

A Survey of Skin Cancer Detection and Classification from Skin Lesion Images Using Deep Learning

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Abstract : Skin disease is one of the most common and popular kinds of health issues faced by people nowadays. Skin cancer (SC) is one among them, and its detection relies on the skin biopsy outputs and the expertise of the doctors, but it consumes more time and some inaccurate results. At the early stage, skin cancer detection is a challenging task, and it easily spreads to the whole body and leads to an increase in the mortality rate. Skin cancer is curable when it is detected at an early stage. In order to classify correct and accurate skin cancer, the critical task is skin cancer identification and classification, and it is more based on the cancer disease features such as shape, size, color, symmetry and etc. More similar characteristics are present in many skin diseases; hence it makes it a challenging issue to select important features from a skin cancer dataset images. Hence, the skin cancer diagnostic accuracy is improved by requiring an automated skin cancer detection and classification framework; thereby, the human expert's scarcity is handled. Recently, the deep learning techniques like Convolutional neural network (CNN), Deep belief neural network (DBN), Artificial neural network (ANN), Recurrent neural network (RNN), and Long and short term memory (LSTM) have been widely used for the identification and classification of skin cancers. This survey reviews different DL techniques for skin cancer identification and classification. The performance metrics such as precision, recall, accuracy, sensitivity, specificity, and F-measures are used to evaluate the effectiveness of SC identification using DL techniques. By using these DL techniques, the classification accuracy increases along with the mitigation of computational complexities and time consumption.

Keywords : skin cancer, deep learning, performance measures, accuracy, datasets

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