Homework 1

Due Thursday Jan 23rd

1. Image resizing

We've been talking a lot about resizing and interpolation in class, now's your time to do it! To resize we'll need some interpolation methods and create a new image and fill it in with our interpolation methods.

1.1 Nearest Neighbor Resizing

Fill in `nn_resize(im, dim)` It should:

- Create a new image that is size `dim` and the same number of channels as `im`
- Loop over the pixels and map back to the old coordinates
- Use nearest-neighbor interpolate to fill in the image

Now you should be able to run the following `python` command:

```
from myresize import *
import cv2
im = cv2.imread("dogsmall.jpg")
dim = (im.shape[1]*4, im.shape[0]*4)
a = nn_resize(im, dim)
cv2.imwrite("dog4x-nn.jpg", a)
```

1.2 Bilinear Resizing

Fill in `bilinear_resize(im, dim)` to perform bilinear interpolation.

- Create a new image that is size `dim` and the same number of channels as `im`
- Loop over the pixels and map back to the old coordinates
- Use bilinear interpolate to fill in the image

Try it out again in `python`:

```
from myresize import *
import cv2
im = cv2.imread("dogsmall.jpg")
dim = (im.shape[1]*4, im.shape[0]*4)
a = bilinear_resize(im, im.w*4, im.h*4)
cv2.imwrite("dog4x-bl", a)
```

Turn it in

Write a short report showing the original image and the resized image. Also attach your code to the report. Turn in your report as well as your source code on Sakai.