WVU doc develops new app to help detect skin cancer

by Conor Griffith STAFF WRITER Sep 9, 2018

MORGANTOWN — Swipe left or swipe right? As it turns out, the same features of popular matchmaking apps have plenty of medical and educational uses thanks to work of staff and students at the West Virginia University Health Sciences Campus.

Enter Dr. Michael Kolodney, who chairs West Virginia University's Department of Dermatology. He developed a smartphone application known as Skinder, which aims to help medical students diagnose melanomas more accurately by cultivating the intuition that comes with visual diagnoses.

"Medical students currently are more comfortable with phone apps than in the past, and the phones tend to demand their attention more and more," Kolodney explained, "and it's always been my feeling that we teach them to do visual diagnosis by giving them a set of rules, but in reality, experts in official diagnoses don't use rules. They just look at it and say what pops into their mind. We thought that we could use a phone to teach intuitive diagnoses rather than giving them a group of rules."

Skinder is similar to dating apps such as Tinder or OkCupid. However, instead of swiping right for a potential date and left to pass, Skinder users examine high-resolution pictures of lesions. Then they swipe right if the lesions are benign or left if they're cancerous. As users categorize each lesion, the app tells them if they're right or wrong and scores the user on their overall accuracy when the session is over.

After developing the app, Kolodney said it was put to the test with a study among medical students who hadn't yet completed dermatology rotations to spot melanomas, which are skin cancers that develop from mutations in pigment-making skin cells.

"They would get an instant feedback as to whether they did it right and if they got the image wrong, it would pop up in their stack again until they got it right,"

Kolodney said. “So, we thought having feedback and letting them figure it out for themselves — what images are malignant and which ones are benigh — might command their attention better than giving them a lecture on rules.”

Half of the students in the study used Skinder while the other half used a web-based educational program based on more traditional rules-based skin diagnosis, which center on recognizing melanomas by their asymmetry, irregular borders, uneven coloring and diameters greater than 6 millimeters.

Kolodney said, at least in this case, the intuitive approach worked better and appears to provide a new way to teach medical students. The findings of this study and app were later published in “JAMA (Journal of the American Medical Association) Dermatology.”

Dr. Clay Marsh, dean of the WVU Health Sciences Campus, spoke highly of Skinder and its potential.

“Mike Koloney is such a creative guy,” he said. “I feel that he thinks about things in very impact terms, so he understands that the way we should teach and the way we should pursue clinical medicine is around creative things that give real insights to our learners about these areas. Taking an application that starts to mirror the Tinder application, but to do that around melanoma and trying to predict melanomas even in an uninitiated learner that knows to look at the pattern, is really, really powerful.”

While telemedicine is picking up steam in a lot of categories, including dermatology, Marsh said a smartphone app that dives into this field hasn’t been done before. Not only is there potential to use this concept in other forms of medicine that require visual diagnoses such as such as radiology and ophthalmology, it can also make things easier for patients. Marsh said the ability to communicate remotely through this technology means patients can get the information they need without a trip to the doctor’s office which is particularly helpful in a mainly rural state like West Virginia.

Kolodney said a lot of dermatology clinicians take digital photos of cases and share them with one another and plans to expand the network of sources to generate new images for Skinder. He also wants to one day have the app available for free

download via Apple and Google. Not only would this benefit medical students, he said, but patients as well since knowledge of this subject through the app could lead to earlier detection of melanomas.

If detected early enough and treated, the 10-year survival rate for a Stage 1 melanoma — the least severe classification — exceeds 90 percent. On the other hand, if a melanoma progresses to Stage 2, the 10-year survival rate plunges anywhere from 67 percent to as low as 40.

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