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**COVDET for Detecting COVID-19 Infected Pneumonia from
Chest X-ray Images with Image Processing**

A Dissertation by

Mr. Ravindu Maginaarachchi

Supervised by

Ms. Janani Harishchandra

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Abstract

Coronavirus Disease of 2019 (COVID-19) has become a major life-threatening global pandemic situation in the current world. According to the World Health Organization (WHO) as of 19th May 2022, it has reported 520,912,257 confirmed cases along with a total of 6,272,408 deaths. Starting from mild symptoms such as a common cold, it could lead to deadly situations such as pneumonia, causing severe respiratory problems and breathing difficulties to the infected individuals and ultimately death. Even though the vaccination programs have begun globally and conducted presently, it is still a difficult task to detect the virus and reduce the spread of the disease because of the common symptoms. According to the literature, it has found recently that the main screening methods of COVID-19 which are Reverse Transcription Polymerase Chain Reaction (RT-PCR) and Rapid Antigen tests are not that accurate and reliable. Also, with the high demand for test kits of those methods, the world healthcare sector is facing many difficulties to conduct the screening process. If there was a different computing approach to automate the detection process of the virus, it will aid the healthcare sector not only to handle the high demand for test kits but also to detect the virus more accurately and reduce the spread of the disease.

This research project concerns about developing an automated computing approach to detect COVID-19 by analyzing the chest X-ray images of patients using image processing techniques. After broad research of existing work in the literature, it was decided to use supervised and non-transfer learning approach as the system architecture since it was found limited in the literature. Convolutional Neural Networks are used to create the algorithm and a publicly available dataset has been used to train the model.

Keywords: Convolutional Neural Networks, Deep learning, Chest X-ray images, COVID-19

Subject Descriptors: Image Processing and Computer Vision, Convolutional Neural Networks