World Academy of Science, Engineering and Technology
International Journal of Industrial and Manufacturing Engineering
Vol:16, No:12, 2022

Multi-Classification Deep Learning Model for Diagnosing Different Chest Diseases

Authors : Bandhan Dey, Muhsina Bintoon Yiasha, Gulam Sulaman Choudhury

Abstract : Chest disease is one of the most problematic ailments in our regular life. There are many known chest diseases out there. Diagnosing them correctly plays a vital role in the process of treatment. There are many methods available explicitly developed for different chest diseases. But the most common approach for diagnosing these diseases is through X-ray. In this paper, we proposed a multi-classification deep learning model for diagnosing COVID-19, lung cancer, pneumonia, tuberculosis, and atelectasis from chest X-rays. In the present work, we used the transfer learning method for better accuracy and fast training phase. The performance of three architectures is considered: InceptionV3, VGG-16, and VGG-19. We evaluated these deep learning architectures using public digital chest x-ray datasets with six classes (i.e., COVID-19, lung cancer, pneumonia, tuberculosis, atelectasis, and normal). The experiments are conducted on six-classification, and we found that VGG16 outperforms other proposed models with an accuracy of 95%.

Keywords : deep learning, image classification, X-ray images, Tensorflow, Keras, chest diseases, convolutional neural networks, multi-classification
Conference Title : ICIEEE 2022 : International Conference on Industrial Engineering and Electrical Engineering
Conference Location : New York, United States
Conference Dates : December 09-10, 2022