MATLAB R2015a - academic use

HOME | PLOTS | APPS

Search Documentation

New Script | New | Open | Find Files | Compare | Import Data | Save Workspace | New Variable | Open Variable | Clear Workspace | Analyze Code | Run and Time | Clear Commands | Simulink Library | Layout | Preferences | Set Path | Parallel | Help | Community | Request Support | Add-Ons

FILE | VARIABLE | CODE | SIMULINK | ENVIRONMENT | RESOURCES

C: ▸ MATLAB ▸

Current Folder

Name

Pollinator_photos

Script

Open Enter
Show in Explorer
Create Zip File
Rename F2
Delete Delete
New Folder
New File
Compare Selected Files/Folders
Compare Against
Cut Ctrl+X
Copy Ctrl+C
Paste Ctrl+V
Add to Path
Indicate Files Not on Path
Refresh F5

Selected Folders
Selected Folders and Subfolders

Add folders (and subfolders) containing the script and images to the file path

Script (Folder)

No details available

Editor - H:\Jamie\PhD Documents\Pollinator Traits\Pilosity\MATLAB\Script\Script (new)\EntropyTest_4Regions.m

EntropyTest_4Regions.m | Mark_4_RegionsBees.m

```
1  function EntropyTest_4Regions(SmallObjThres,RoundThresh,NhoodRad,Filter)
2  %EntropyTest_4Regions(SmallObjThres,RoundThresh,NhoodRad,Filter)
3  %This function process the entropy in the input *jpg images in the selected folder
4  %Processing parameters can be changed inside the function
5  %SmallObjThres defines the pixel count of an object which defines it as
6  %small, and make it deletable.
7  %Default Value = 8
8  %RoundThresh is a simmilarity coefficient with a perfect circle object.
9  %the closer to 1, the closer to a perfect circle an object is.
10 %Objects marked as circles are deleted by the preprocessing function
11 %Default Value = 0.95
12 %NhoodRad defines Neighborhood size for entropy calculation 7 pixels by default---means 13x13
13 %Default Value = 7
14 %Filter is a flag which defines whether preprocessing is small and round
15 %objects are deleted or not
16 %Typical Example of usage:
17 %        EntropyTest_4Regions(8,0.95,7,1);
18 % (c) Gustavo Liñan Cembrano
   SE-CNM-CSIC
   nan@imse-cnm.csic.es
22 %% Getting input dir
23
24 IM_PATH=uigetdir([],'Select Image Folder');
   previous results?','Delete','No');
   delete('*.csv');
31 elseif(strcmp(DeletePrevious,'Cancel'))
32     return;
33 else
```

Command Window

```
    Academic License

fx >>
```

Workspace

Name | Value

Ready

MATLAB R2015a - academic use

HOME | PLOTS | APPS | EDITOR | PUBLISH | VIEW

Search Documentation

New | Open | Save | Find Files | Compare | Print — FILE
Go To | Find — NAVIGATE
Insert | Comment | Indent — EDIT
Breakpoints — BREAKPOINTS
Run | Run and Advance | Run Section | Advance | Run and Time — RUN

C: ▸ MATLAB ▸

Current Folder

Name

Pollinator_photos
Script

Pollinator_photos (Folder)

No details available

Editor - H:\Jamie\PhD Documents\Pollinator Traits\Pilosity\MATLAB\Script\Script (new)\Mark_4_RegionsBees.m

EntropyTest_4Regions.m | Mark_4_RegionsBees.m

```
1  function Mark_4_RegionsBees()
2  % Request the user to mark 4 regions in all .jpg images in an input
3  % directory. Regions are defined by drawing polygons in the input image.
4  % right-button click closes the region. Then use double click at the last
5  % point to validate the region and pass to the next one. In case of drawing
6  % error, press CTRL-C to abort the function and run the code again without
7  % deleting previous results. The program checks if a locations file for the
8  % current image exists and if so, skips it from the selecting region
9  % process.
10 %Typical Example of usage:
11 %       Mark_4_RegionsBees();
12 % (c) Gustavo Liñan Cembrano
13 % IMSE-CNM-CSIC
14 % linan@imse-cnm.csic.es
15
16
17
18
19 clear all;
20 close all;
21 clc;
22
23
24 IM_PATH=uigetdir([],'Select Image Folder');
25
26 cd(IM_PATH)
27 DeletePrevious = questdlg('Delete previous regions?','Delete','No');
28 if(strcmp(DeletePrevious,'Yes'))
29     delete('*.mat');
30     delete('*.tiff')
31 elseif(strcmp(DeletePrevious,'Cancel'))
32     return;
33 else
```

Command Window

```
Academic License

>> Mark_4_RegionsBees();
```

Type the mark regions command into the command window

Workspace

Name | Value

Ready

MATLAB R2015a - academic use

HOME | PLOTS | APPS | EDITOR | PUBLISH | VIEW

Search Documentation

New | Open | Save | Find Files | Compare | Print — FILE
Go To | Find — NAVIGATE
Insert | Comment | Indent — EDIT
Breakpoints — BREAKPOINTS
Run | Run and Advance | Run Section | Advance | Run and Time — RUN

C: ▸ MATLAB ▸ Pollinator_photos ▸ Leioproctus_paahaumaa

Current Folder

Name

Leioproctus paahaumaa head.jpg

Details

Select a file to view details

Editor - H:\Jamie\PhD Documents\Pollinator Traits\Pilosity\MATLAB\Script\Script (new)\Mark_4_RegionsBees.m

EntropyTest_4Regions.m | Mark_4_RegionsBees.m

```
1  function Mark_4_RegionsBees()
2  % Request the user to mark 4 regions in all .jp
3  % directory. Regions are defined by drawing pol
4  % right-button click closes the region. Then us
5  % point to validate the region and pass to the
6  % error, press CTRL-C to abort the function and
7  % deleting previous results. The program checks
8  % current image exists and if so, skips it from
9  % process.
10 %Typical Example of usage:
11 %       Mark_4_RegionsBees();
12 % (c) Gustavo Liñan Cembrano
13 % IMSE-CNM-CSIC
14 % linan@imse-cnm.csic.es
15
16
17
18
19 clear all;
20 close all;
21 clc;
22
23
24 IM_PATH=uigetdir([],'Select Image Folder');
25
26 cd(IM_PATH)
27 DeletePrevious = questdlg('Delete previous regi
28 if(strcmp(DeletePrevious,'Yes'))
29     delete('*.mat');
30     delete('*.tiff')
31 elseif(strcmp(DeletePrevious,'Cancel'))
32     return;
33 else
```

Command Window

Workspace

Name | Value

Select Image Folder

Computer ▸ Windows (C:) ▸ MATLAB ▸ Pollinator_photos ▸ Leioproctus_paahaumaa

Search Leioproctus_paahaumaa

Organize | New folder

Favorites
Desktop
Downloads
Recent Places

Libraries
Documents
Music
Pictures
Videos

Computer
Windows (C:)
System Reserved (E:)
Removable Disk (F:)
University Home dri
Science Home drive

Network

No items match your search.

Select the folder containing the images to be analysed

Folder:

Select Folder | Cancel

Busy

MATLAB R2015a - academic use

HOME | PLOTS | APPS | EDITOR | PUBLISH | VIEW

Search Documentation

New | Open | Save | Find Files | Compare | Print | Go To | Find | Insert | Comment | Indent

FILE | NAVIGATE | EDIT | BREAKPOINTS

C: ▸ MATLAB ▸ Pollinator_photos ▸ Leioproctus_paahaumaa

Current Folder

Name

Leioproctus paahaumaa head.jpg

Details

Select a file to view details

Editor - H

Entropy

Command W

Warnin
> In i
In i
In M

Workspace

Name | Value

Busy

Figure 1

File Edit View Insert Tools Desktop Window Help

Define the number of regions to be marked.
This can be up to four per image

11:41 a.m.
1/06/2016

MATLAB R2015a - academic use

HOME | PLOTS | APPS | EDITOR | PUBLISH | VIEW

Search Documentation

New | Open | Save | Find Files | Compare | Print | Go To | Find | Insert | Comment | Indent

FILE | NAVIGATE | EDIT | BREAKP

C: ▸ MATLAB ▸ Pollinator_photos ▸ Leioproctus_paahaumaa

Current Folder

Name

Leioproctus paahaumaa head.jpg

Details

Select a file to view details

Editor - H

Entropy

Figure 1

File Edit View Insert Tool

Manually mark the region of interest. Double click over the first location point will finalise the region loaction

Command W

Warnin

> In i

In i

In M

Workspace

Name | Value

Busy

MATLAB R2015a - academic use

HOME | PLOTS | APPS | EDITOR | PUBLISH | VIEW

Search Documentation

New | Open | Save | Find Files | Compare | Print | Go To | Find | Insert | Comment | Indent | Breakpoints | Run | Run and Advance | Run Section | Advance | Run and Time

FILE | NAVIGATE | EDIT | BREAKPOINTS | RUN

C: ▸ MATLAB ▸ Pollinator_photos ▸ Leioproctus_paahaumaa

Current Folder

Name

Leioproctus_paahaumaa_head.jpg
Leioproctus_paahaumaa_head.jpg_Locations.mat

Details

Select a file to view details

Editor - H:\Jamie\PhD Documents\Pollinator Traits\Pilosity\MATLAB\Script\Script (new)\EntropyTest_4Regions.m

EntropyTest_4Regions.m | Mark_4_RegionsBees.m

```
1  function EntropyTest_4Regions(SmallObjThres,Rou
2  %EntropyTest_4Regions(SmallObjThres,RoundThresh
3  %This function process the entropy in the input
4  %Processing parameters can be changed inside th
5  %SmallObjThres defines the pixel count of an ob
6  %small, and make it deletable.
7  %Default Value = 8
8  %RoundThresh is a simmilarity coefficient with
9  %the closer to 1, the closer to a perfect circl
10 %Objects marked as circles are deleted by the p
11 %Default Value = 0.95
12 %NhoodRad defines Neighborhood size for entropy
13 %Default Value = 7
14 %Filter is a flag which defines whether preproc
15 %objects are deleted or not
16 %Typical Example of usage:
17 %       EntropyTest_4Regions(8,0.95,7,1);
18 % (c) Gustavo Liñan Cembrano
19 % IMSE-CNM-CSIC
20 % linan@imse-cnm.c
21
22 %% Getting input d
23
24 IM_PATH=uigetdir([
25
26 cd(IM_PATH)
27 DeletePrevious = questdlg('Delete previous resu
28 if(strcmp(DeletePrevious,'Yes'))
29     delete('*.tiff')
30     delete('*.csv');
31 elseif(strcmp(DeletePrevious,'Cancel'))
32     return;
33 else
```

Command Window

```
Warning: Image is too big to fit on screen; displaying at 67%
> In images.internal.initSize (line 71)
  In imshow (line 305)
  In Mark_4_RegionsBees (line 65)
>> EntropyTest_4Regions(8,0.95,7,1);
```

Workspace

Name | Value

Select Image Folder

Computer ▸ Windows (C:) ▸ MATLAB ▸ Pollinator_photos ▸ Leioproctus_paahaumaa

Search Leioproctus_paahaumaa

Organize | New folder

Favorites
Desktop
Downloads
Recent Places

Libraries
Documents
Music
Pictures
Videos

Computer

No items match your search.

Network

Folder:

Select Folder | Cancel

Enter the entropy test regions command in the command window and select the folder containign the images and region location files

Busy

10:54 a.m.
1/06/2016

MATLAB R2015a - academic use

HOME | PLOTS | APPS | EDITOR | PUBLISH | VIEW

Search Documentation

New | Open | Save | Find Files | Compare | Print — FILE
Go To | Find — NAVIGATE
Insert | Comment | Indent — EDIT
Breakpoints — BREAKPOINTS
Run | Run and Advance | Run Section | Advance | Run and Time — RUN

C: ▸ MATLAB ▸ Pollinator_photos ▸ Leioproctus_paahaumaa

Current Folder

Name

- Leioproctus paahaumaa head.jpg
- Leioproctus paahaumaa head.jpg_ENTROPY_RESULTS.tiff
- Leioproctus paahaumaa head.jpg_Locations.mat
- Leioproctus paahaumaa head.jpg_Region1EntropyImage.tiff
- Results.csv

Entropy image, locations file and and results file are saved in the folder containing the image file.

Details

Select a file to view details

Editor - H:\Jamie\PhD Documents\Pollinator Traits\Pilosity\MATLAB\Script\Script (new)\EntropyTest_4Regions.m

EntropyTest_4Regions.m | Mark_4_RegionsBees.m

```
1  function EntropyTest_4Regions(SmallObjThres,RoundThresh,NhoodRad,Filter)
2  %EntropyTest_4Regions(SmallObjThres,RoundThresh,NhoodRad,Filter)
3  %This function process the entropy in the input *jpg images in the selected folder
4  %Processing parameters can be changed inside the function
5  %SmallObjThres defines the pixel count of an object which defines it as
6  %small, and make it deletable.
7  %Default Value = 8
8  %RoundThresh is a simmilarity coefficient with a perfect circle object.
9  %the closer to 1, the closer to a perfect circle an object is.
10 %Objects marked as circles are deleted by the preprocessing function
11 %Default Value = 0.95
12 %NhoodRad defines Neighborhood size for entropy calculation 7 pixels by default---means 13x13
13 %Default Value = 7
14 %Filter is a flag which defines whether preprocessing is small and round

                                                    5,7,1);

20 % Ithan@imse-cnm.csic.es
21
22 %% Getting input dir
23
24 IM_PATH=uigetdir([],'Select Image Folder');
25
26 cd(IM_PATH)
27 DeletePrevious = questdlg('Delete previous results?','Delete','No');
28 if(strcmp(DeletePrevious,'Yes'))
29     delete('*.tiff')
30     delete('*.csv');
31 elseif(strcmp(DeletePrevious,'Cancel'))
32     return;
33 else
```

Command Window

```
##########################################################
      Accesing File Leioproctus paahaumaa head.jpg
Found location definition for 1 regions
Preprocessing regions and preparing images
Deleted 1680 Small Objects in Region
Deleted 63 round objects in Region
      Processing Entropy for file Leioproctus paahaumaa head.jpg
##########################################################
Warning: Image is too big to fit on screen; displaying at 50%
> In images.internal.initSize (line 71)
  In imshow (line 305)
  In EntropyTest_4Regions (line 196)
Processing time = 13.012s
fx >>
```

Analysis summary shows the number of regions processed and the number of objects deleted from the image

Workspace

Name | Value