IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
Volume 2, Issue 1, November 2022
Impact Factor: 6.252

Chest Disease Detection and Classification

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Abstract: *Chest diseases & conditions such as Atelectasis, Cardiomegaly, Lung consolidation, Hernia, and Fibrosis becoming increasingly prevalent in the Asia-Pacific region. The Asia-Pacific Burden of Respiratory Diseases study examined the disease and economic burden of lung diseases across the Asia-Pacific and more specifically India. The objective is to use a deep learning model to diagnose pathologies from Chest X-Rays. ML approaches on CT and Xray images aided incorrectly in identifying lung diseases. Respiratory diseases range from mild and self-limiting, such as the common cold, influenza, and pharyngitis to life-threatening diseases such as bacterial pneumonia, pleural thickening, hernia, and severe acute respiratory syndromes, such as COVID-19. Authorities & Doctors will be able to deal with the effects more efficiently if such illnesses can be detected speedily and accurately with little human intervention in the future. In addition, various additional elements, such as environmental influences and commonalities among the most afflicted places, should be considered to slow the spread of lung diseases and precautions should be taken. Chest X-ray exam is one of the most frequent and cost-effective medical imaging examination. However clinical diagnosis of chest X-ray can be challenging, and sometimes believed to be harder than diagnosis via chest CT imaging. Even some promising work have been reported in the past, and especially in recent deep learning work on Tuberculosis (TB) classification. To achieve clinically relevant computer-aided detection and diagnosis (CAD) in real world medical sites on all data settings of chest X-rays is still very difficult, if not impossible when only several thousands of images are employed for study. This is evident from [2] where the performance deep neural networks for thorax disease recognition is severely limited by the availability of only 4143 frontal view images [3].*

Keywords: Lung disease, respiratory disease detection, Deep Learning, Disease Classification, Machine Learning

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