OPTI 600C Homework 4 Due: October 19, 2018

This homework involves manipulating an image from a plenoptic camera. Review the paper by Ng for details on implementing the algorithms. Also included in the zip file is the plenoptic image from Todor Georgiev.

1. Create a routine that isolates each of the exit pupil sub-images in the plenoptic image. Take the average value of each sub-image (for each color channel) and use this as a pixel in a reconstructed image. This should give you a 139 x 139 array. Use some sort of interpolation routine to create a larger and more visible image and display it.
2. Repeat the same process above, but use the center pixel from each sub-image as the pixel for your reconstructed image. Display the image
3. Repeat step 2, but create one image using the right-most pixel from the sub-image and create another image using the left-most pixel from the sub-image. Display the absolute difference between the green color channels of the two images. You should get peaks where the disparity between the two images is large.
4. Finally, implement the refocusing algorithm described in class. Here pixels from different sub-images will contribute to the final image.