ABSTRACT

Skin is susceptible to many diseases, including cancer. Melanoma is the deadliest type. Early detection of melanoma can significantly increase the chance of a cure. This study developed a Convolutional Neural Network (CNN) model based on MobileNetV3-Large to classify dermoscopy images as melanoma and non-melanoma. According to GLOBOCAN 2022 data, melanoma accounts for more than 300,000 cases worldwide, and the limitations of manual methods encourage the use of artificial intelligence-based technologies. This study used the augmented HAM10000 dataset to train the model, involving hyperparameter tuning, data augmentation, and digital hair removal with the DullRazor algorithm to improve image quality. The MobileNetV3-Large model was tested using accuracy, precision, recall, and F1-score metrics. The data augmentation technique was shown to improve the performance of the model, with an accuracy of 95.59% and an F1 score of 95.56%, indicating high performance in classifying melanoma. On the other hand, the DullRazor technique gave mixed results. This research contributes to the development of artificial intelligence-based solutions for melanoma early detection.

Keywords: *melanoma, CNN, mobilenetv3, classification, augmentation.*