Monkeypox Classification

Abstract

The world is still trying to recover from the devastation caused by the widespread of COVID-19, and now the monkeypox virus threatens becoming a worldwide pandemic. Although the monkeypox virus is not as lethal or infectious as COVID-19, numerous countries report newcases daily. Thus, it is not surprising that necessary precautions have not been taken, and it will not be surprising if another worldwide pandemic occurs.

Recently it has been shown that machine learning is very promising for image-based diagnosis, including cancer detection, tumor cell identification, and the detection of COVID-19 patients. It is therefore possible to implement a similar application to diagnose monkeypox as it invades human skin and an image can be acquired and used to facilitate further diagnosis.

In this project, one CNN model and three pre-trained models (MobileNet, VGG-16, ResNet-50v2) are used for the classification of monkeypox images. The image dataset used is from kaggle (Monkeypox legion dataset) with 2142 training images, 90 testing images, 253 images for validation. The objective of our classification is to determine if an image contains monkeypox or not. With a fresh image, you can upload an image and find the result of every deep learning model on our website.

This model is supported by explainable Deep Learning methods. As a result, an artificial intelligence (AI) assisted auxiliary classification system has been proposed for Monkeypox skin lesions.

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