Show Code

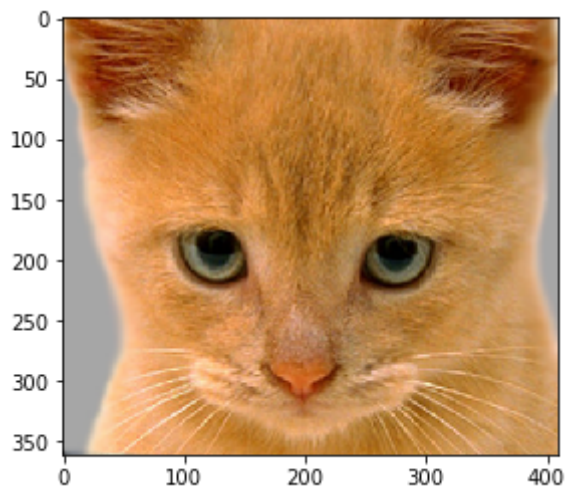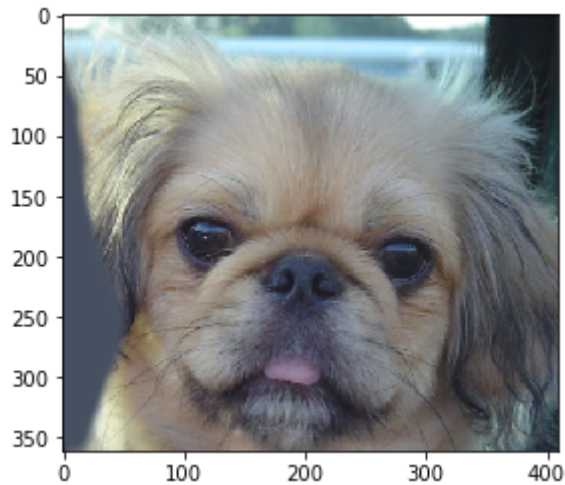## HW3: Hybrid images

In this assignment you will create a hybrid cat/dog image.

A. Oliva, A. Torralba, and P. G. Schyns. Hybrid Images (http://cvcl.mit.edu/publications/OlivaTorralb_Hybrid_Siggraph06.pdf). SIGGRAPH 2006.
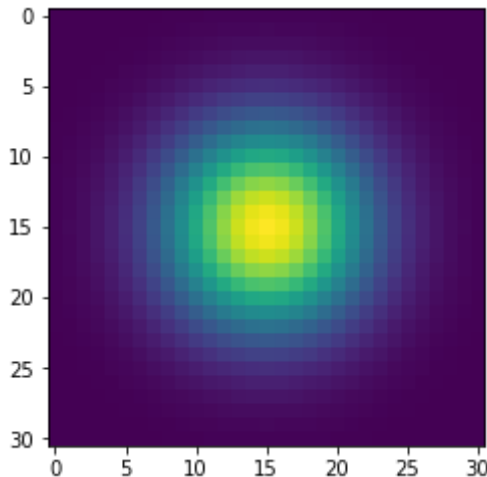
Step 1: Load the cat and dog images, convert to double precision and divide by 255.

Use imread from scipy.misc to read the images as RGB.

Step 2: Make a low-pass kernel of size 31x31 with sigma=5.

See cv2.getGaussianKernel(). This will return a vector g. To create the kernel matrix, compute g = g*g.transpose().

## Step 3: Make a high-pass kernel using the low-pass kernel you made in the last step.

See the lecture slides to understand how to create a high-pass kernel from a low-pass kernel.

Step 4: Filter the dog image with the low-pass kernel. Filter the cat image with the high-pass kernel.

See cv2.filter2D().

Note that you are not allowed to low-pass the cat and then subtract the result from the original. You should have made a high-pass kernel in the previous step so that you can produce the high-passed result in a single call to cv2.filter2D().

Note that if you clip the images to the range [0,1] using np.clip they will look better when you show them.
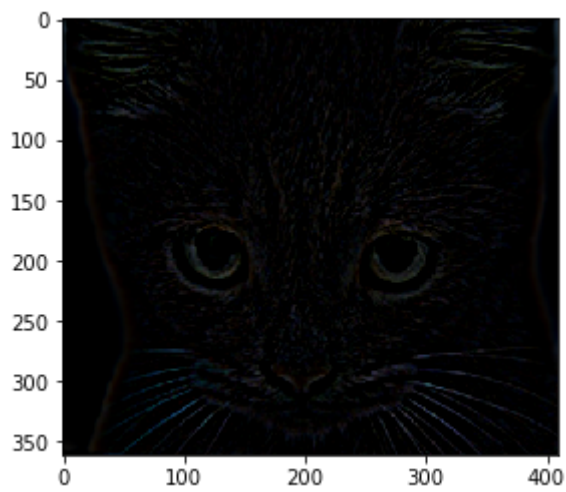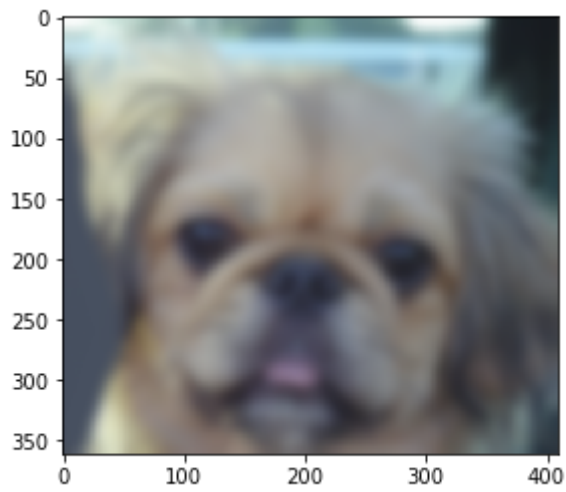
Step 5: Add the low-passed dog and high-passed cat together to produce the hybrid image.