

IMAGE MORPHOSPECIE PROCESSING VERSION 2

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# User manual

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# 1 Overview about Image Morphospecie Processing (IMP)

The IMP was constructed to process digital image. Basically, this program look like the other applications. It include the main **menu**, **toolbar**, **main windows** and **status bar** at the end of interface

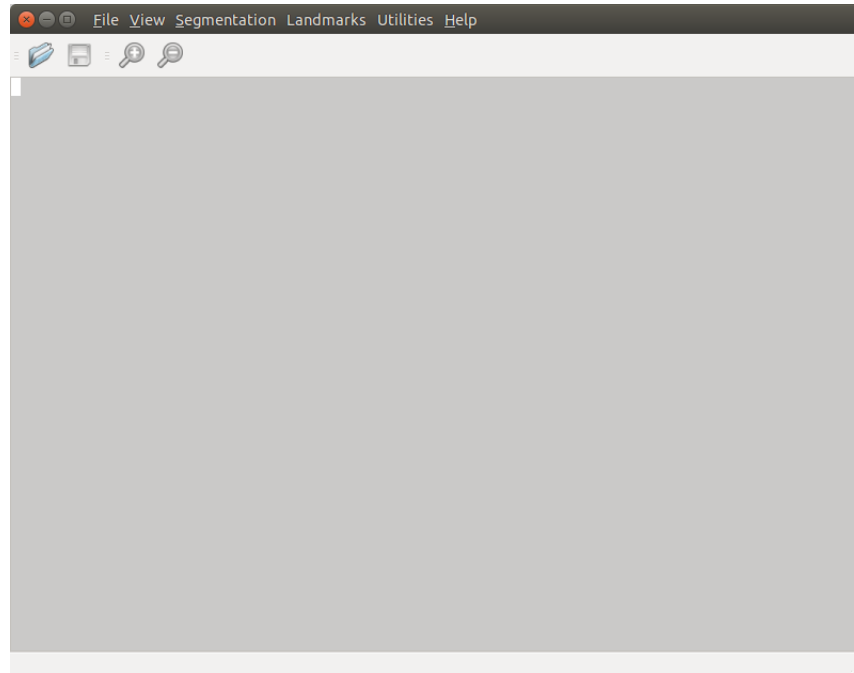


Figure 1: The program user interface

## 1.1 Main menu

The main menu contains all the functions of program. The functions are organized into the group followed the characteristics of functions. The main menu includes five groups described as follows:

- **File** menu: contains the file's operations such as save, open, print the image or close the program.
- **View** menu: contains the display option of image on application
- **Segmentation** menu: contains the functions to segment an image and basic methods from OpenCV
- **Lanmarks** menu: contains the functions to estimate and analysis the landmarks of image
- **Utilities** menu: contains the utility functions during processing image.
- **Help** menu: introduces about application.

## 1.2 Toolbar and status bar

The toolbar contains the quick access for some method in program such as: open image, save image, zoom in (25%) or zoom out(25%) image.

The status bar stay at the end of program. It used to display the option value when user have change some parameter on the result.

### 1.3 How to use this application ?

The using application very easy. The user just open an image (by **File** menu or **toolbar**) then choose the correlative method.

## 2 Main functions in application

### 2.1 File menu

**File** menu provides users the functions open/save image or close program.

- **Open:** open an image on program
- **Save:** save image to file
- **Save as:** save image to file with difference name
- **Print:** print the image
- **Close:** close the current window
- **Exit:** close the program

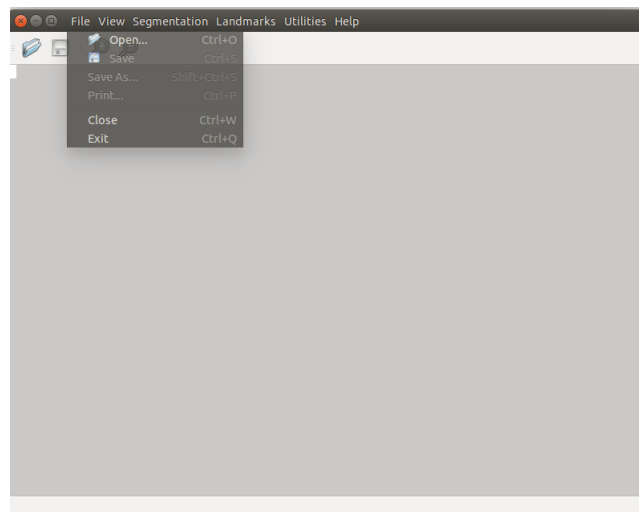


Figure 2: The functions in file menu

### 2.2 View menu

**View** menu provides the solutions about display of image in program

- **Zoom In:** zoom in the image 25%
- **Zoom Out:** zoom out the image 25%
- **Normal Size:** display image as normal size
- **Fit to window:** stretch the image fit to the size of windows

## 2.3 Segmentation menu

**Segmentation** menu provides the function to segment image and operations from OpenCV library.

- **Edge segmentation:** extraction the edges from an image based on histogram analysis or Otsu method.
- **OpenCV** submenu: the basic processes on image provided by OpenCV.

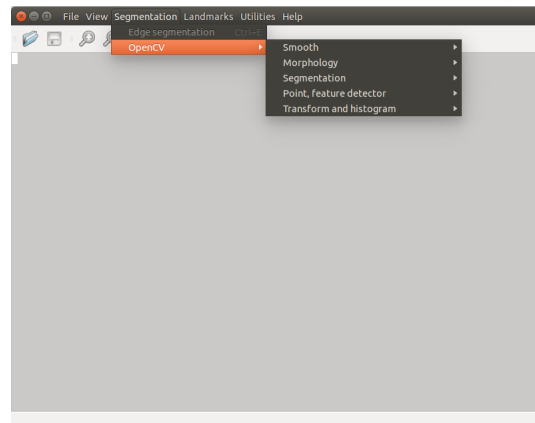


Figure 3: The functions in segmentation menu

## 2.4 Landmarks menu

**Landmarks** menu provides the functions to extract and analysis the landmarks on image.

- **Estimation:** estimate the landmarks of image based on difference methods, such as: edge extraction, cross-correlation.
- **Analysis:** analysis the estimated landmarks base on the difference methods.

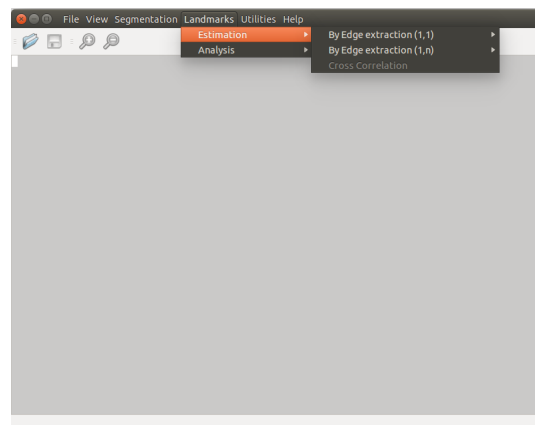


Figure 4: The functions in landmarks menu

## 2.5 Utilities menu

Utilities menu provides another utility functions on image.

- **Color 2 grayscale:** convert image to grayscale mode
- **Binary threshold:** apply the binary threshold to segment image
- **Remove yellow grid:** remove the yellow grid on image
- **Pairwise histogram:** compute the pairwise geometric histogram
- **PGH matching:** compute the measure metric between pairwise geometric histograms based on the methods (Bhattacharyya, Chi-Squared, Intersection)

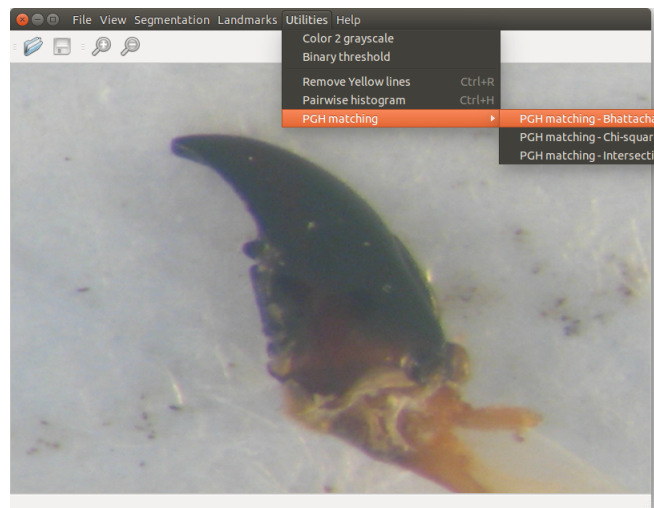


Figure 5: The functions in utilities menu

### 3 Classification method