

A SURVEY ON IMAGE RETRIEVAL SYSTEM FOR IDENTIFICATION AND CLASSIFICATION OF LUNG DISEASES USING ARTIFICIAL NEURAL NETWORK

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ABSTRACT

The prompt diagnosis and treatment of patients depend heavily on the precise identification and classification of lung illnesses. The development of computer-aided diagnosis systems has drawn more attention as a result of improvements in medical imaging technology. The goal of this review paper is to give a general overview of the architecture of an image retrieval system that uses Artificial Neural Networks (ANNs) to identify and categorize lung illnesses. This Paper examines the various system design elements, such as preprocessing approaches, feature extraction techniques, ANN structures, and assessment measures. The potential to increase the precision and effectiveness of lung disease diagnosis is highlighted as it also explores the difficulties and future directions in this area.

KEYWORDS: Lung disease, deep learning, CNN, Artificial neural network, classification

1. INTRODUCTION

Millions of individuals around the world are affected by lung disorders, which also raise morbidity and mortality rates [1]. Infectious diseases (including pneumonia and tuberculosis), chronic obstructive pulmonary disease (COPD), asthma, lung cancer, and interstitial lung diseases are just a few examples of the conditions that fall under this umbrella term. Lung diseases have a considerable negative impact on public health, resulting in lowered quality of life, higher healthcare expenses, and significant socioeconomic consequences.

For prompt diagnosis and effective treatment planning, it is crucial to correctly identify and classify lung disorders. In medical imaging like chest X-rays and computed tomography (CT) scans, different lung diseases show diverse patterns and characteristics [2]. Even for seasoned radiologists, these patterns can be subtle and difficult to correctly interpret. Inadequate or delayed therapy, illness progression, and other serious effects might result from misdiagnosis or delayed diagnosis.

Systems for computer-aided diagnosis (CAD) have become important tools for helping radiologists and doctors analyze medical images and increase diagnostic precision. With the help of cutting-edge technologies like artificial intelligence and machine learning, these systems analyze massive amounts of imaging data and offer automated support for the diagnosis and classification of diseases. CAD systems can efficiently evaluate complicated patterns in lung images, assisting in the identification and characterization of lung disorders. This is accomplished by merging image analysis algorithms and artificial neural networks.