Lungs cancer nodules detection from CT scan images with convolutional neural networks

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ABSTRACT

Lungs cancer is a life-taking disease and is causing a problem around the world for a long time. The only plausible solution for this type of disease is the early detection of the disease because at preliminary stages it can be treated or cured. With the recent medical advancements, Computerized Tomography (CT) scan is the best technique out there to get the images of internal body organs. Sometimes, even experienced doctors are not able to identify cancer just by looking at the CT scan. During the past few years, a lot of research work is devoted to achieve the task for lung cancer detection but they failed to achieve accuracy. The main objective of this piece of this research was to find an appropriate method for classification of nodules and non-nodules. For classification, the dataset was taken from Japanese Society of Radiological Technology (JSRT) with 247 three-dimensional images. The images were preprocessed into gray-scale images. The lung cancer detection model was built using Convolutional Neural Networks (CNN). The model was able to achieve an accuracy of 88% with lowest loss rate of 0.21% and was found better than other highly complex methods for classification.