A Deep Learning Approach for Real-Time Defect classification in Skin disease

A. Kalaivani[1],Dr. S.Karpagavalli[2], M. JaithoonBibi[3]

[1]Research Scholar, Department of Computer Science,
PSGR Krishnammal College for Women, Coimbatore, & Assistant Professor,
Department of Computer Technology, Nallamuthu Gounder Mahalingam College, Pollachi(India)
[2]Associate Professor and Head, Department of Computer Science,
PSGR Krishnammal College for Women, Coimbatore, (India)
[3]Research Scholar, Department of Computer Science,
PSGR Krishnammal College for Women, Coimbatore, (India)

ABSTRACT

In medical analysis, generally, skin diseases are the one-fourth leading cause of nontoxic disease problem in modern years. This study proposed a high-tech system of classifying skin disease using deep learning-based Visual Geometry Group Network (VGGNet) and CONV architecture that extended with limited changes. The system of the VGGNet model to be improved accuracy and that can work on complex computational devices. The proposed model parameters in the CONV layers and improve preparation time for precise predictions. The proposed model is used MNIST HAM10000 data of images which has 10,015 images and released by ISIC archive and the proposed model has outperformed other methods with more than 92% accuracy. The proposed image processing model performed on the inputs of a dermoscopic image to categorize skin disease using a pre-trained convolutional neural network. Therefore, an automatic approach was applied for this classification task using a deep learning model Fine-Tuned VGG-CNN, to increase the classification performance of CNN in the modeling process.

Keywords:Classification, convolutional neural network, Dermoscopic image, Skin diseases, VGGNet

I. INTRODUCTION

Globally, the common people do not identify common skin infections. The most common skin conditions can have some symptoms several months later, causing the disease to transmission and growing conditions. On some occasions, Diagnostic Tests for Skin sicknesses by a dermatologist find it difficult to study the skin condition and need an expensive test ability to correctly label a subject with the sickness of the skin disease. The improvement of Laser-based medical expertise made it probable to analyze skin diseases much better and with greater accuracy [1]. This proposed study used the MNIST HAM10000 dataset has a collection of more than 10,000 dermatoscopic images which has groups into seven categories of seven skin diseases: Melanocytic nevi, Dermatofibroma, Benign keratosis-like lesions, Actinic keratoses, Vascular lesions, Basal cell carcinoma, Intraepithelial carcinoma, and Melanoma. From this HAM10000 dataset, dermatoscopic images take the split up for training and a few samples for validation during the model construction.

To varied in the number of dermatoscopic images in the dataset, the dataset is considered a little imbalanced, and to solve this problem on the dataset, the data augmentation technique is applied to balance the data by generated more images by using transformations from the images that were already existing in the dataset. Therefore, the deep study on skin sicknesses procedures to identify the effects of skin diseases based on image-processing technique is currently in huge demand. The real inference of the proposed model is to identify the image in which the image has an unnatural region of the skin is arrested to conclude the class label of the skin disease [2].

Recently, machine learning approaches have become a recent development to compact with this task. Deep learning models, in certain, Convolutional Neural Network (CNN), have succeeding outperformed results in this area. As a result, presented a deep CNN and a set of structures to learn certain imperfect training data. The existing model used a pre-trained CNN model to train more than 100 thousand dermatoscopic images and