

CS4363/5363 Computer Vision

Spring 2021

Filtering

1. Change *correlate2d(image, filt)* to work with both gray-level and color images. The current function expects *image* and *filt* to be 2D arrays. Modify the function to apply *filt* separately to every channel of *image* if *image* is a color image. If the function should return an array with the same number of dimensions as *image*.
2. Repeat the previous question but now use the *correlate2d* function from *scipy.signal*.
3. Extend edge finding to color images. The function should apply the filter separately to every channel and then return a 2D array containing the magnitudes of the changes in the image (that is, each pixel *i,j* should contain the norm of the intensity changes at position *i,j*, in the direction given by the filter (vertical or horizontal)).
4. Modify the image sharpening for color images described in the slides by replacing the mean filter by a gaussian filter.