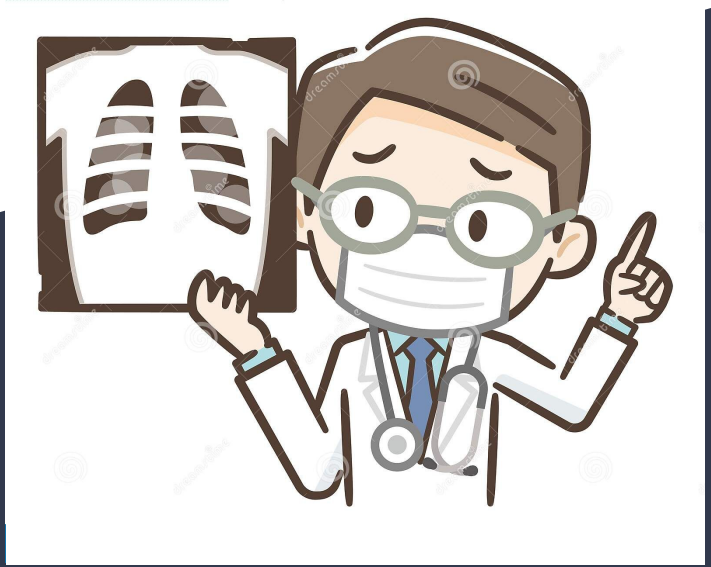
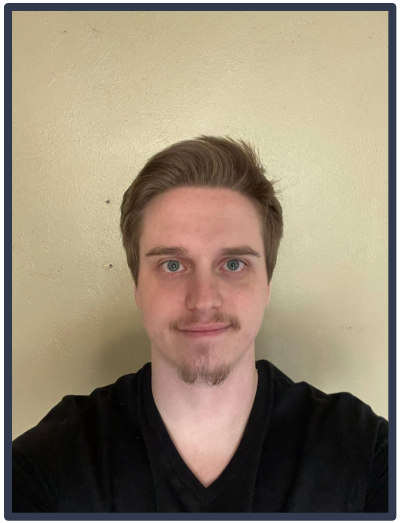
The Fight Against Pneumonia

By Drew Bernklau, Carlos McCrum, Jared Mitchell



Team



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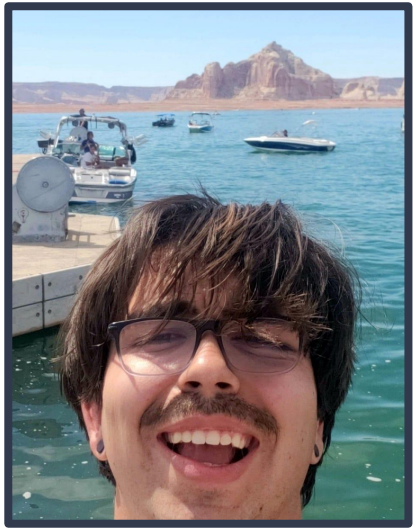

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Agenda Overview
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Business Understanding
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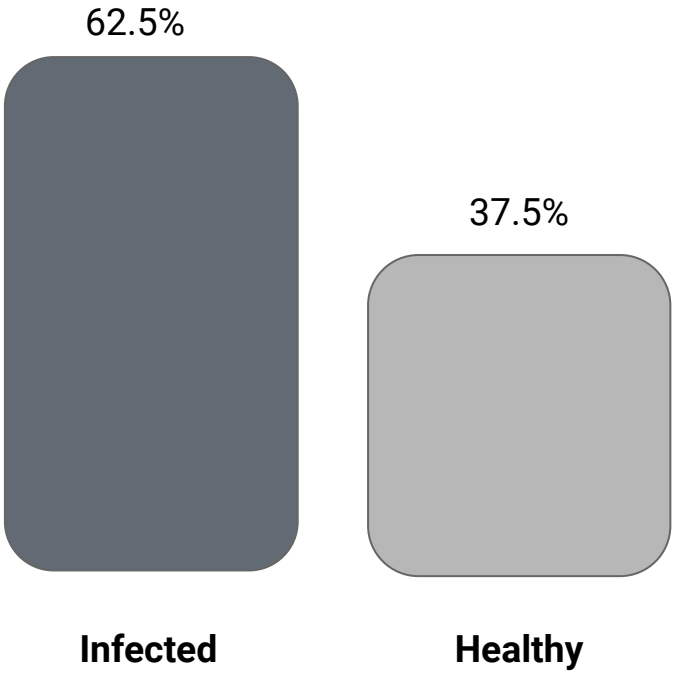
90% Accurate in Determining Infection

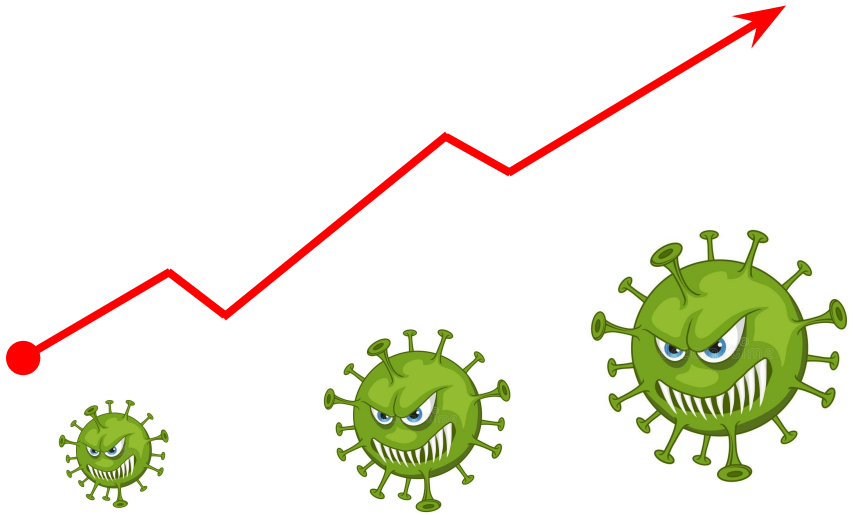


Business Understanding

A Need for Machine Learning (ML) in Medical

Pneumonia Scare

- 1.5 mil ER visits
- ~2 mil deaths in children
- 16% increase in deaths



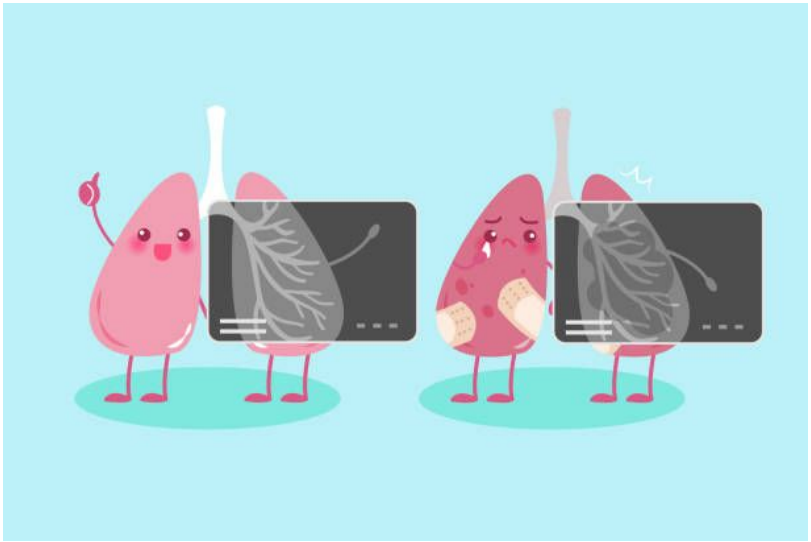
How can ML help Radiologists?

- Predictive analysis

Dataset Overview

Guangzhou Women and Children's Medical Center

- ~5.5k validated chest X-rays
- Ethically Approved
- High amount of infected



Methods

Motivation

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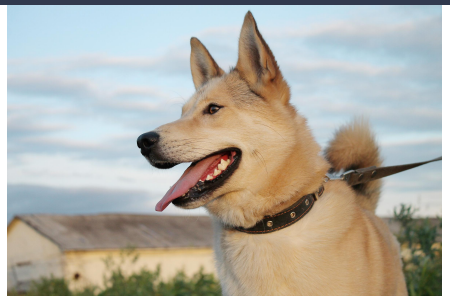

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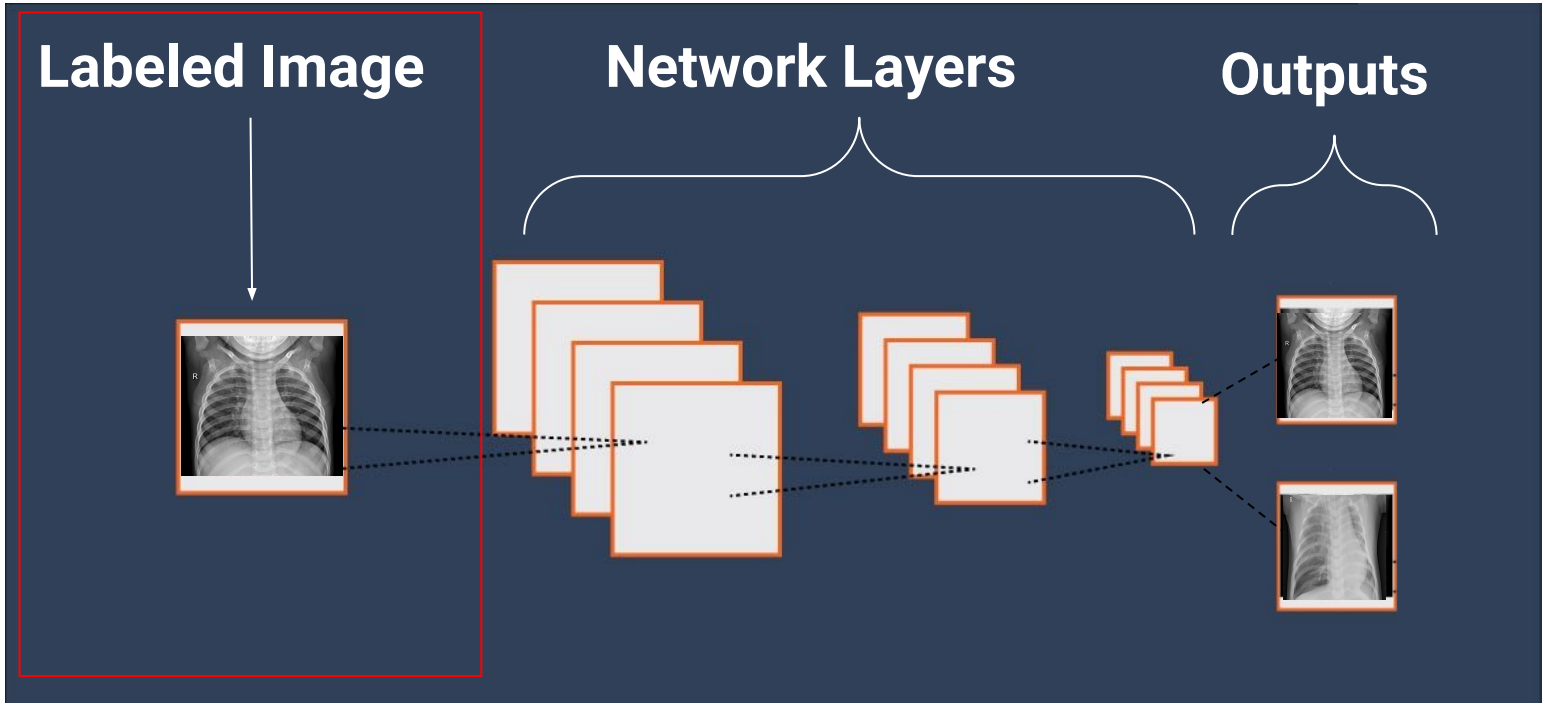
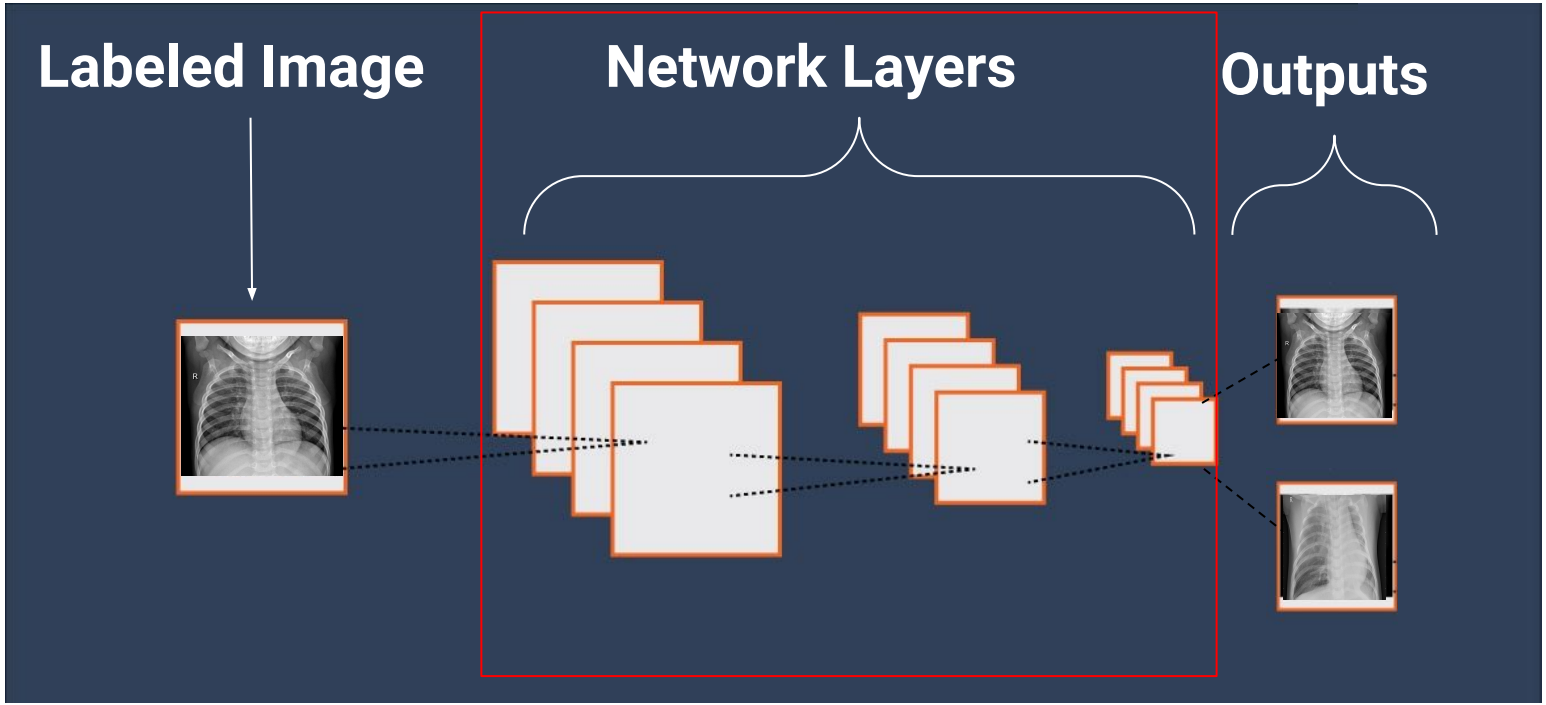
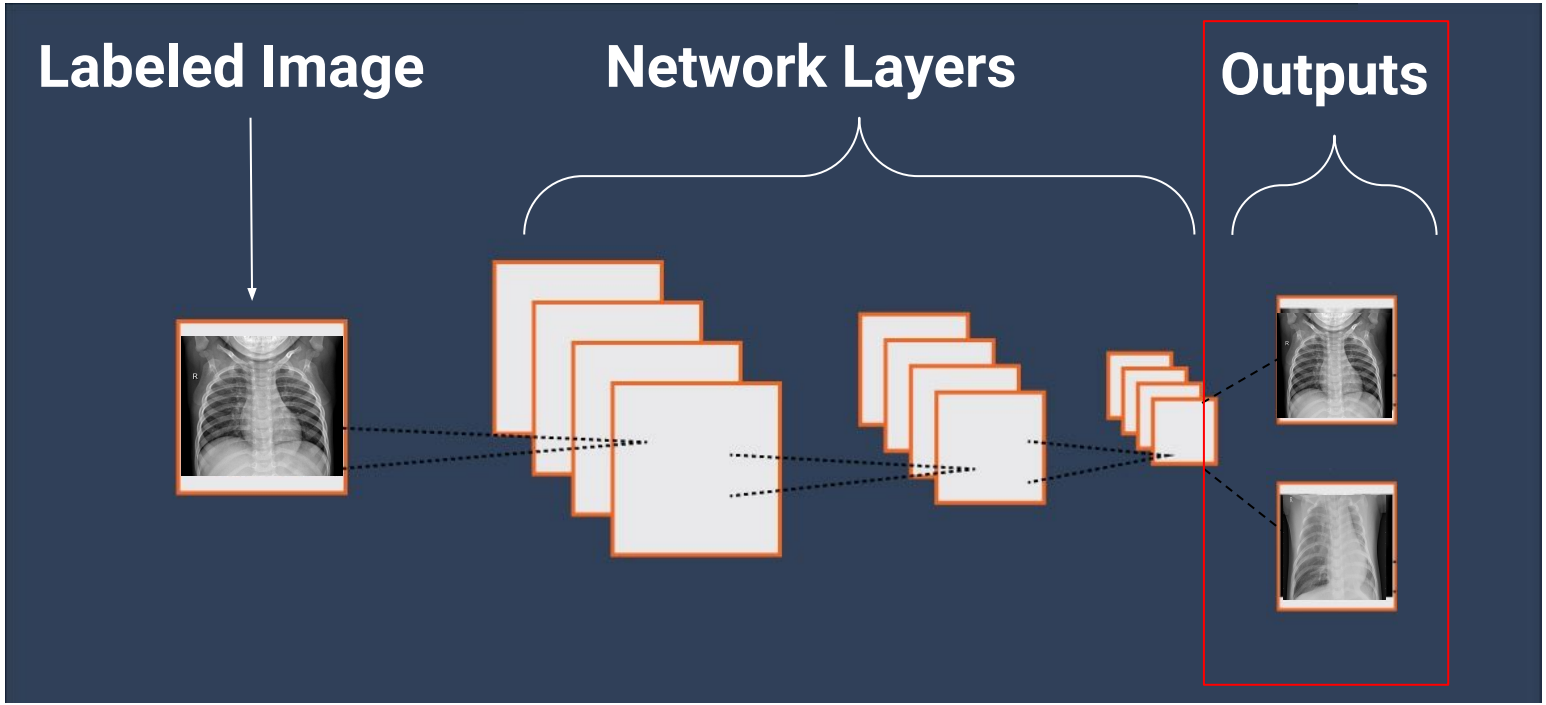
Neural Network



Neural Network

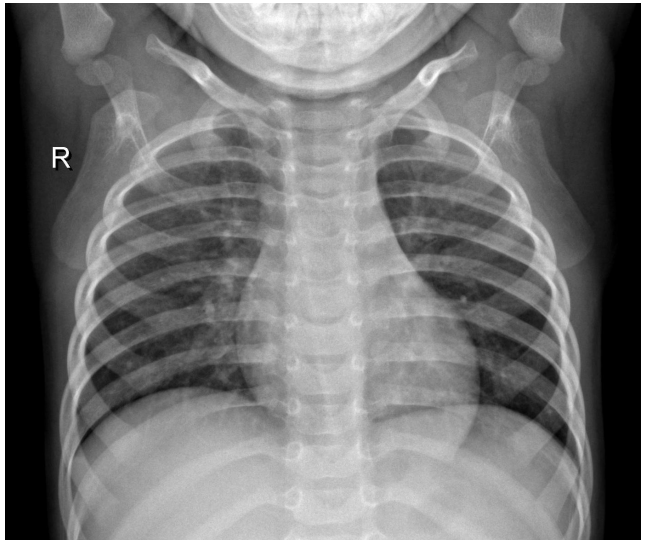


Neural Network

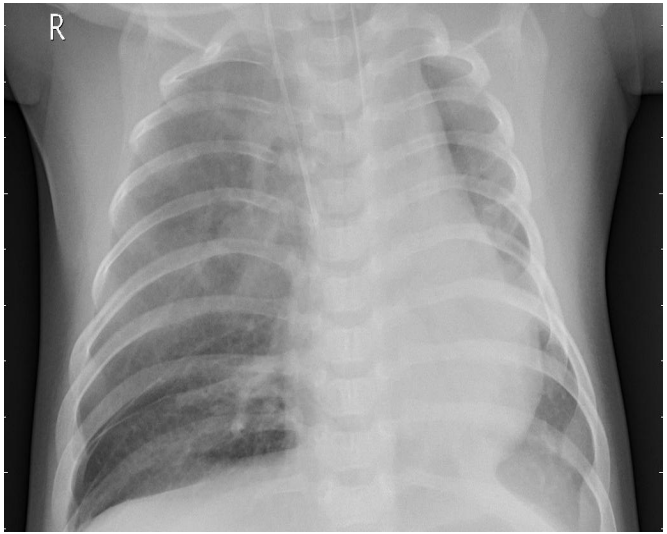


Analysis

Determined Outcomes



Normal



Infected

Minimize Error for Infected and Non-Infected

- Tuned our model based on accuracy
- Final accuracy of 90%

Conclusion

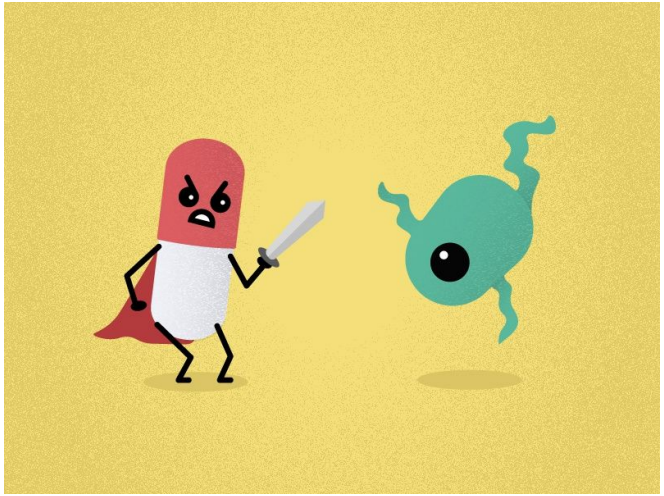
With a Successful Model Comes Education

- Should **not** be used for diagnosis
- Should be used as a **confirmation** tool

Future Research

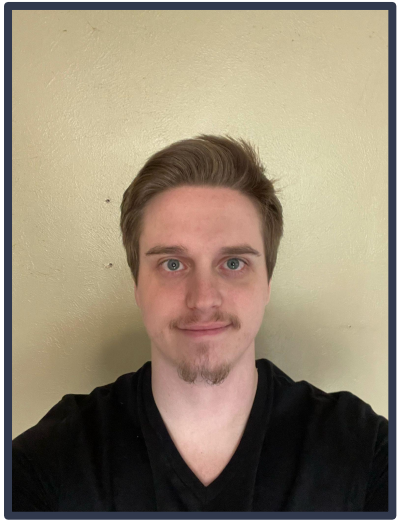
More images and best practices

- Collect additional X-rays
- Pre-existing conditions
- Knowledge of demographics
- Look into treatment statistics



Questions?

Thanks!



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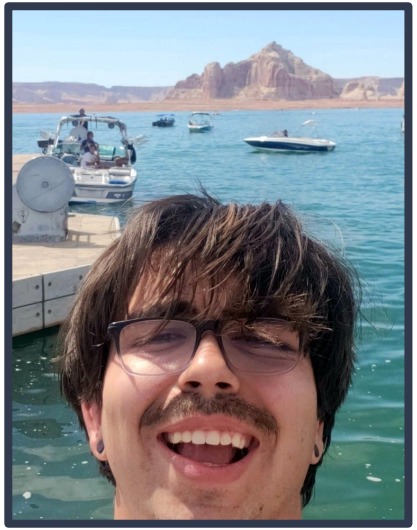

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