PROSCIA®

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Research Engineer Technical Challenge

Problem

In an alternate universe, you are leading a research team in developing a cutting-edge software product to diagnose skin diseases, and you have been tasked with identifying the different components of tissue. Luckily, in this realm, reports indicate only 8 types or components of skin tissues. We will just number them Type 1, 2...Type 8. Deep learning has not yet been invented in this realm and you must use traditional computer vision and/or machine learning techniques. You have access to the entire lab's bank of tissue images, but this amounts to 80 images-- 10 each of each type. Your job is to develop a simple algorithm to determine which images belong to which image type.

TODO

Write a function 'image_type*(image)*' which takes an image as input and returns the correct type for each image (a number 1 through 8).

Details and Requirements

1. Your code should be in Python only. (You may use Tensorflow/Keras if needed/desired, but this is absolutely NOT necessary).
2. You can use any publicly available packages/libraries/repos you want - just be sure to provide us with the link if you use something non-standard, and make sure you're using this project to showcase *your own* skills, not someone else's.
3. Your code should be well-documented and readable.
4. Your code should run as written, from start to finish.
5. Please write up a short *single-page* report on your work, briefly explaining your process & results.
6. Have fun! This is meant to be a short (1-3hrs) project. There's no hard time limit imposed and you can spend as much or little time as you want, but we don't want to waste your time. This is simply meant to get us familiar with how you solve problems, and to give you a little taste of the kinds of challenges a Proscia Engineer might face.
7. Please send your code and report to ai-team@proscia.com with the subject "Research Engineer Technical Challenge".

How to access the data

You may access the data via the following link
https://www.dropbox.com/sh/a9dozhofrigej63/AACCkbOKbOEcy82gOSTjGwaua?dl=0 .
Password: challenge2018
There are 8 folders: Type 1.... Type 8. Use these for the purposes of this technical challenge only; please do not share these images or the challenge problem with others.