Weakly supervised deep CNN based COVID-19 detection from chest CT scan images

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Abstract---A chest CT scan is typically used to identify COVID-19, a bacterial, viral, or fungal infection of one or both sides of the lungs that causes lung alveoli to swell with fluid or pus. To lower the mortality rate and restrict the spread of the disease, early diagnosis and detection of COVID 19 disease are essential. Recently, a number of screening techniques have been created to automate the identification and diagnosis of this condition. The goal of this research is to create a diagnostic system that uses weakly supervised Convolutional Neural Network algorithm, a deep learning techniques for early detection and diagnosis in order to stop the spread of COVID-19. The dataset for this system consisted of a collection of 746 chest CT images, including 349 COVID and 397 NON COVID images. The CNN algorithm is used to segment the CT scan pictures using the threshold approach and train the model. The patient's CT scan image is provided by the CT scanner for the COVID-19 test. A Weakly Supervised CNN model classifies the input picture as positive or negative according to the COVID-19 scale. An experimental result is