INTRODUCTION

The sudden spike in the number of patients with COVID-19, a new respiratory virus, has put unprecedented load over healthcare system across world.

The early and automatic diagnosis of COVID-19 may be beneficial for countries for timely referral of the patients to quarantine, rapid intubation of serious cases in specialized hospitals, and monitoring of the spread of the disease.

In this work we propose the use of chest X-ray to detect COVID-19 Infection in the patients by studying the medical images and identifying possible patterns that may lead to the automatic diagnosis of the disease.

The main contribution of this work is in proposing a deep neural network bases model for highly accurate detection of COVID-19 infection from the chest X-RAY Images of the patients.

MOTIVATION

With limited testing kits, it is impossible for every patient with respiratory illness to be tested using conventional techniques like RT-PCR (Reverse Transcription Polymerase Chain Reaction). The test also have a long turnaround time and limited sensitivity.

Detecting possible COVID-19 infections on Chest X-Ray may help quarantine high risk patients while test results are awaited.

In this project we propose the use of Chest X-Ray to prioritize the selection of patients for further RT-PCR testing.

This may be useful in an inpatient setting where the present system are struggling to decide whether to keep the patient in the ward along with other patients or isolate in COVID areas.

It would also help in identifying patients with high likelihood of COVID with a false negative RT-PCR who would need repeat testing.

EXISTING SYSTEM

Detection of COVID-19 involves RT-PCR test which is a real time test for the qualitative detection of nucleic-acid from nasal or throat swab collected from individuals suspected of COVID-19. Typically it delivers the result within 24 hours.

LIMITATIONS OF EXISTING SYSTEM

- Difficult to identify the disease. It require Experiences Radiologists.
- Expensive (An RT-PCR test costs over ₹3000)
- Every time patient needs to visit doctor

PROPOSED SYSTEM

Developing a computer aided Detection (CAD) tool for iterative COVID-19 detection, along with the adequate description of its forming techniques which includes feature selection, extraction and classification of images to support the clinicians for early and accurate diagnosis.

It takes chest X-Ray Images as input and outputs a prediction among four Classes: Normal, Pneumonia, Opaque Lung and COVID-19 using Deep Neural Network based model.