Pediatric Pneumonia Detection

Using Convolutional Neural Networks

Table of **contents**

1 Introduction

2 Methodology

3 Results

4 Limitations

5 Recommendations

1

Introduction

Our Client

WeCare

a national non-profit healthcare provider, is building a

vMD

(virtual doctor) .

We are tasked with building a image classifier that can identify pediatric pneumonia

Why Pneumonia?

High Social Cost

* 6th leading cause of pediatric death in the U.S.

*1.9 million children die of pneumonia each year

High Economic Cost

About a billion dollars

2

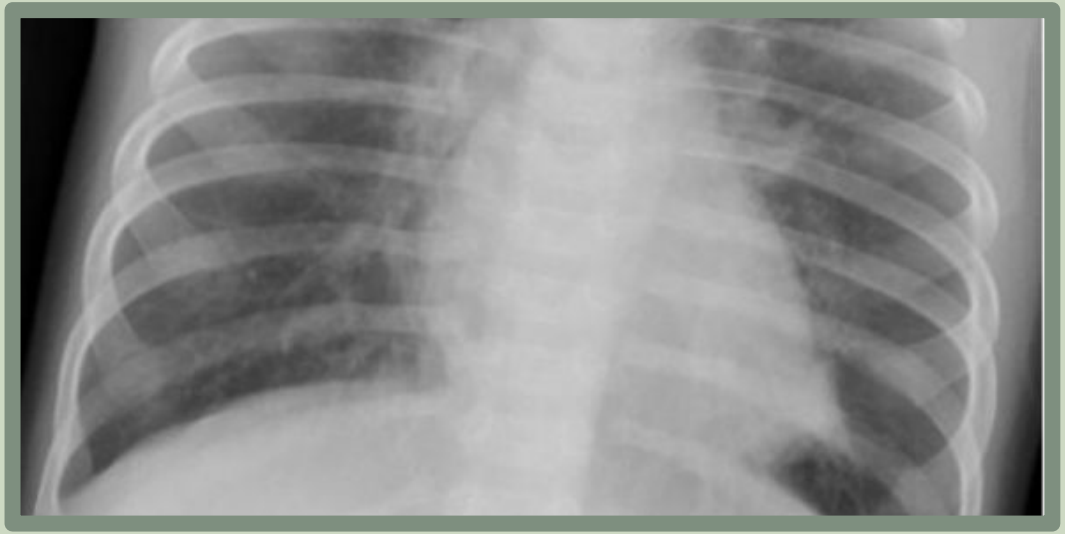
Methodology

Methodology

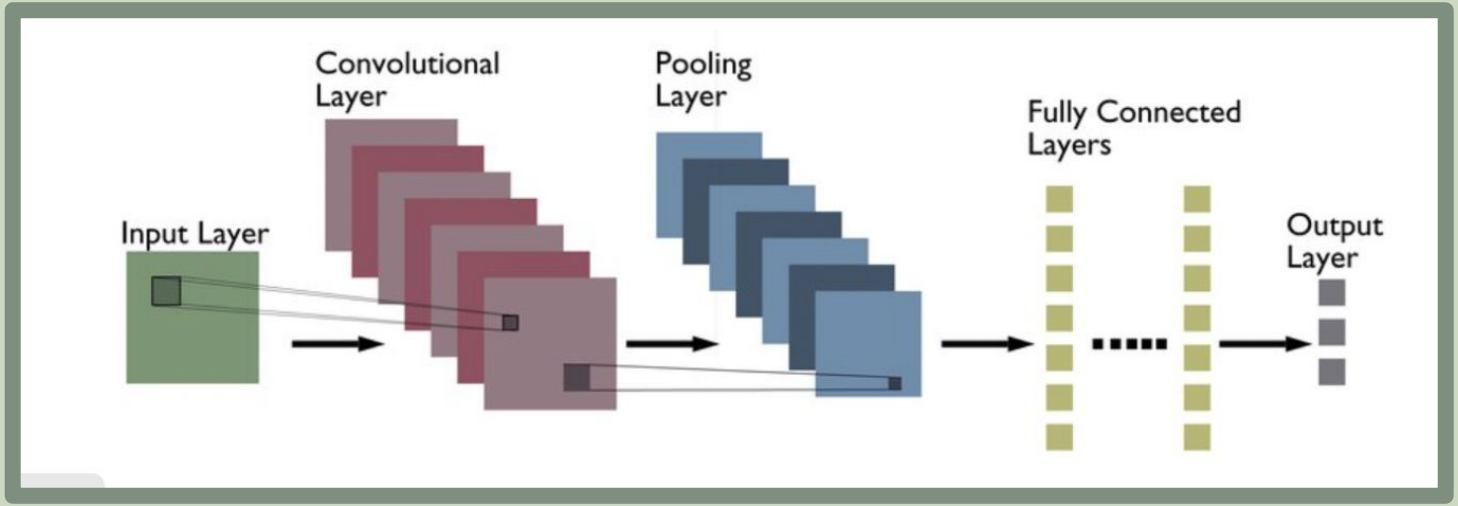
1
Read in x-rays

2
Build CNN

3
Fine tune models



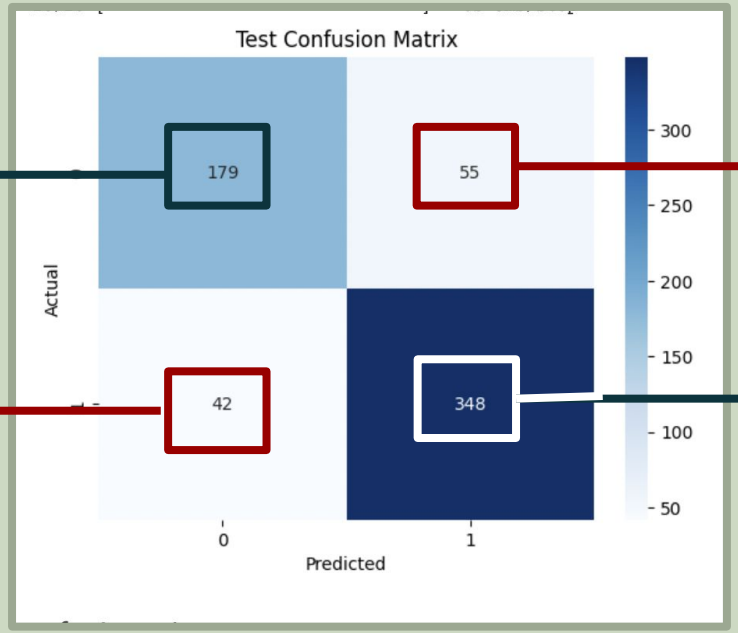
What's a CNN?


Convolutional Layer
Pooling Layer
Fully Connected Layers
Input Layer
Output Layer

3

RESULTS

Results



true negative (normal)

False negative (pneu)

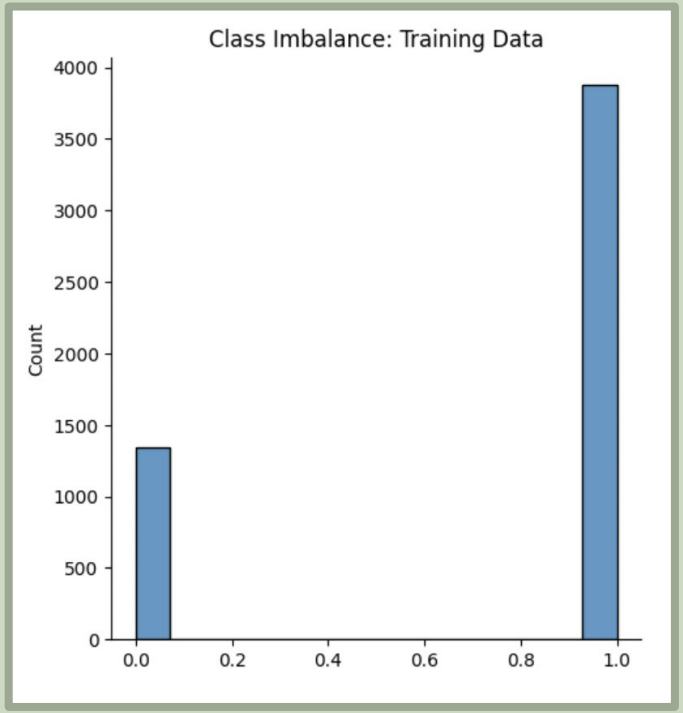
false positive (normal)

true positive (pneu)

4

LIMITATIONS

Class Imbalance



84%

accuracy for our test set

11%

of our test pneumonia cases misclassified as normal

23%

of our test actual normal cases misclassified as pneumonia

5

RECOMMENDATIONS

human diagnosis accuracy rate:

59%

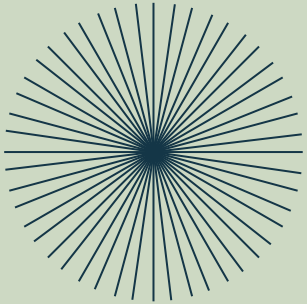
Our model is ready for deployment

We should continue to fine tune, experimenting with cutoff rates, image augmentation, and weight adjustments.

Thank You

for your time

And special thanks to FlatIron, especially to A. Kulkani, my instructor



Any questions?
https://github.com/slowings

Want to see the full repo?
https://github.com/slowings/Phase_4_Final_Project

CREDITS: This presentation template was created by **Slidesgo,** and includes icons by **Flaticon** and infographics & images by **Freepik**