Name: _____

Score: /11

CSE 5524 Computer Vision for HCI AU'18

Homework Assignment #7

Due: Tuesday 10/9

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1) Compute and display the Harris pixel-wise cornerness function R values for the image checker.jpg using a) Gaussian window/weighting function with a standard deviation of $\sigma_I = 1$ (use 3σ mask size), b) Gaussian Gx,Gy gradients with a standard deviation of $\sigma_D = 0.7$ (use 3σ mask size), and c) trace weighting factor of $\alpha = 0.05$. Give the values of R(17:23, 17:23) in your report. Next remove the smaller and negative values in R (anything < 1,000,000). Display the thresholded R using imagesc. Lastly, do non-maximum suppression on R (for this version, keep a location only if a unique maximum is found in its 3x3 region) to identify the actual corner points and display them on the original image. (Note: use double() and not im2double() on checker.jpg) [5 pts]

2) Implement the FAST feature point detector using a radius of $r = 3$ (you can hardcode the particular circle border locations), intensity threshold of $T = 10$, and a consecutive number of points threshold of $n^* = 9$. Run the detector on the image tower.png. Display the image and overlay the FAST feature points. Repeat with T = {20, 30, 50} and compare all four results. [6 pts]

```
figure;
imshow(tower);
hold on;
plot(fastX,fastY,'r.');
hold off;
```

3) Turn in all code, printouts of images, and discussion of results. As usual, make the required script to do the above tasks and call needed functions. Upload your code and selected images to Carmen.