

Researchers train an AI platform to detect skin cancer

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Melanoma in skin biopsy with H&E stain—this case may represent superficial spreading melanoma. Credit: Wikipedia/CC BY-SA 3.0

A study identifying new ways to detect skin cancer using artificial intelligence (AI) has been conducted by researchers from the University of Hawai‘i Cancer Center. Investigators successfully created and trained an AI platform to classify different types of skin lesions. Their findings were published in the December issue of *Melanoma Research*.

The study, "The Potential of Using Artificial Intelligence to Improve Skin Cancer Diagnoses in Hawai‘i's Multiethnic Population," was

conducted by UH Cancer Center Researchers Kevin Cassel and John Shepherd, and community health educator Mark Lee Willingham Jr., a sociology Ph.D. student.

Investigators trained a newly developed AI platform to identify and label a set of de-identified images of pigmented [skin lesions](#) that had previously been clinically diagnosed as [melanoma](#) or non-melanoma. To evaluate the performance of the AI platform to make an accurate diagnosis, images were assessed by a panel of local [dermatologists](#) as well as the AI platform. Researchers found that combining results from both the AI platform and the dermatologists increased the overall accuracy of the diagnoses. The study supports the use of AI as part of an efficient lesion-assessment strategy to reduce time and expenses spent on diagnosing skin lesions, reducing delays in treatment.

AI platforms are computer programs that use data and algorithms to perform specific tasks. These tasks, which would typically require human intelligence, can include visual perception, speech recognition, decision-making and translation. AI has greatly benefited the field of [cancer](#) research as it has been found to be effective in the detection of various cancers.

"Skin cancer strikes at many Hawai'i residents because of our active outdoor lifestyles," said Willingham, lead author. "When we can find ways such as this AI platform to improve diagnosis, it speeds up patient care and saves lives. This study was a collaborative process, and I hope to take part in the future aims of this important and timely research."

Skin cancer is the most common type of cancer in the U.S. Approximately one out of every five adults will develop skin cancer within their lifespan. Due to its proximity to the equator, Hawai'i's population is significantly impacted by skin cancer. In the state, 10,000 individuals are diagnosed with skin cancer each year.

The study's goal was to aid in the development of a skin lesion classification application that determines how urgently a patient should seek treatment, which can help Hawai'i's rural communities who have limited access to dermatologists.

"Our future study hopes to link rural communities and rural general practitioners with AI strategies to aid in diagnosis, with the overarching goal of reducing the multiple consequences of [skin](#) cancers," said Cassel.

More information: Mark Lee Willingham et al, The potential of using artificial intelligence to improve skin cancer diagnoses in Hawai'i's multiethnic population, *Melanoma Research* (2021). [DOI: 10.1097/CMR.0000000000000779](#)

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