Abstract

The human skin is the outer covering of the body and is the largest organ of the integumentary system. Skin has mesodermal cells, pigmentation, such as melanin provided by melanocytes, which absorb some of the potentially dangerous ultraviolet radiation (UV) in sunlight. It also contains DNA repair enzymes that help reverse UV damage, such that people lacking the genes for these enzymes and people overexposed to UV suffer high rates of skin cancer. There are three major types of skin cancers: basal cell carcinoma (BCC), squamous cell carcinoma (SCC) and melanoma. The first two skin cancers are grouped together as non-melanoma skin cancer. Melanoma is considered the deadliest form of skin cancer as the less common yet most fatal form of skin cancer. The disease can quickly spread to other parts of the body. Diagnosis of malignant melanoma as early as possible will improve survival of the patient. Therefore, it is important that melanoma is recognized at an early stage. So, people should check their skin from head to toe regularly, looking for any lesions that might turn into melanoma. Also there are many studies that have been conducted regarding detection melanoma, many study use machine learning technology to perform the best detection for melanoma but very rarely have high accuracy and they don't implement it into a prototype. The method used in this final project research involves the analysis of Feature Extraction Transfer Learning algorithms, namely MobileNetV2, VGG16, DenseNet201 and Support Vector Machine (SVM) The experimental results show that the combination of features generated by the MobileNetV2, VGG16 and DenseNet201 algorithms gives the best accuracy compared to other features in the study, which is 93% of accuracy. The experimental results use the Support Vector Ma-chine classification algorithm with K-fold Cross Validation k=5. On the other hand, the developed prototype has successfully detected the image melanoma skin cancer, and basal cell carcinoma as well as normal skin as a comparison.

Keyword: Melanoma, Basal Cell Carcinoma (BCC), Transfer Learning, MobileNetV2, VGG16, DenseNet201, Support Vector Machine (SVM)