
Pneumonia Model Analysis

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Summary

Predicting if someone has pneumonia

Cost Trade-off:

- Future health risks
 - Wasted resources/time/money
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Outline

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

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

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

- Model = ~100% (only 16 images)

- Cost Trade-off

- Future Health Risk

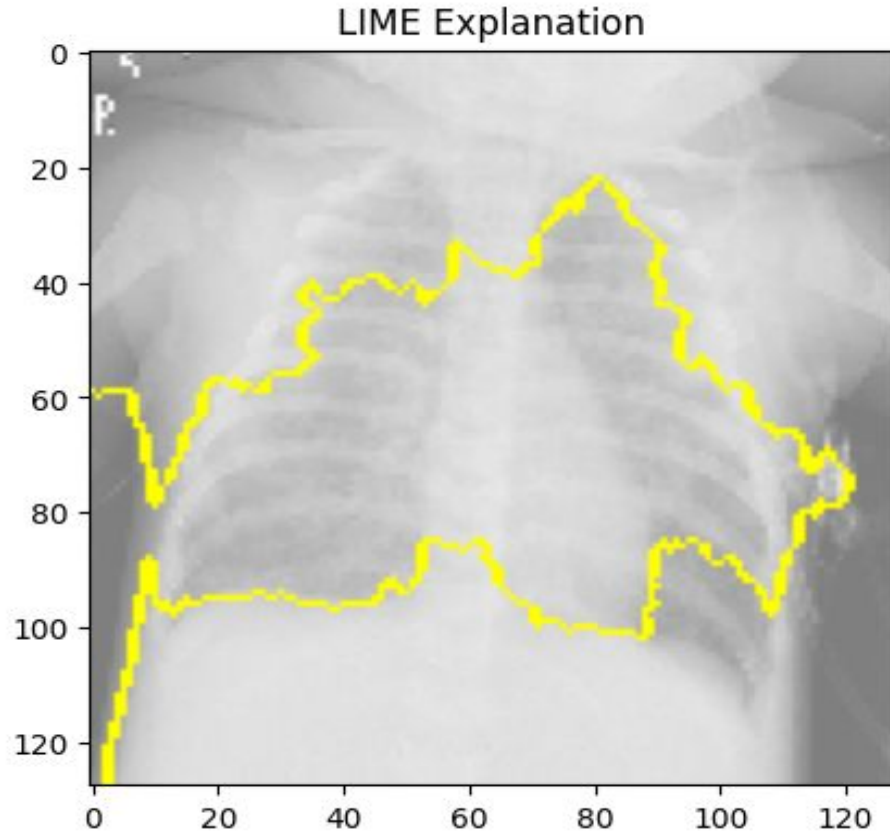
vs.

- Wasted Resources, Time, and Money

True label	Normal 0	7	1
	Pneumonia 1	0	8
		Normal 0	Pneumonia 1
		Predicted label	

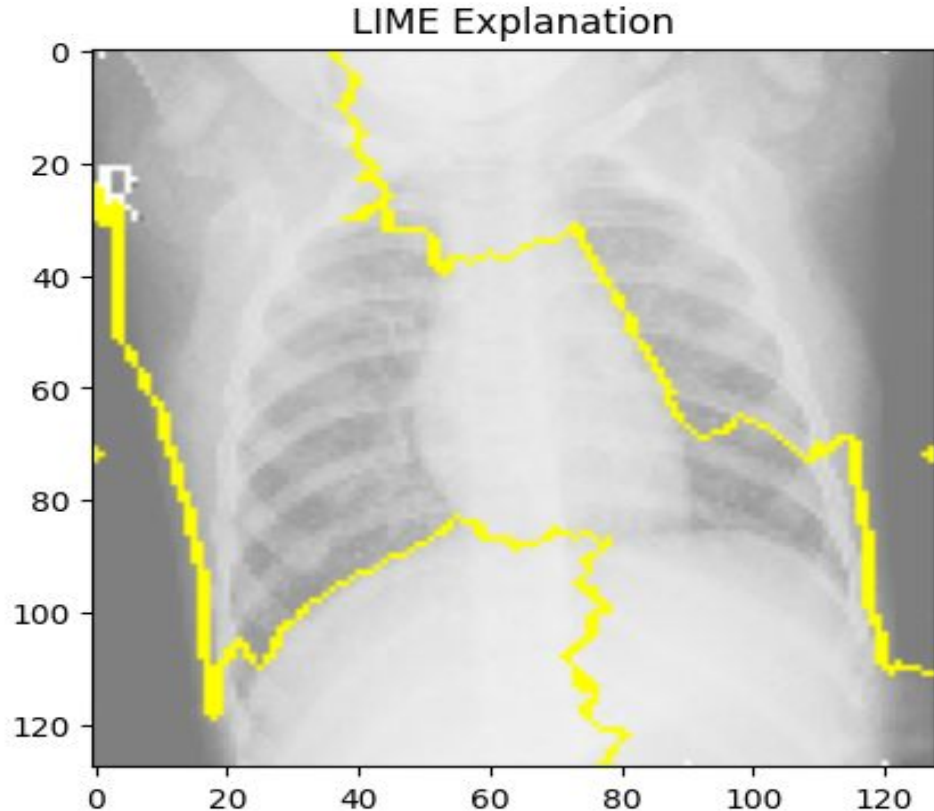
Model/Evaluation

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%
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Next Steps

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

Thank you

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Github:

https://github.com/johnlocke333/h1n1_flu_analysis

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