Data Resources Found

- **Kaggle** (*link*): The data consists of images of 23 types of skin diseases including eczema taken from dermnet. The total number of images is around 19,500, out of which approximately 15,500 have been split in the training set and the remaining in the test set. *All the images have watermarks*.
  - Proposed model solution to the above Kaggle image classification competition *(link)*
    - Model created is based on ResNet50
    - Used adam as an optimizer and categorical cross-entropy as the loss function.
- **Dermnet** (*link*): Contains images for Eczema in grouped by where they appear in the body. They are 26 of such groups. Some of these images are public and some are for sell. *Most of the images have watermarks*.
- **Dermnetnz** (*link*): Contains images of Eczema that can be web scrapped.

Watermark Removal

- Watermarks could be removed with either Photoshop or *theinpaint*. **This might take a while depending on the number of images downloaded.**

Resources of Image Classification

- Research paper on a Deep Learning approach for inflammatory skin diseases classification (*link*)
  - Created model for classifying inflammatory skin diseases, such as psoriasis, eczema, and atopic dermatitis.
  - The model is based on google's EfficientNet-b4 CNN algorithm
  - The authors have added 7 auxiliary classifiers at the end of each intermediate layer to make the model learn classification information from different levels of features. The modified model was retrained with a dataset consisting of 4,740 dermatoscopy images categorized in 3 classes (psoriasis, eczema, and atopic dermatitis).
  - The overall diagnosis accuracy of AIDDA is 95.80%±0.09%
- A Survey of Medical Image Classification Techniques *(link)*
  - Gives a survey on medical image classification techniques and Feature selection for classification techniques

Prebuilt Image classification models and Pre-processing techniques

The following are existing prebuilt image classification models that can be used and adapted to solve image classification problems. They come with an exposed pre-processing function.

1. vgg16
2. vgg18
3. vgg19
4. ResNet50
5. ResNet152
6. inception version 3

7. EfficientNet-b4

Question

- What pre-processing technique are you currently using?

Task

- Create models and benchmark them
- Focus on Hands only
- Use Transfer Learning |