A decorative graphic on the left side of the slide consisting of two overlapping parallelograms. The front one is blue and the back one is a light green. They are positioned diagonally, with the blue one partially covering the green one.

Diagnosing Pneumonia From X-rays

Zach Paul



Problem Statement and Business Value

Can training a program to diagnose pneumonia be as good as a doctor?

Doctors diagnose by looking at images

By automating more and more processes for doctors, they can be focused on tasks that require a human.

Diagnosing pneumonia will no longer require a doctor and can be done by the x-ray technician right after the test

Methodology

A convolutional neural network was trained using x-ray images from patients with pneumonia

Network tries to find the differences between patients with and without pneumonia

Sick



Healthy

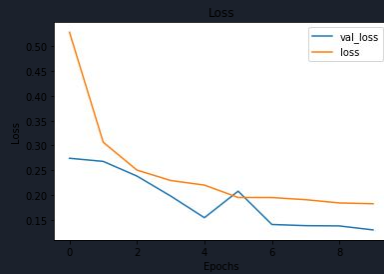


The white spaces here are typically used for diagnosis

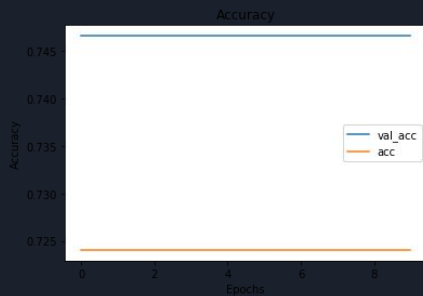
Results

Models gradually improved performance as layers were added.

Final model



74% accuracy





Recommendation

Until the accuracy becomes better, the diagnosis should still be confirmed by an actual doctor.

Sub 95% accuracy is not very convincing



Future Work

Stronger computer

Allows larger images, the images used were incredibly downsized

Larger network

Standardize the xrays a bit more

Not every x-ray was in the aspect ratio or position

Dataset had a mix of children and adults

More training by the model

A blue parallelogram and a light green parallelogram are positioned in the upper-left corner of the slide. The blue shape is partially behind the green one. Both shapes are oriented diagonally, with their longer sides running from the top-left towards the bottom-right. The background is a dark navy blue with subtle, lighter blue diagonal stripes running from the bottom-left towards the top-right.

Thanks for your
time!