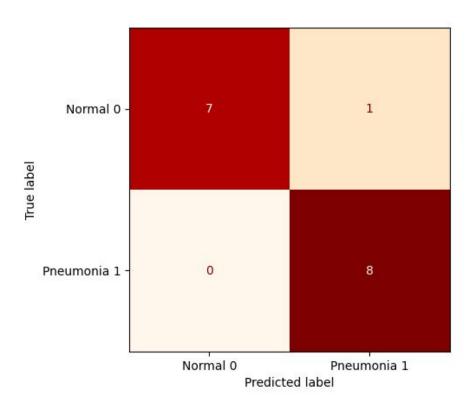
- Account for all pneumonia x-rays
- Reproducibility
  - Age
  - Location
  - Size
- Patterns/trends
- Data Enrichment

#### **Model/Evaluations**

- Model = ~100% (only 16 images)
- Cost Trade-off
  - Future Health Risk

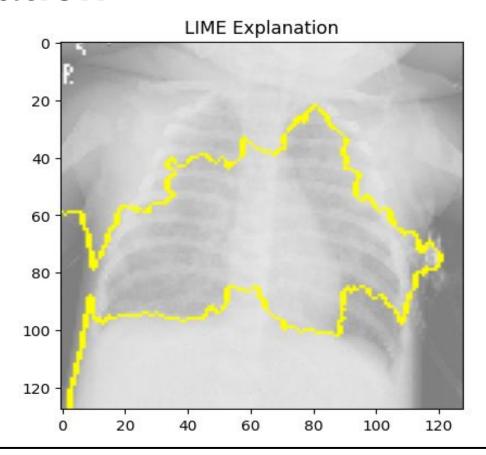
VS.

 Wasted Resources, Time, and Money



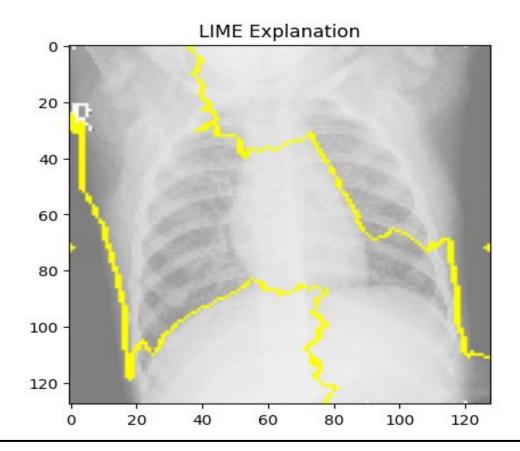
#### Model/Evaluation

Interpret instance of Pneumonia



#### Model/Evaluation

Interpret instance of "Normal"



#### Conclusion

- Predict who has pneumonia
- Improved accuracy, efficiency, decreased workload →
  company growth/better patient care
- Model = ~100%

## **Next Steps**

- Cost trade-off
- Gather more images
  - o Age
  - Location
  - Size
- More reliable/accurate model

# Questions

# Thank you

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