

# Lung Cancer Disease Classification Using Convolutional Neural Networks

## **Abstract:**

Lung cancer remains one of the leading causes of mortality worldwide, the second most well-known disease with early detection playing a crucial role in improving survival rates. Lung cancer is cancer that forms in tissues of the lung, usually in the cells that line the air passages. Lung cancer is the second most well-known disease and early detection of lung cancer is crucial for effective treatment. Traditional methods like x-ray and CT scans are widely used but not globally accessible. Hence, it is an advanced approach to detect the lung cancer in the early stage using the deep learning approaches. This project proposes a new approach to lung cancer classification utilizing deep learning techniques, specifically focusing on Convolutional Neural Networks (CNN). Our model was trained and validated on a large dataset of annotated lung scans to be taken from Kaggle, achieving a high level of accuracy in distinguishing malignant from benign nodules. The model was trained on a diverse dataset of lung images, incorporating various pre-processing techniques to enhance feature extraction and classification performance. The results indicate that our CNN-based approach significantly improves detection accuracy compared to traditional methods, offering a promising tool for early lung cancer diagnosis.

**Keywords:** Lung Cancer, Deep learning, Convolutional Neural Networks (CNNs), Kaggle.

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