

Lung Cancer Prediction Using CNN and Transfer Learning

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Abstract: *One of the leading causes of cancer-associated death globally is lung cancer. Effective therapy for different subtypes of lung cancer depends on early and precise diagnosis. A convolutional neural network (CNN)-based method for classifying several forms of lung cancer, such as adenocarcinoma, big cell carcinoma, squamous cell carcinoma, and normal lung tissues, is presented in this research. The model makes use of the Inception architecture, which was pretrained on ImageNet before a custom classification layer was added. There are 323 validation photos and 613 training images spread over four classes in the dataset. To increase model generality, image data augmentation methods including rescaling and horizontal flipping were used. During training, the final model's validation accuracy was over 70%. In order to minimize learning rate and avoid overfitting, early halting was employed to maximize training efficiency. The suggested approach shows promise for accurately and automatically classifying different forms of lung cancer, laying the groundwork for next clinical decision support systems.*

Keywords: Lung Cancer, Medical Imaging, Transfer learning, deep learning, CNN, Neural Network.