عنوان مقاله:

Diagnosis of lung cancer based on CT scan using CNN

نویسنده:

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خلاصه مقاله:

Lung cancer is a disease characterized by the uncontrolled growth of cells in lung tissues. If the disease is not treated, the cell growth can spread outside the lung to nearby tissues or other organs in a process called metastasis. Most cancers that start in the lung, called primary lung cancers, are carcinomas that originate in the epithelial tissue. The main types of lung cancer are small cell lung cancer (SCLC), also called squamous cell carcinoma, and non-small cell lung cancer (NSCLC). The most common symptoms are cough (with bloody sputum), weight loss and shortness of breath. One of the most common causes of death from cancer for both women and men is lung cancer. Lung nodules are critical for the screening of cancer and early recognition permits treatment and enhances the rate of rehabilitation in patients. Although a lot of work is being done in this area, an increase in accuracy is still required to swell patient persistence rate. However, traditional systems do not segment cancer cells of different forms accurately and no system attained greater reliability. An effective screening procedure is proposed in this work to not only identify lung cancer lesions rapidly but to increase accuracy. In this procedure, Otsu thresholding segmentation is utilized to accomplish perfect isolation of the selected area, and the cuckoo search algorithm is utilized to define the best characteristics for partitioning cancer nodules. By using a local binary pattern, the relevant features of the lesion are retrieved. The CNN classifier is designed to spot whether a lung lesion is malicious or non-malicious based on the retrieved features. The proposed framework achieves an accuracy of ۹۶.۹۷% percent. The recommended study reveals that accuracy is improved, and the results are compiled using Particle swarm optimization and genetic algorithms.

کلمات کلیدی:

CNNs, CT, Lung nodule detection, deep learning, medical image analysis, transfer learning.

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