Optical Flow: Image Gradients

The perception of motion and the subsequent formation of an interpretation guides our everyday lives. The ability to determine if an object is moving, judge its speed and direction, and react accordingly is fundamental to our survival. The apparent motion which guides our actions is called optical flow. Since optical flow is determined by time varying image intensities, it is not always consistent with the true motion of objects and surfaces called the motion field. Motion estimation also plays a critical role in a variety of computer vision tasks. While applications such as object tracking, scene reconstruction and image alignment have very different objectives, they all rely to some degree on low-level motion cues.

In this lab you will estimate the optical flow between a pair of images via the implementation sketch in video .... In this section you will compute image gradients. In subsequent sections you will (1) computing the least squares displacement over several pixels and (2) combining these steps to estimate the optical flow estimate over the entire image.

Your Script

Save   Reset   📖 MATLAB Documentation (https://www.mathworks.com/help/)

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49  img = imread('peppers.png');
50  img_gray = double(rgb2gray(img));
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52  smooth = gauss_blur(img_gray);
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▶ Run Script ?

Previous Assessment: All Tests Passed

Submit ?

✅ **Is the gauss_blur() solution correct?**

✅ **Is the solution for the x derivative in grad2d correct?**

✅ **Is the solution for the y derivative in grad2d correct?**

✅ **Are additional Matlab functions used?**

Output

```
Code ran without output.
```