DIAGNOSING PEDIATRIC PNEUMONIA:

X-ray image classifcation with Convolutional Neural Networks

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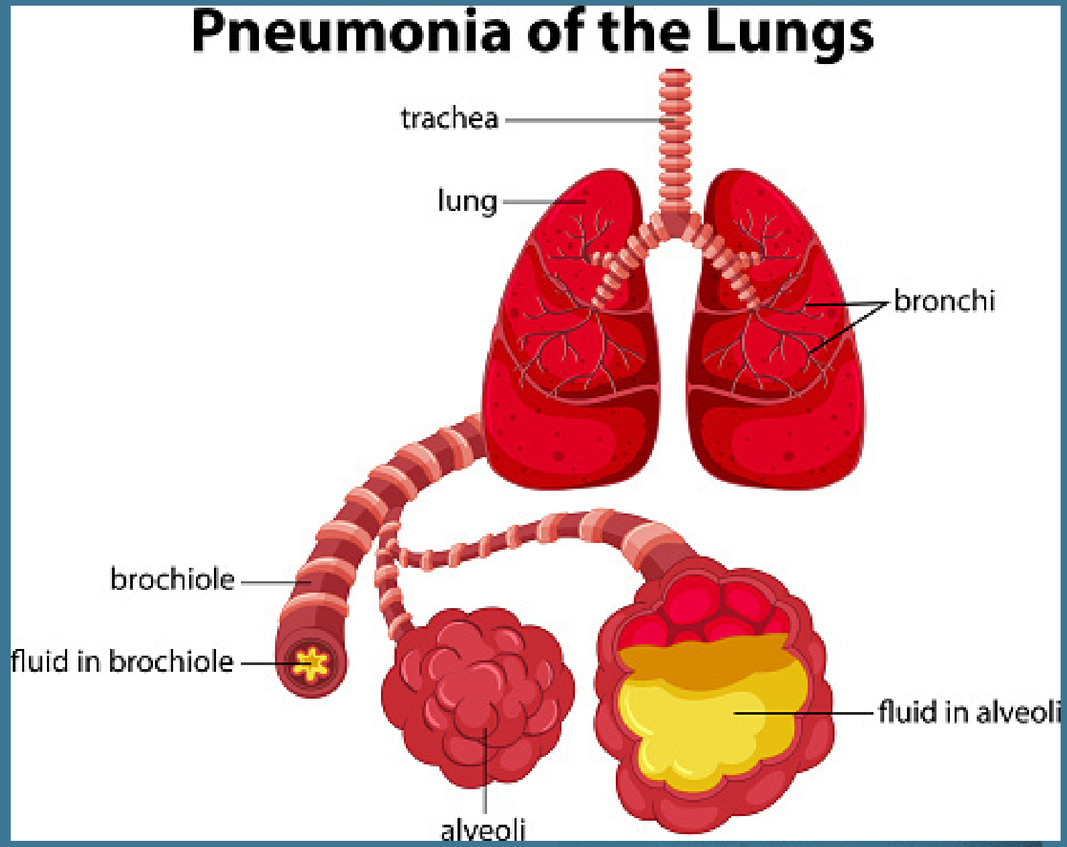
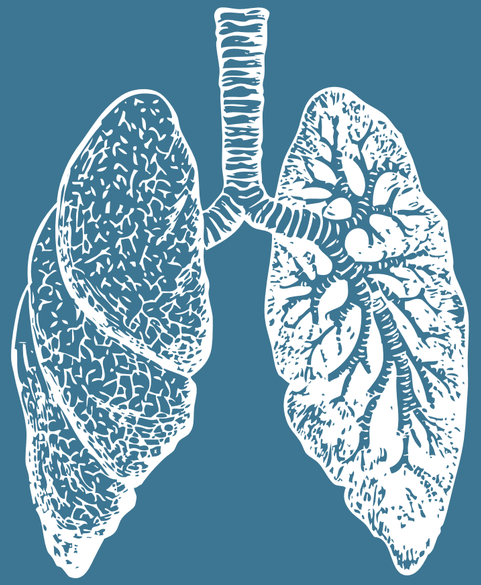
BUSINESS UNDERSTANDING

- Pediatric Pneumonia
  - Acute respiratory infection
  - 14% of all deaths (<5yrs)
  - 740,180 deaths 2019
  - Can be identified in X-rays



Source: WHO

OVERVIEW

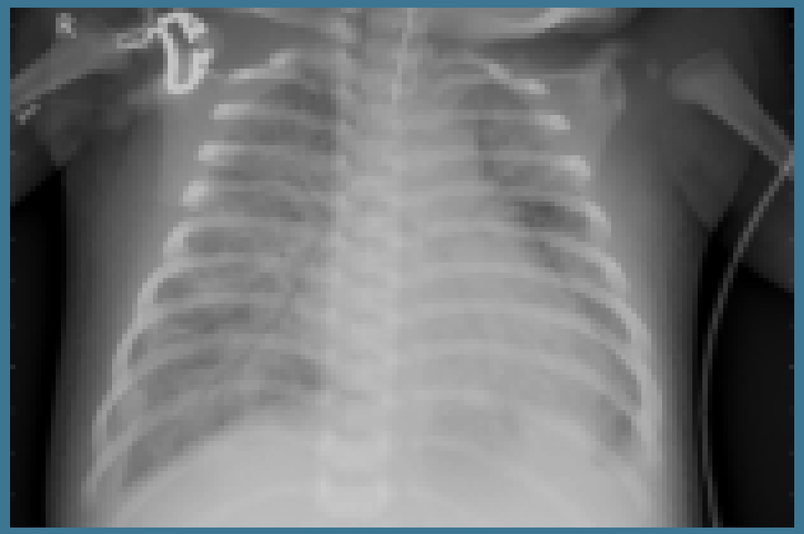


1. Business Understanding
2. Data Understanding + Preparation
3. CNN Modeling and Methods
4. Results/Conclusions
5. Next Steps

DATA UNDERSTANDING

NORMAL

PNEUMONIA



Guangzhou Women and Children's Medical Center, Guangzhou

5,856 Chest X-ray images of children under 5yrs

Normal vs. Pneumonia

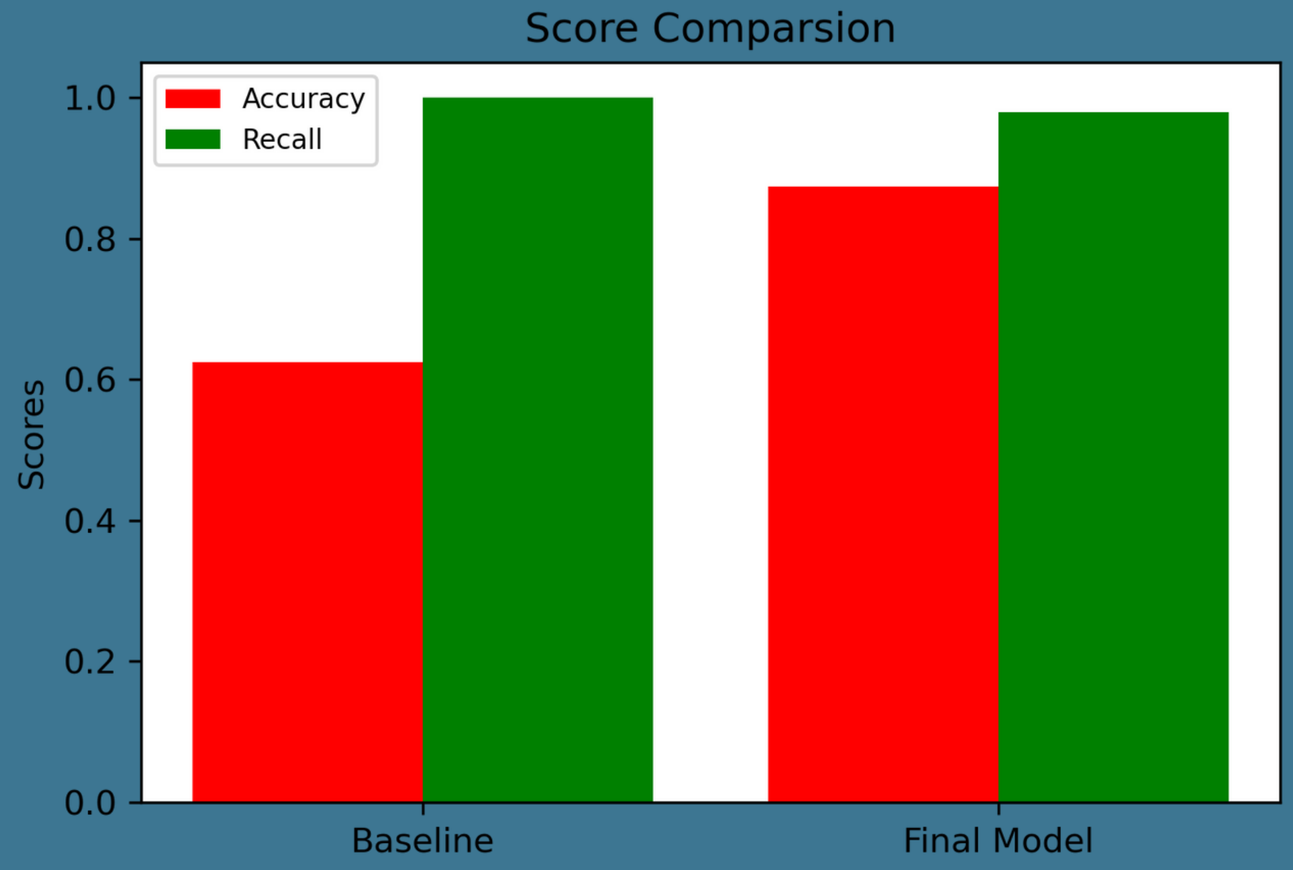
Dataset split into Train, Validation, and Test

Dataset sourced from:
Kaggle

DEEP LEARNING MODEL

Convolutional Neural Network

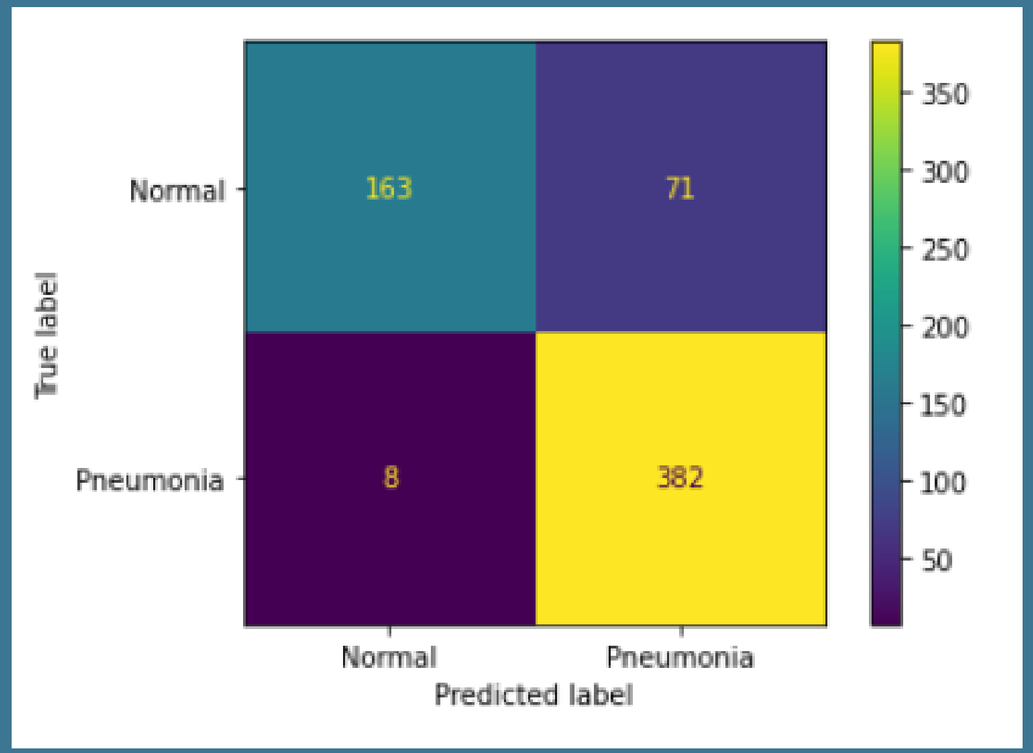
Tensorflow-keras



RESULTS/CONCLUSIONS

Confusion Matrix

Accuracy: 87%
Recall:98%



NEXT STEPS

More data!!!

Images with better quality

Expand datatset from other hospitals

Continued adjustment of hyperparamters

Classify different kinds of Pneumonia

QUESTIONS?

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