**Efficient Pneumonia Detection in Chest X-Ray images using deep transfer Learning**

**ABSTRACT**

Pneumonia is one of the largest infectious diseases that cause death in children and elderly people across the globe. It has been ranked eighth in the list of the top 10 causes of death in the United States. Due to pneumonia, every year, nearly 3.7 lakh children die in India, which constitutes a total of fifty percent of the pneumonia deaths that occur in India. Chest X-rays are primarily used for the diagnosis of this disease. However, even for a trained radiologist, it is a challenging task to examine chest X-rays. There is a need to improve the diagnosis accuracy. In this work, an efficient model for the detection of pneumonia, trained on digital chest X-ray is proposed, which could aid the radiologists in their decision-making process. The detection model is developed using Transfer learning technique which is used to fine-tune the deep learning models. Several deep learning models such as DenseNet121, MobileNetV3, ResNet152V2 InceptionV3, Sequential, VGG16 are trained for detection, among which the model with highest accuracy is being chosen to integrate with UI .The final proposed weighted classifier model will be able to achieve a test accuracy of 85%+ on the unseen data from pneumonia dataset. Hence, the proposed model can be used for a quick diagnosis of pneumonia and can aid the radiologists in the diagnosis process.