Lung Disease Detection from the Chest X Ray Images Using Various Transfer Learning

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Abstract : Pneumonia remains a significant global health concern, posing a substantial threat to human lives due to its contagious nature and potentially fatal respiratory complications caused by bacteria, fungi, or viruses. The reliance on chest X-rays for diagnosis, although common, often necessitates expert interpretation, leading to delays and potential inaccuracies in treatment. This study addresses these challenges by employing transfer learning techniques to automate the detection of lung diseases, with a focus on pneumonia. Leveraging three pre-trained models, VGG-16, ResNet50V2, and MobileNetV2, we conducted comprehensive experiments to evaluate their performance. Our findings reveal that the proposed model based on VGG-16 demonstrates superior accuracy, precision, recall, and F1 score, achieving impressive results with an accuracy of 93.75%, precision of 94.50%, recall of 94.00%, and an F1 score of 93.50%. This research underscores the potential of transfer learning in enhancing pneumonia diagnosis and treatment outcomes, offering a promising avenue for improving healthcare delivery and reducing mortality rates associated with this debilitating respiratory condition.