Code Checklist

A. ESHAPE.fig Graphical user interface of main page.

B. ESHAPE.m Source program of main page. ESHAPE can be run by executing this file using MATLAB 2016a or later.

C. functions

1) cal_area_c.m Calculate area and circumference.
2) calc_dc_components_modify.m Calculate DC (Direct Current) components.
3) calc_harmonic_coefficients_modify.m Calculate the n-th set of four harmonic coefficients.
4) calc_traversal_dist.m Generate position coordinates of chain code. Number of harmonic elements (n), and number of points for reconstruction (m) must be specified.
5) calc_traversal_time.m Calculate traversal time which is defined as accumulated time consumed by every component of the chain code.
6) calc_traversal_vector.m Generate position coordinates of chain code.
7) code2axis.m Convert chain code to coordinates.
8) fourier_approx_norm_modify_20231008.m Generate position coordinates of fourier approximation of chain code.
9) gui_chain_code_func20221129.m Generate chain code based on binary image.
10) is_completed_chain_code.m Check whether the chain code is closed.
11) plot_chain_code.m Plot chain code with certain color and line width. Chain code should be written in chain vector.
12) plot_fourier_approx_modify.m Plot the fourier approximation, given a chain code, number of harmonic elements (n), and number of points for reconstruction (m). Normalization can be applied by setting "normalized = 1".
13) WriteDataToFile.m Write data to txt.
14) EFA.fig Graphical user interface of ‘Ellipse Fourier Analysis’ page.
15) EFA.m Source program of ‘Ellipse Fourier Analysis’ page that enter into from main page.

Other codes used in case study and stored in file “transform”

1) chain_code_ysysmmetry_func.m Generate y-axis symmetric chain code.
2) chain_code_xsysmmetry_func.m Generate x-axis symmetric chain code.
3) chain_code_starting_func.m Generate starting point change chain code.
4) chain_code_rotatew_func.m Generate anticlockwise rotating chain code.
5) chain_code_rotatec_func.m Generate clockwise rotating chain code.
6) chain_code_reverse_func.m Generate reversal chain code.