Detecting Pneumonia with Deep Learning

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WHO Objective - Improve Testing for Pneumonia

Top 5 Causes of Death

- < 5 years old

Predict

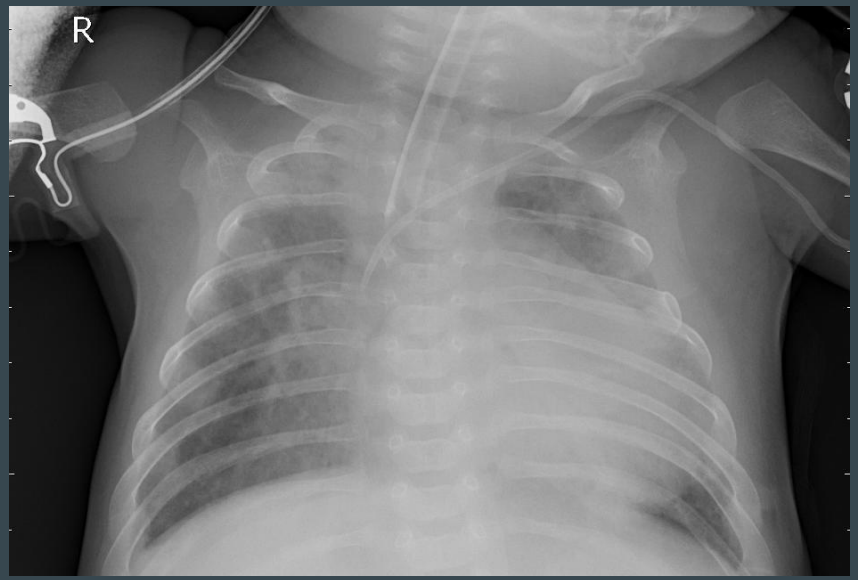
- Which kids are sick?

Expedite

- Slow/expensive tests

Take Action

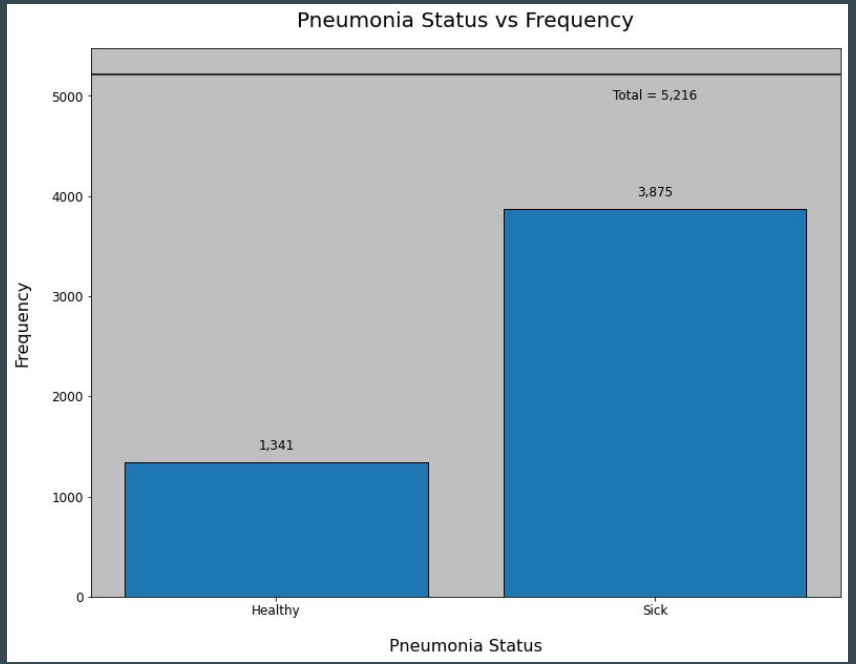
- Isolate and treat quickly



Data - Chest X-Rays

5,216 training images

- 1,341 healthy kids
  - Normal image
- 3,875 sick kids
  - Bacterial pneumonia
    - Focal lobar consolidation
  - Viral pneumonia
    - Diffuse interstitial pattern



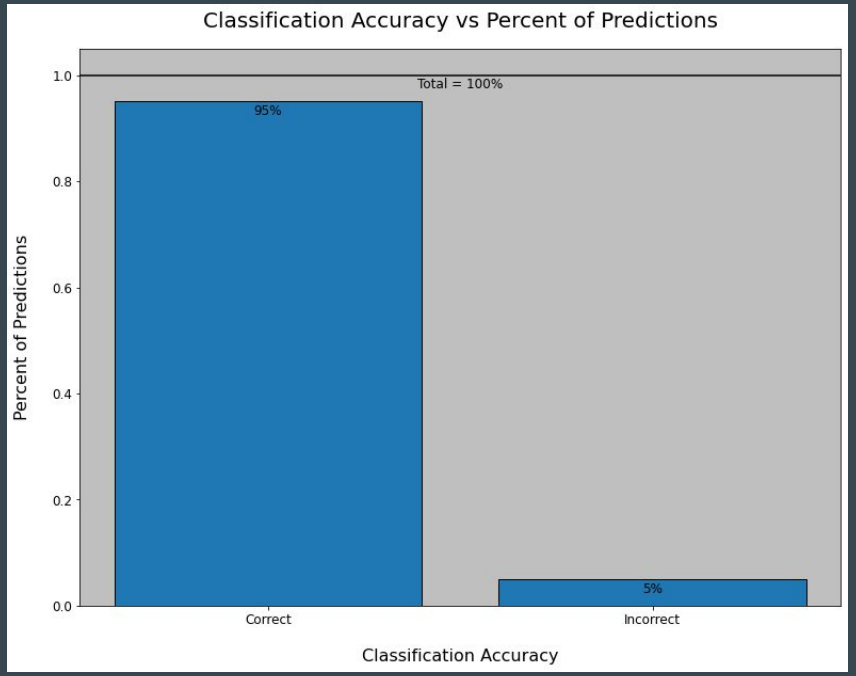
Results

PneuNet

- Deep Learning
- Convolutional Neural Network

Performance

- 95% Classification Accuracy



Conclusions

Recommendations:

- Adopt PneuNet
  - Uses existing tools
- Send the image
  - Processes quickly
- Take action
  - Isolate and treat quickly

Moving Forward

Next steps:

- Engineer
  - More data
- Improve
  - Accuracy
- Expand
  - Different models

Thank you!

Email

GitHub

LinkedIn