LUNG CANCER STAGES DETECTION

Abstract

Lung cancer is a leading cause of cancer-related deaths, and early-stage detection remains challenging due to the small size of tumors and the complexity of medical imaging data. This project proposes a deep learning–based approach for automatic lung cancer detection and stage classification using CT scan images. Image preprocessing techniques such as resizing, normalization, and augmentation are applied to the IQ-OTH/NCCD dataset to enhance feature extraction. A hybrid deep learning model combining Xception and MobileNetV2 architectures is used to classify lung images into Normal, Benign, Malignant Stage I, Malignant Stage II, and Malignant Stage III. The model performance is evaluated using accuracy, precision, recall, F1-score, and confusion matrix, demonstrating effective and reliable lung cancer stage prediction.

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