

Skin Disease Detection and Classification using machine learning techniques

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Abstract. Nowadays dermatological diseases or skin diseases are popular among society due to environmental factors as well as people's ignorance. Using lasers and photonics-based technology skin disease is identified in the current diagnosis method. This is costly and takes a long period. Within this long period severity of the disease can be increased and some features of the skin disease cannot be found by human intervention. Sometimes people face difficulties such as daily activity damages, misunderstanding, constitute mental illness, depression because of skin diseases. Therefore, a fast diagnosis mechanism for skin diseases is required. Identifying skin diseases using machine learning techniques can overcome the problems in the current diagnosis method. The people in Sri Lanka also suffer from this skin diseases like Melanoma, Eczema, and Psoriasis. In this paper, we analyse more about skin diseases identification and classification techniques using machine learning. Machine learning techniques like a convolutional neural network, neural network, support vector machine, K-means clustering are used to address the problems of the skin disease diagnosis method. Before applying these machine learning-based models first image acquisition, pre-processing, and segmentation phase take place to remove the unwanted information in the image. For the feature extraction of the image colour-based models, Gray Level Co-Occurrence Matrix, YCbCr algorithms, and basic image processing techniques like edge detection, Sobel operators are used. This machine learning-based classification can produce results with 80-100% accuracy. Drawbacks can be terminated using a method that can select the most appropriate features to select the suitable feature among the extracted features to increase the overall performance of the model and by collecting data set from the most appropriate and accurate websites.

Keywords: *skin disease detection, machine learning techniques, convolution neural network, support vector machine, K-means clustering, pre-processing, segmentation, feature extraction, Gray Level Co-Occurrence Matrix*