Conclusion Dissertation

Early prediction of COVID-19 patients is vital to prevent the spread of the disease to other people. The virus is relatively new and no official vaccine has been originated yet. Hence, humanity ought to find different ways to prevent COVID-19 from spreading to their surroundings in order to get back to normalcy as soon as possible.

Chest X-ray images play a vital role in the detection of COVID-19. In this study, a CNN Model was used to detect COVID-19 using Chest X-ray images obtained from COVID-19 patients and Normal patients. CNN enables learning highly representative and hierarchical local image features directly from data. The model performance is 97% which is a great accuracy score with the recent origins of the virus. Although this paper is only for educational and research purposes, not for medical purposes, it will aid doctors to make better decisions in clinical practice due to the higher performance of the model.

However, the irregularities in annotated data remains the biggest challenge in coping with COVID-19 cases from Chest X-ray images. The limitations for this paper are:

1. Lack of COVID-19 Chest X-rays due to the recent emergence of the virus.
2. No medical guidance was used for the analysis of the project.

The future scope for this paper can be:

1. To increase the dataset with more availability of data.
2. To incorporate other infections like Viral Pneumonia and Bacterial Pneumonia.
3. To implement Gradient Class Activation Map (Grad-CAM) and Saliency maps in order to figure out the regions in which the infection has spread among the COVID Chest X-rays.

Nonetheless, the present work contributes to the possibility of a low-cost, rapid, and automatic diagnosis of COVID-19. Also, despite the fact that the appropriate treatment is not determined solely from an X-ray image, an initial screening of the cases would be useful, not in the type of treatment, but in the timely application of quarantine measures in the positive samples, until a more complete examination and a specific treatment or follow-up procedure is followed. An additional advantage of automatic detection of COVID-19 from medical imaging lies on the reduction of exposure of nursing and medical staff to the outbreak.