

ABSTRACT

The classification of skin lesions is crucial in clinical practice due to the high incidence of skin cancer worldwide, with more than 1.5 million new cases reported in 2022. The ambiguous characteristics of some lesions often cause people to hesitate in seeking medical consultation. On the other hand, the limited resources and trained medical personnel in various healthcare facilities lead to delays in diagnosis and treatment. Therefore, an automated computer-based classification method is needed to assist in the preliminary analysis of skin lesions. This study implements transfer learning by modifying the top layers of the EfficientNetV2B0 architecture through the addition of dense layers, dropout layers, and a dense output layer tailored to the research objectives. The model demonstrates optimal performance on a balanced training dataset, achieving a test accuracy of 88.66%, a macro average recall of 86.54%, and a macro average precision of 86.70%. These results were obtained through an optimal configuration consisting of a learning rate of 0.0001, a dropout rate of 0.25, a batch size of 20, and the implementation of the ReduceLROnPlateau technique. This research is expected to contribute to the development of an efficient and accurate automated skin lesion classification method.

Keywords : skin lesion classification, transfer learning, EfficientNetV2B0