Paper Name : Deep learning based detection and analysis of COVID-19 on chest X-ray images

Abstract

Covid-19 is a fast-spreading viral infection that affects both humans and animals . Covid-19 is a disease that is widely distributed . This deadly viral disease has an effect on people's daily lives, their health, and the economies of a nation . COVID-19 affected patients, according to a clinical report, are often infected with a lung infection after coming into contact with the disease . For diagnosing medical conditions, chest x-rays and chest CT scans are more successful imaging techniques . Nonetheless, as compared to a chest CT, a substantial chest x-ray is a less expensive procedure . Deep learning is the most effective technique of machine learning , and it can be used to analyse a vast number of chest x-ray images, which can have a significant effect on Covid-19 screening . In this study, we used various CNN models to try to identify Covid-19 patients based on their chest X-ray scans . We contrasted the Inception V3, Xception, and ResNeXt versions. We found that the XCeption net outperforms the other two versions and is better fit for use . This research focuses solely on potential mechanisms for classifying covid-19 contaminated patients and makes no medical claims .

Introduction

Covid-19 is a serious illness that claims the lives of a vast number of people every day. This disease has affected not only a single nation, but the whole world as a result of this virus disease. Several viruses, such as SARS, MERS, Flu, and others, have emerged in the last decade, but they only last a few days or months. Covid-19 disease is now affecting the whole planet, and the most important fact is that no single country's scientists have been able to develop a vaccine for it. Meanwhile, even other predictions emerged, such as plasma treatment, X-ray pictures, among many others, but the precise solution to this fatal illness has yet to be discovered . Every day, people die as a result of covid-19, and the disease's diagnosis cost is extremely high in terms of a nation and patients . X-ray photographs of healthy people and Covid-19 affected people were made available for review in March 2020 in various repositories such as Github and Kaggle . Covid-19 is a pandemic disease that has posed a worldwide threat to humanity . Diagnosing infected patients from healthy people is a difficult challenge . The novel coronavirus disease started as a throat infection, and people began to have trouble breathing . The covid-19 disease is a hidden foe that no one can defeat . Infected Covid-19 patients must be isolated, undergo proper screening, and take appropriate precautions to protect healthy individuals . This virus spreads through a chain reaction that occurs as people come into contact with covid-19 infected people . The diagnosis of this disease relies heavily on hospital personnel, nurses, physicians, and healthcare services . Medical imaging is one of the many methods that have been used to reduce the effects of Covid-19 . With the aid of CT (Computerised Tomography) images and chest X-ray images, stable individuals and Covid-19 affected patients can be studied . We used three separate models (InceptionV3, Xception, and ResNeXt) to contribute to a Covid-19 review. CNN is used to analyse the gathered data .