# Detecting Pneumonia in X-Rays using Neural Networks

Determining whether a patient has pneumonia using Neural Networks can have significant advantages. For starters, there are multiple tests needed to detect pneumonia such as listening to lungs with a stethoscope, chest X-rays, blood tests, etc. If it can be identified with an X-ray, it could potentially decrease the number of tests that have to be run. Therefore, tests can be run faster, and potentially be cheaper.

The goal of the analysis is to identify the differences between a patient with pneumonia and ones without using neural networks. We will train our code using 1341 pictures of X-rays that have been identified as normal and 3875 pictures of patients who have pneumonia and use 624 pictures of patients to test it. We will adjust the number of nodes needed to have the most accurate identifier of pneumonia possible. The goals of this project will be:

(1) Identify whether a patient has pneumonia using old X-ray image data and neural networks.

(2) Evaluate the effectiveness and accuracy of neural networks for this problem

(3) Find out which neural network combination will have the most accurate identifier of pneumonia

(4) Show whether X-rays alone are reliable enough to identify patients with pneumonia

This will help the doctors identify pneumonia faster and cheaper. It will cut down on the number of tests and time to do these tests.

References:  [https://www.kaggle.com/paultimothymooney/chest-xray-pneumonia?](%09https://www.kaggle.com/paultimothymooney/chest-xray-pneumonia?)

<https://www.webmd.com/lung/qa/what-tests-will-your-doctor-run-to-diagnose-pneumonia>