Third Capstone Project Proposal
Skin Disease Image Recognition Using CNNs

Problem statement formation

Can skin diseases be accurately classified by using Deep and Convoluted Neural Networks to an accuracy of 50% or greater.

Context

In the beginning of the pandemic access to basic medical care was difficult if not almost impossible in certain situations. Many individuals only had access to a Doctor via Video Call, and those were the individuals with equipment to do so. Something simple for a Doctor to diagnose, yet potentially dangerous, like a skin condition, could be left unchecked by a patient due to lack of access to a professional. A family member of mine faced a similar situation, if a simple tool to identify the skin condition were available they could have done research themselves and ultimately decided whether or not to go through the trouble of being checked out by a Doctor in person. The dataset I will use to train my model is a small subset of all possible skin conditions, 22 to be exact. Creating a classifier with 50% or greater accuracy would be much higher than random chance and provide enough empirical weight to warrant a follow up with a professional or not.

Criteria for success

The model should classify the 22 conditions with an accuracy of at least 50%

Scope of solution space

The Goal is to create a model to be used within Python. The model eventually being integrated into a phone app and more skin conditions is a goal outside the current scope.

Constraints

The Training set is relegated to 22 specific skin conditions, in the real world there are many more so in its current shape this is more of a proof of concept than a practical tool.

Stakeholders

Doctors, Nurses, Medical Administrators, Patients.

Data sources

Training Data for the CNNs, taken from Kaggle where they were cleaned and organized. The source images were taken from the Dermnet skin condition image database.

https://www.kaggle.com/shubhamgoel27/dermnet
http://www.dermnet.com/dermatology-pictures-skin-disease-pictures