Structured Abstract

Skin cancer is the most common type of cancer and according to the Skin Cancer Foundation, 99% of all skin cancer cases are curable if they are diagnosed and treated early enough. The use of image classification enables people to easily, quickly, and accurately detect skin cancer, therefore it is of great importance to continuously improve it. For this project, I set out to implement three different image classifiers and fit all of them with greyscale and RGB images to observe their differences in performance and find the one that works best. Additionally, I wanted to investigate the effect of the image colour spectrum on a range of classifiers. The classifiers that I set out to implement are the cnn (convolutional neural network), the lstm (Long short-term memory RNN), and the svm (Support vector machine). All three classifiers were successfully developed and fitted with both categories of image data. Some of the results on performance were quite similar however, I was still able to find the classifier that worked best, which was the CNN. The effect of the colour spectrum on the classifiers was apparent in all classifiers and it indicated that fitting the models with coloured images drastically improved performance. publications in the past have focused on the difference between using greyscale and RGB dermoscopic skin cancer images in individual classifiers. The novelty of this work is that it compares the differences among multiple different classifiers.

Key Images

CNN-RGB accuracy