

AI tackles the ABCD of skin cancer

November 2 2023, by David Bradley



Credit: Unsplash/CC0 Public Domain

New research from India has shown how machine learning, colloquially known as artificial intelligence or AI, could improve the early detection of skin cancer. Given that the incidence of skin cancer is on the rise, the work, [published](#) in the *International Journal of Nanotechnology*, could have significant implications for early intervention, treatment, and

ultimately improved prognosis.

The study builds upon earlier research efforts and tests [machine learning](#) algorithms, including Naive Bayes, decision-tree, and K-nearest neighbors (KNN) approaches, to improve the accuracy of skin cancer diagnosis from images of suspicious lesions and areas of skin. The researchers found that the decision tree algorithm was the most effective, achieving an accuracy rate of 83%. Such accuracy, coupled with expert assessment by an oncologist, could improve diagnosis rates considerably and give patients better outcomes.

However, the team did not stop there. To further improve accuracy and streamline the detection process, the researchers introduced a [deep learning approach](#), specifically a convolutional neural network (CNN). The model boosted accuracy to almost 94%. These results were based on the examination of datasets from the International Skin Cancer Collaboration Initiative (ISCI). The decision tree algorithm working with the deep learning model was not only very accurate but required less time for algorithm training and subsequent skin cancer detection compared with earlier approaches.

The team points out that an [accuracy rate](#) of almost 94% was achieved after just six training cycles. They were able to achieve well over 99% accuracy if the system was trained over 73 cycles. These results underscore the superiority of the new approach over existing state-of-the-art algorithms for skin cancer detection.

Further improvements might be possible by sharpening the model's ability to assess the characteristics of skin cancer lesions, such as asymmetry, border anomalies, color, and diameter, the ABCD of skin cancer detection.

More information: K.A. Varun Kumar et al, Comparative approach

for discovery of cancerous skin using deep structured learning,
International Journal of Nanotechnology (2023). [DOI:](#)
[10.1504/IJNT.2023.134030](https://doi.org/10.1504/IJNT.2023.134030)

Provided by Inderscience

Citation: AI tackles the ABCD of skin cancer (2023, November 2) retrieved 16 May 2024 from
<https://medicalxpress.com/news/2023-11-ai-tackles-abcd-skin-cancer.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.