

MACHINE LEARNING TO IMPROVE THE PERFORMANCE OF COMPUTER-AIDED DIAGNOSTIC SYSTEMS USED FOR DETECTING SKIN DISEASES

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Early detection is critical in enhancing the patient's survival rate due to deadly skin diseases such as melanoma. Most skin diseases are ascertained by extracting sample cells for evaluation. Dermatologists often experience difficulties identifying features during the early stages of skin disease development, which may result in high false positive and false negative rates. The introduction of Computer-Aided Diagnosis (CAD) systems aids a second reader in interpreting medical images. Recent studies show that machine learning (ML) can improve CAD performance. In this work, we implement three ML modules for CAD systems to detect melanoma cancer. ML libraries from TensorFlow and 10,000 training images from Kaggle are used to test the ML modules. The preliminary results indicate that Convolutional Neural Network (CNN) performs better than Support Vector Machine (SVM) and Linear Discriminant Analysis (LDA) techniques in detecting melanoma. This work's result will help improve the accuracy and reliability of CAD systems, ultimately leading to better patient outcomes and higher melanoma survival rates for Kansas and the United States.