Recruitment challenge 2020:

Go to http://user.it.uu.se/~cli05194/data/translocationdata.zip and download the zip-file.
You should now have 6 image pairs named
Channel1_A02.BMP, Channel2_A02.BMP
Channel1_A04.BMP, Channel2_A04.BMP
…
Channel1_A12.BMP, Channel2_A12.BMP

These are fluorescence microscopy images of cells, and the pair Channel1_A02.BMP and Channel2_A02.BMP
correspond to images of the same cells, but with different filters in front of the camera, so that
Channel1_A02.BMP shows a protein X that can move around in the cell, while Channel2_A02.BMP shows
where the cell nucleus is located. The cells in this image series have been exposed to increasing concentrations
of a drug (from A02 to A12), where the drug causes the protein X (shown in Channel1) to move from the
cytoplasm surrounding the cell nucleus (see Channel1_A02.BMP, low concentration of drug), to the inside of
the cell nucleus (see Channel1_A12.BMP, high concentration of drug). The stain in Channel2 is not affected by
the drug.

Your task is to write a few lines of code that can
1. load the images
2. extract a measurement that can quantify this change in location of protein X
3. classify the images as containing cells that have or have not responded to the drug treatment. The
   classifier does not have to be binary.

We want you to prepare a 15 min presentation of your approach and result.

The presentation should contain:
1. A discussion of your approach
2. Your code (for quick overview)
3. Your results, presented in a way that you feel conveys the information
4. Finally, we want you to discuss how you would have solved the problem if you had access to a large
   number of annotated images where each cell was manually marked as responding or not responding
   to the drug treatment. This discussion should take up at least 1/3 (5 min) of your presentation.

Tip: to import an image as an array of numbers in python, use these commands:
import numpy as np
from skimage import io
im = io.imread(filepath)

To import an image as an array of numbers using Matlab, use this command:
im=imread('Channel1_A02.BMP');

The two image channels can be combined into an RGB image (channel 1 is green and channel 2 is blue):