

The Role of Machine Learning and Deep Learning Approaches for the Detection of Skin Cancer

ABSTRACT

Machine learning (ML) can enhance a dermatologist's work, from diagnosis to customized care. The development of ML algorithms in dermatology has been supported lately regarding links to digital data processing (e.g., electronic medical records, Image Archives, omics), quicker computing and cheaper data storage. This article describes the fundamentals of ML-based implementations, as well as future limits and concerns for the production of skin cancer detection and classification systems. We also explored five fields of dermatology using deep learning applications: (1) the classification of diseases by clinical photos, (2) dermatology visual classification of cancer, and (3) the measurement of skin diseases by smartphone applications and personal tracking systems. This analysis aims to provide dermatologists with a guide that helps demystify the basics of ML and its different applications to identify their possible challenges correctly. This paper surveyed studies on skin cancer detection using deep learning to assess the features and advantages of other techniques. Moreover, this paper also defined the basic requirements for creating a skin cancer detection application, which revolves around two main issues: the full segmentation image and the tracking of the lesion on the skin using deep learning. Most of the techniques found in this survey address these two problems. Some of the methods also categorize the type of cancer too.