# *ABSTRACT*

Skin diseases are among the most common health problems and can develop into serious conditions such as melanoma, a dangerous type of skin cancer. Image-based skin disease recognition and classification play a crucial role in supporting more accurate diagnoses. Manual diagnosis is often time-consuming, relies heavily on the subjective expertise of medical professionals, and may lead to inconsistent results.

Therefore, this study aims to develop a skin disease classification model using a Convolutional Neural Network (CNN) based on the EfficientNet architecture. The model is applied to dermoscopic images, which are specialized medical images captured using a dermatoscope to magnify and clarify the surface details of the skin. The use of dermoscopic images enables more detailed analysis compared to regular images, thus improving the accuracy of skin disease classification. The dataset used is HAM10000, which consists of 10,015 dermoscopic images categorized into seven types of skin lesions, including melanoma, basal cell carcinoma, and others. The research process involves data preprocessing, augmentation, and model training using a two-stage training scheme: feature extraction followed by fine-tuning.

The experimental results show that the EfficientNetV2B3 model achieved the best performance, with an accuracy of 90.53% and an F1-score of 85.56%, outperforming the other two models used in this study, EfficientNetB0 and EfficientNetV2B0. The EfficientNetV2B3 model was trained using a two-stage approach: feature extraction with a learning rate of 1e-4, and fine-tuning with a learning rate of 5e-5.


**Keywords**: CNN, EfficientNet, dermoscopic images, HAM10000, skin disease classification, accuracy.