

Personal Skin Cancer Prediction

Cloud-based skin cancer prediction, for anyone, anytime, anywhere

Skin cancer is the most common cancer that anyone will face and one of the only cancers that can be seen on the surface of the skin. One in five Americans will be diagnosed with skin cancer in their lifetime and one person dies from the deadliest form of skin cancer – melanoma – every hour.

When it comes to skin cancer, everyone is at potential risk, even those with darker skin tones. While it is highly treatable when caught early, it can be deadly. That's why screening is important.

One simple step of screening is to examine the skin head-to-toe every month, looking for any moles or marks on the skin that are flesh-colored, pearl-like bumps; red, firm bumps; scaly patches; or sores that won't heal.

To recognize skin cancer cases, dermatologists compare and analyze multiple signs of each tumor. Mostly they use scoring systems based on visual characteristics to recognize the cancer tissue.

A large number of skin cancer images are valuable resources in the area of artificial intelligence. It is a challenge for us to develop a simple skin cancer detection application which uses the back-end image classification algorithm (Google-net) to predict skin cancer type and the percentage probability.

This app enables users to upload photos of any suspicious lesions or moles on their skins and have the app assess them. Along with that, the app informs individuals whether these unusual skin patterns warrant a visit to a dermatologist for further analysis. Furthermore, this app gives information on the accompanying symptoms of the predicted skin cancer.

We hope that everyone can use this application easily by simply taking pictures from their camera and upload it. Early disease detection can help to prevent cancer from early stages since, malignant melanoma, for example, is completely curable with a simple biopsy.

However, this application does not aim to substitute the Doctor's final assessment. We aim to give an additional layer as a reference for the user before further consulting with the Doctor. Besides, we also expect that this application can be used by dermatologists as an early screening of skin cancer.

In the future, we wish this implementation can be developed into a comprehensive application. For example, as a personal assistant which has the ability to save the history of the uploaded pictures time by time. This application can be a tracker of cancer's progress. Furthermore, we hope to improve few things: pre-processing for capturing the image using a phone camera, faster implementation of server code (in C/C++ instead of Matlab), and optimization of network architecture to get a more accurate result.