Scale Invariant Point Detect

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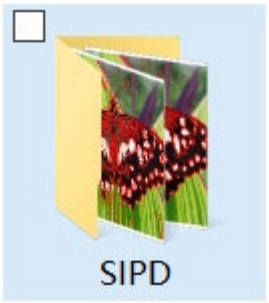
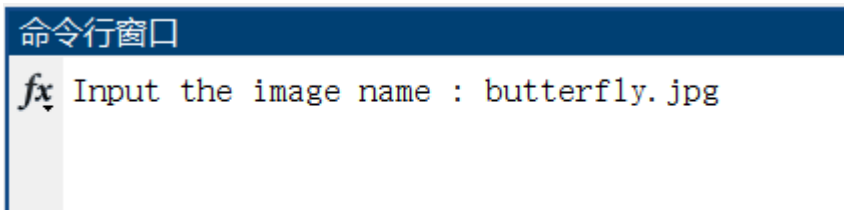
How to Run

- Open Assignment1\Scale_Invariant_Point_Detect \Scale_Invariant_Point_Detect_way1.m or Scale_Invariant_Point_Detect_way2.m
- Put the picture to be processed in the SIPD folder



- Run Scale_Invariant_Point_Detect_way1.m or Scale_Invariant_Point_Detect_way2.m
- In the MATLAB command line,input the picture name that will be SIPD-detected in the SIPD folder



- Waiting for a few seconds to display the results and save it to the \SIFD folder (saving the name of the image will be automatically generated based on the image you entered before)
- **You may notice that there are two very similar source files in the folder, because I found the core (calculation scale space) for SIPD, can be performed in two ways: Method1 is to keep the**

volume of the picture unchanged, The filtering core size of the LOG changes according to the increase of the number of layers, and the Method2 is to keep the filter nuclear size unchanged, and the size of the convolivable picture is changed as the number of layers increases.

- All other detailed comments are written in the source code, I will not repeat them here.

File structure

--Source code:

-- Scale_Invariant_Point_Detect_way1.m ——— Picture Unchanged Convolutionary changed

-- Scale_Invariant_Point_Detect_way2.m ——— Picture changed Convolutionary Unchanged

--Documentation:

-- Scale Invariant Point Detect.pdf

--Images:

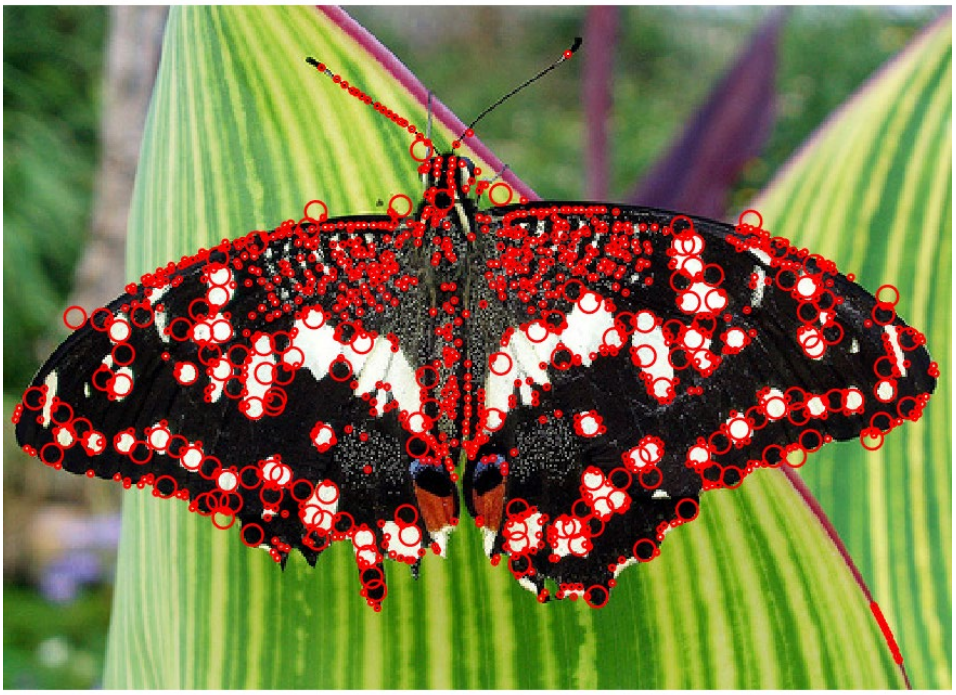
--SIPD\

Result display

Way1

1868 points of interest detected in the current picture

threshold=0.014 k=1.4



1125 points of interest detected in the current picture

threshold=0.03 k=1.4

3331 points of interest detected in the current picture

threshold=0.001 k=1.4

1863 points of interest detected in the current picture!

threshold=0.014 k=2.5

2763 points of interest detected in the current picture!

threshold=0.002 k=2.5

Way2

3200 points of interest detected in the current picture

threshold=0.012 k=0.7

5739 points of interest detected in the current picture

threshold=0.001 k=0.7

2895 points of interest detected in the current picture

threshold=0.005 k=2

998 points of interest detected in the current picture

threshold=0.005 k=10

Summary

Way1:

Results The preliminary adjustment can be seen that this method for changing the size of the filter is, Threshold = 0.25 ~ 0.3 and K = 1.2 to 1.7 can be better expressed as the edge point of the graphic

Way2:

Results The preliminary adjustment can be seen that the method for changing the size of the picture, Threshold = 0.11 to 0.13 and K = 0.7 to 0.9 and K = 10 to 15 can be better expressed as the edge point of the graphic