**Chest Disease Detection using CNN AI Algorithm**

**ABSTRACT:**

Pneumonia is a life-threatening infectious disease affecting one or both lungs in humans commonly caused by bacteria called Streptococcus pneumoniae. One in three deaths in India is caused due to pneumonia as reported by World Health Organization (WHO). Chest X-Rays which are used to diagnose pneumonia need expert radiotherapists for evaluation. Thus, developing an automatic system for detecting pneumonia would be beneficial for treating the disease without any delay particularly in remote areas. Due to the success of deep learning algorithms in analyzing medical images, Convolutional Neural Networks (CNNs) have gained much attention for disease classification. In addition, features learned by pre-trained CNN models on large-scale datasets are much useful in image classification tasks. In this work, we appraise the functionality of pre-trained CNN models utilized as feature-extractors followed by different classifiers for the classification of abnormal and normal chest X-Rays. We analytically determine the optimal CNN model for the purpose. Statistical results obtained demonstrates that pretrained CNN models employed along with supervised classifier algorithms can be very beneficial in analyzing chest X-ray images, specifically to detect Pneumonia.

**EXISTING SYSTEM :**

In recent time, exploration of Machine learning (ML) algorithms in detecting thoracic diseases has gained attention in research area of medical image classification. Over the recent years, Computer Aided Designs (CAD) have become the major research domain in machine learning. The subsisting CAD systems have already been proved to facilitate the medical area primarily in detection of breast cancer, mammograms, lung nodules etc. In the procedure of employing Machine Learning (ML) techniques to medical images, significant features are of uppermost importance. For this reason, most of the previous algorithms used hand crafted features for developing CAD systems based on examining images. However, the hand crafted features with limitations varying according to tasks were not capable of supplying much meaningful features.

**Disadvantages**

1. It takes more time
2. Less accuracy

**PROPOSED SYSTEM :**

In this project as per your request we have employed CNN and traditional machine learning algorithms like Random Forest and Decision tree to detect various viral chest disease infections. Each algorithm performance is evaluated in terms of precision, recall, accuracy, confusion matrix and FSCORE. Among all algorithms CNN is giving best detection accuracy. The primary goal of using Convolutional Neural Network in most of the image classification tasks is to reduce the computational complexity of the model which is likely to increase if the input are images . The original 3-channel images were resized from 1024×1024 into 224×224 pixels to reduce the heavy computation and for faster processing. All of the further techniques has been applied over these downsized images.

**Advantages**

1.It takes less time

2.High prediction result

**SYSTEM REQUIREMENT:**

**HARDWARE REQUIREMENTS:**

# Processor - I3(min)

* Speed - 1.1 GHz
* RAM - 4GB(min)
* Hard Disk - 500GB

**SOFTWARE REQUIREMENTS:**

* Operating System - Windows 10/above
* Programming Language - Python 3.7