

X-ray classification project



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Agenda

- Business Problem
- Data Understanding
- Models
- Results
- Thank you

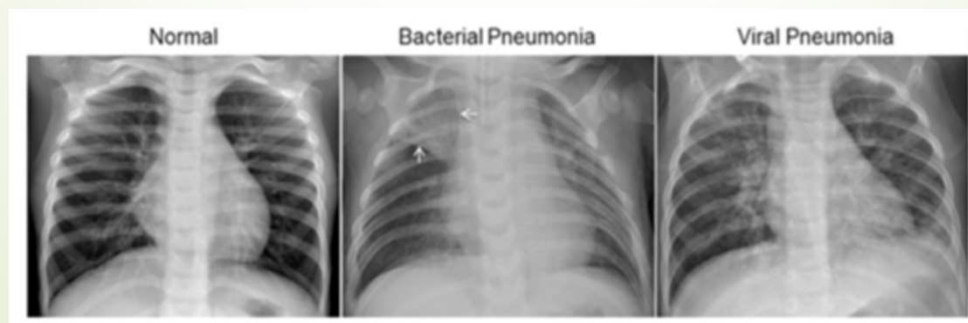


Business Problem

- A radiologist classifies x-rays as Pneumonia or normal.
- The practice has supplied us with their x-rays that they have classified
- Build a model for difficult to classify images.

Data Understanding

- 5,856 chest x-ray images.
- Each image is labelled as either normal or pneumonia.
- 25% of the images are labelled normal and 75% pneumonia.
- Below: infectious material appears white-ish



Models

- Baseline:
 - a neural network with 1 hidden layer, with 64 neurons.
 - Model 1a with only 32 neurons
- 2nd model with added layer
- 3rd model with higher learning-rate

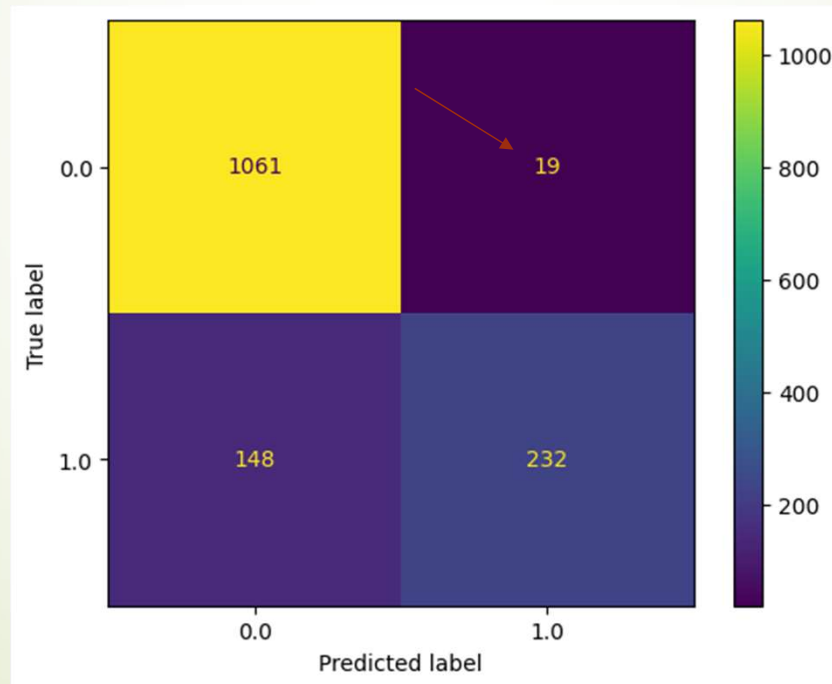
Validation and training accuracies

Model 3 has highest accuracies

	Baseline model	Model 1a	Model 2	Model 3
Val	88%	90%	88%	<u>90%</u>
Training	90%	80%	90%	<u>90%</u>

Results/conclusions

- 88% accuracy compared to 73%
- 19 false negatives and 148 false positives out of 1460 predictions.
- this model can be used as a check by the radiologist





Recommendations and Future work

- This model can be used as a check by the radiologist, for instance on x-rays that they are less certain about.
- The model can be examined to determine the important features and the parts of the image that are most important for helpful insights.
- Future work
 - Use CNN
 - Alter activation functions



Thank you

▀ Questions?

