Lab6-Widely-Used Low-level Image Processing Techniques

CIS694/EEC693 Image Processing and Learning Methods-2021 Spring

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**In this in-class lab, we will practice the Lab6-Widely-Used Low-level Image Processing Techniques. Please try the following THREE experiments and review the experimental results.**

**Important:** In the Matlab Command Window, run “AddPath” first.

1. Optical Flow for Motion Feature

Open the file “demoflow.m” in the path of “outer\OptFlow\” and run it. Visualize vx, vy, Mag, and imflow. Try to understand its meaning.

2. Compare the Texture features of different materials. How to classify them? Can you design a Material Classification System based on the texture features?

Try the following code in the Matlab Command Window:

T1=imread('data/T1.png');

T2=imread('data/T2.png');

T3=imread('data/T3.png');

texture1=statxture(rgb2gray(T1))

texture2=statxture(rgb2gray(T2))

texture3=statxture(rgb2gray(T3))

3.1. Run the superpixel related code in the Command Window:

result54=DIP.Sp\_Enhanced\_Saliency('data/0054.jpg', 'data/0054\_dcl.png', 500);

result92=DIP.Sp\_Enhanced\_Saliency('data/0092.jpg', 'data/0092\_dcl.png', 500);

What task does this function do?

Hint: You may make a breakpoint to go through each called function to understand it.

3.2. Try the superpixel related code in the Command Window:

im\_rgb = imread('data/0092.jpg');

[Boundary, Am, Sp, D] = SuperpixelToolBox.SLIC(im\_rgb, 500, 10, 2, true);

out=SuperpixelToolBox.FindNeighbor(Am, 200);

DIP.Highlight\_SLIC(im\_rgb, Boundary, [200]);

DIP.Highlight\_SLIC(im\_rgb, Boundary, out);

What tasks are finished for the above code?

Hint: You may make a breakpoint to go through each called function to understand it.