

MATLAB package for extracting shapes from images

This package contains two sets of programs to extract curves from images

1 Old method

This method involves manual tracing of curve on intensity images(causes flicker sometimes)

1. a. Use the program

`Capture_Shape_Boundary.m`

The user has to specify the image file location in the program.

2. b. Upon executing this program, an image is displayed. The user can trace a curve with the mouse (keeping the left button pressed) It's advisable to trace all curves in one direction (either counter-clockwise or clockwise, but it has to be the same for all shapes you want to analyze).
3. c. To stop tracing, the user has to press 'Enter' in the MATLAB window.

2 New method

This method requires the user to create binary images for the shapes of interest and then uses MATLAB to automatically extract shapes from these images.

Steps:

1. a. The user can use programs like Gimp, photoshop, etc that displays an intensity image, then use the mouse to trace regions over the image. Using menu options, convert the traced curve into a binary image. (Say 0 inside and 1 outside). Save the image in some directory.
2. b. Repeat the above procedures for all the images, whose shapes the user is interested in.
3. c. Open MATLAB. Go to the directory where this package is located. Run the program

`Shape_Curve_From_Image.m`

The program will open a dialog box prompting for a directory, where all the binary images are stored.

NOTE: This directory should only contain binary images. At present no error checking is done for invalid file types.

Select the directory in the dialog box.

4. d. The program will automatically extract the shapes from the binary images and save them individually in the folder called

`Cur_Extracted_Shapes`

5. e. The program will also automatically gather all the extracted shapes and save them in a single file named `all_curve_< dd > - < month > - < year > _ < time >.mat`, where `< dd >`, `< month >`, `< year >`, and `< time >` stand for current date, full month name, year, and time in hours, minutes and seconds respectively.

3 Examples of Usage

1. a. For the old method, the directory "**test_intensity_images**" contains an intensity image. Run the program

`Capture_Shape_Boundary.m`

and follow the steps in 1.

2. b. For the new method, the directory "**test_bin_images**" contains 3 binary images. Run the program

`Shape_Curve_From_Image.m`

and follow steps 2-(c) to 2-(e)