Pneumonia or Pnormal?

Creating predictions from x-ray images
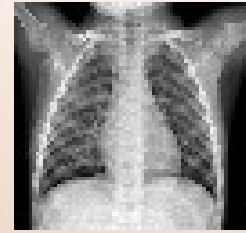
By Alex Billinger

Example Images

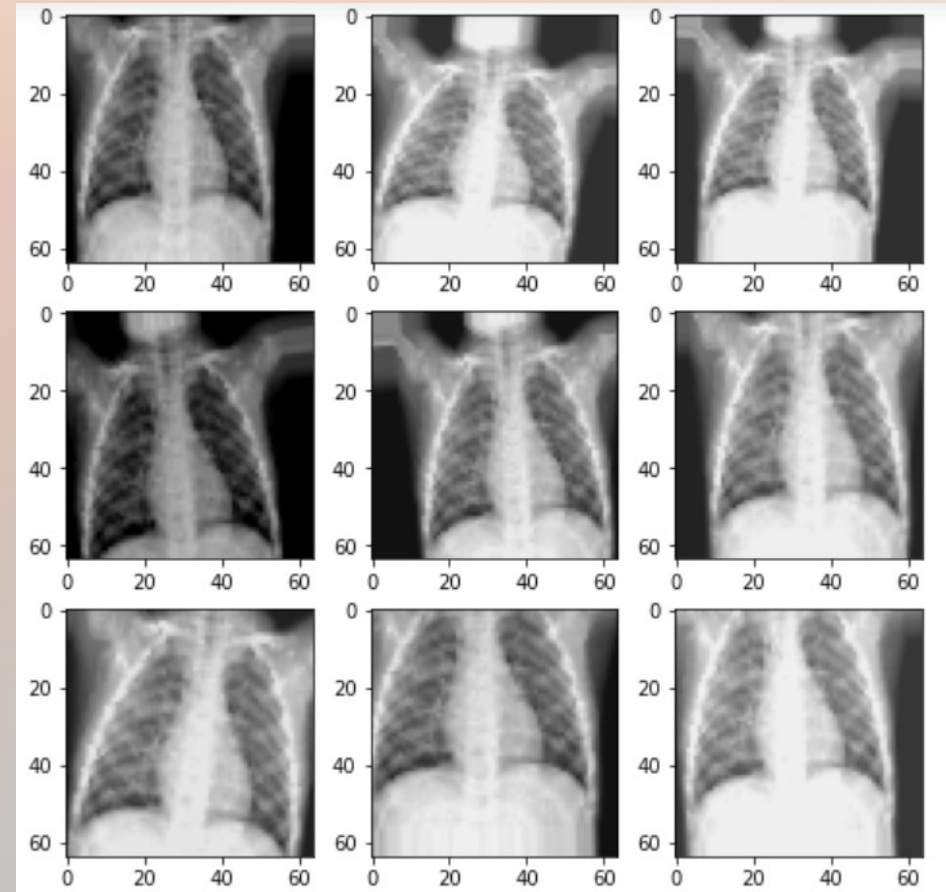- Pneumonia

- Normal
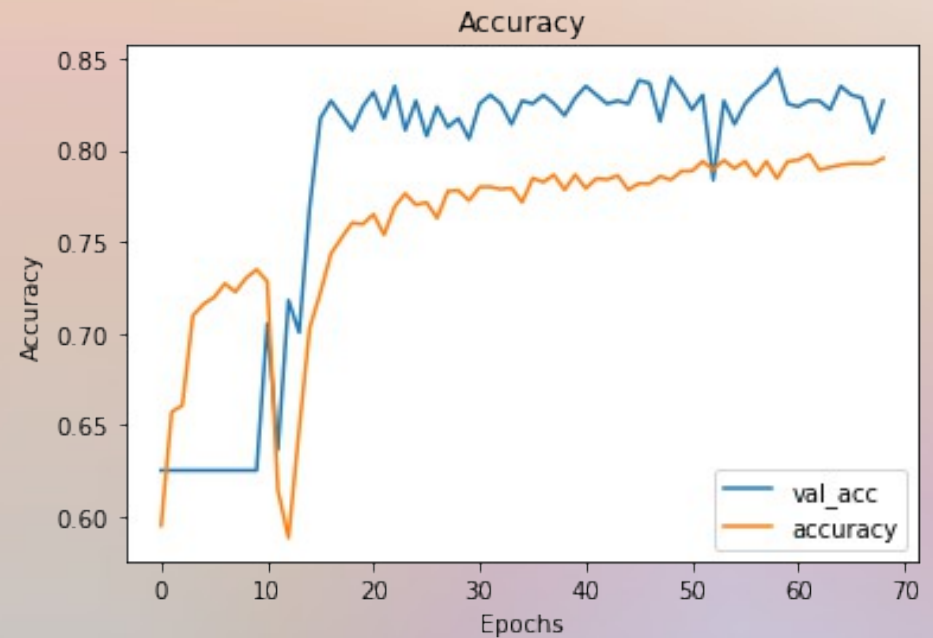
Not Enough Data!

- 5000 images for training

- Complex models need tons of data
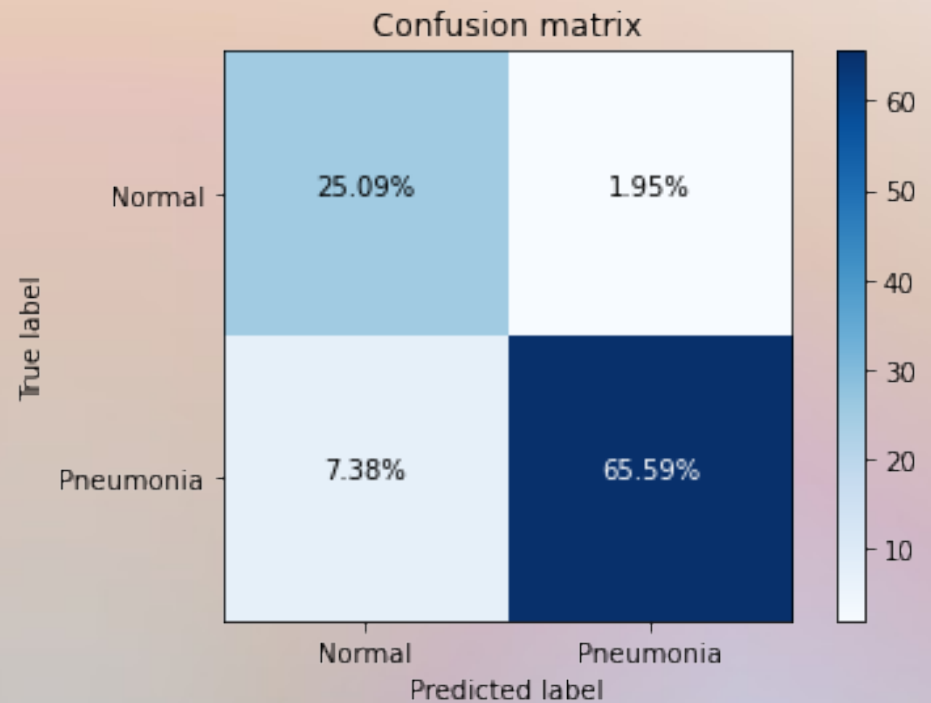
- Solution: generate more!
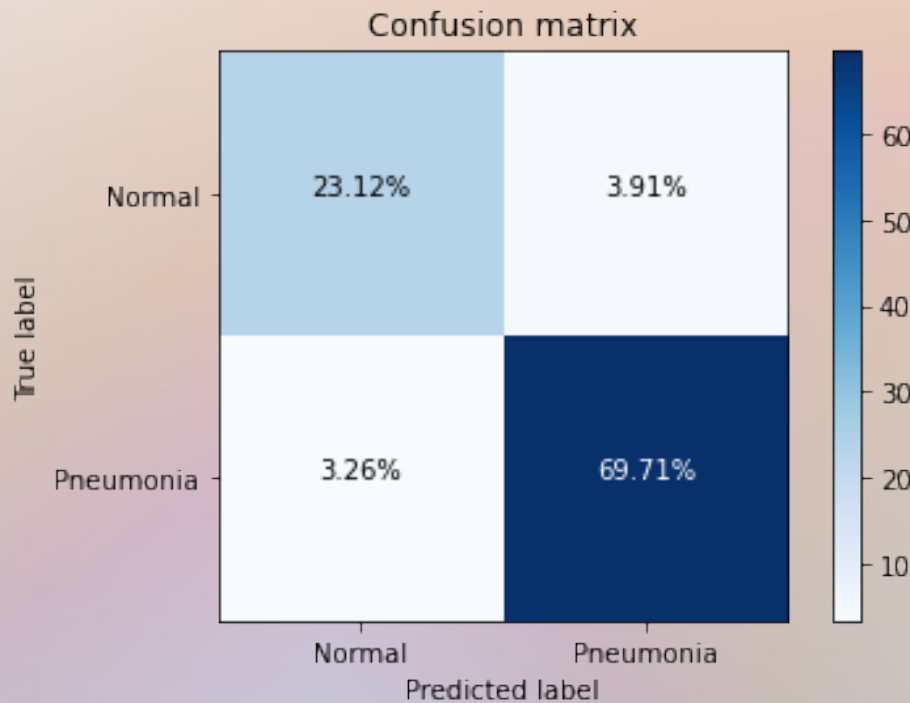
Building a Model

- Final accuracy is around 80%

Accuracy

Accuracy of Model

- Fairly high accuracy

- More samples have pneumonia

- False negatives disconcertingly high

Lower Threshold

Confusion matrix

	Normal	Pneumonia
Normal	23.12%	3.91%
Pneumonia	3.26%	69.71%

- Better to assume sick and be wrong than vise versa

- If model predicts 30% probability or more, will be labeled positive

Interactive Tool

- [Link](#)

- Upload an X-ray image, and this tool will use the developed model to predict the probability that the patient has pneumonia!

Future Work

- **More data**

- Generated images helped, but are not nearly as useful as completely new images would be

- Increase complexity, to increase accuracy

- Favor false positives over false negatives

Thank you!