

## ABSTRACT

*Melanoma is one of the most aggressive types of skin cancer, causing over 80% of skin cancer-related deaths and having the potential to spread rapidly. Therefore, early detection is essential to improve patient survival rates. Image recognition technology based on deep learning, especially using Convolutional Neural Networks (CNN), has shown significant potential in classifying melanoma skin cancer. This study applied the EfficientNet V2 architecture within the PyTorch framework to enhance the accuracy of melanoma skin cancer classification, focusing on optimal parameter tuning through augmentation techniques and effective data management. The dataset used consisted of two classes: benign lesions and malignant lesions. The methods employed in this research included data preprocessing, image augmentation, and model development using the EfficientNet V2 architecture. Experimental results demonstrated that the application of the EfficientNet V2 model achieved the highest accuracy level of 96,25% and recall 0,97, with a training data ratio of 80%, validation data of 20%, 2000 test images, batch size of 128, and 25 epochs. This research made an important contribution to the development of melanoma classification techniques using deep learning, which was expected to support early detection and more accurate diagnosis in the medical field.*

**Keywords :** *Melanoma skin cancer, Classification, EfficientNet V2, Deep learning, Epoch, Batch size, Accuracy*