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Deep learning-based computer-aided detection of melanoma cancer subtypes

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ABSTRACT

Skin cancer is a condition in which skin cells grow uncontrollably and irregularly. This is caused by unrepaired DNA damage or genetic defects in skin cells. Melanoma and non-melanoma are the two main kinds of skin cancer. Melanoma is a kind of skin cancer that starts in the pigment-controlling cells called melanocytes. Melanoma is a deadly type of skin cancer. Dermatologists have trouble identifying melanoma subtypes due to their similarities. Most of the research on skin cancer diagnosis is related to the binary classification of lesions into melanoma and non-melanoma. So far, limited research has been done on melanoma subtype classification. The present study focused on the effectiveness of deep learning in identifying melanoma subtypes such as Super spreading, Nodular, and Lentigo maligna melanoma

In this study, the author used the MobileNet algorithm with transfer learning to classify melanoma subtypes and achieved 97% accuracy. The author created a novel classified melanoma subtype dataset. Various image processing and data augmentation techniques have been applied to develop a robust automated system for melanoma subtype detection.

Keywords: Deep Learning, Machine Learning, Deep Neural Networks, Image Processing, Super spreading melanoma, Nodular melanoma, Lentigo maligna melanoma