Fusion-Based Segmentation and Classification of Novel Coronavirus or Pneumonia from Chest X-ray Images Using Machine Learning Techniques

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The deadfall widespread of coronavirus (SARS-Co V-2) disease has trembled every part of the earth and has significant disruption to health support systems in different countries. In spite of such existing difficulties and disagreements for testing the coronavirus disease, an advanced and low-cost technique is required to classify the disease. For the sense of reason, supervised machine learning (ML) along with image processing has turned out as a strong technique to detect coronavirus from human chest X-rays. In this work, the different methodologies to identify coronavirus (SARS-CoV-2) are discussed. It is essential to expand a fully automatic detection system to restrict the carrying of the virus load through contact. Various deep learning structures are present to detect the SARS-CoV-2 virus such as ResNet50, Inception-ResNet-v2, AlexNet, Vgg19, etc. A dataset of 10,040 samples has been used in which the count of SARS-CoV-2, pneumonia and normal images are 2143, 3674, and 4223 respectively. The model designed by fusion of neural network and HOG transform had an accuracy of 98.81% and a sensitivity of 98.65%.

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SARS-CoV-2 is a fatal disorder generated from the newly spreadCovid-19. In December 2019, Covid-19damaged the human lungs for the first time, and it can outspread among others through the globules generated by the affected ones during their speaking, coughing, or sneezing. As the globules are heavy to float in the air, they can't spread from one person to another without close contact. Even though the proper time is still unknown, new research has approximated that SARS-CoV-2 can be alive within the air for a Sign in to Continue Reading as for copper and plastic it may be up to 4 hours, and 72 hours respectively. Even though still it is not accepted by the Health Authority and a current investigation is under process. SARS-CoV-2 targets the human lungs and injures the tissues of an infected person. At the initial stage, one may not observe any indications as cough and fever are the primary sign. Other important indications might be headache, sore throat, and body aches.

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