Creating a GUI model using Python

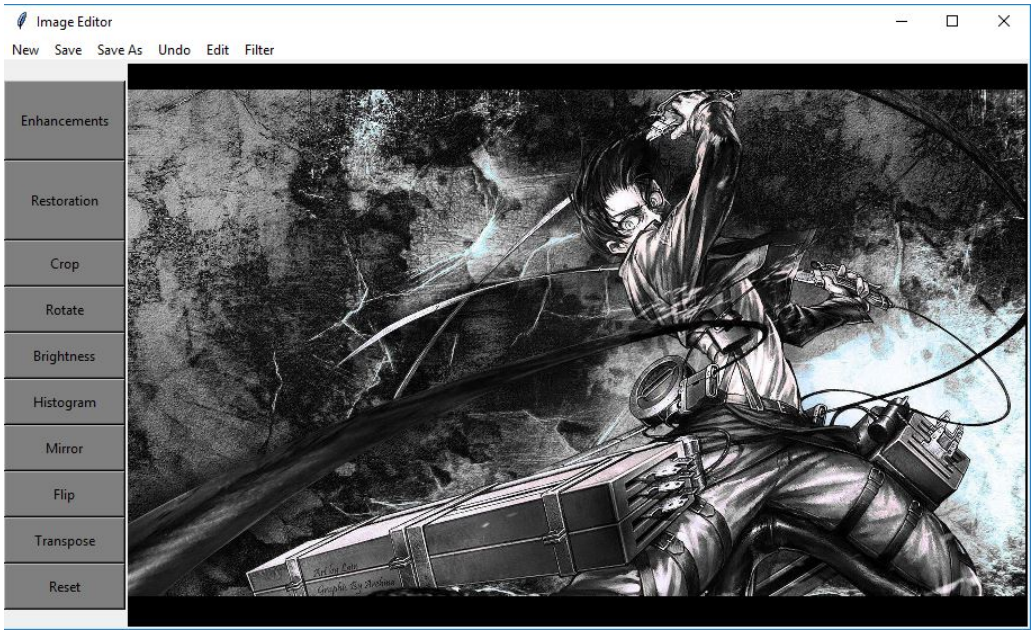
Requirements:

1. Numpy
2. OpenCV
3. Scipy
4. PIL
5. Tkinter
6. Python 3 and above

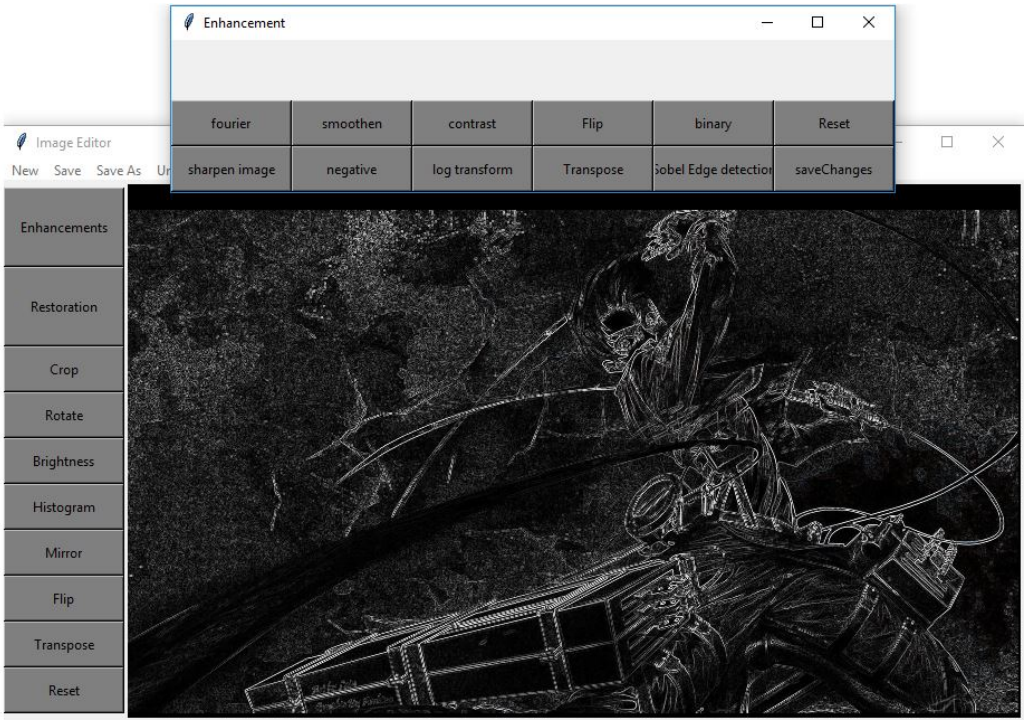
Description:

In this project I've attempted to build a GUI for image processing using python. Tkinter library has been used to build the GUI. For image processing I've used Numpy, OpenCV, scipy and pillow libraries.

Functionality:

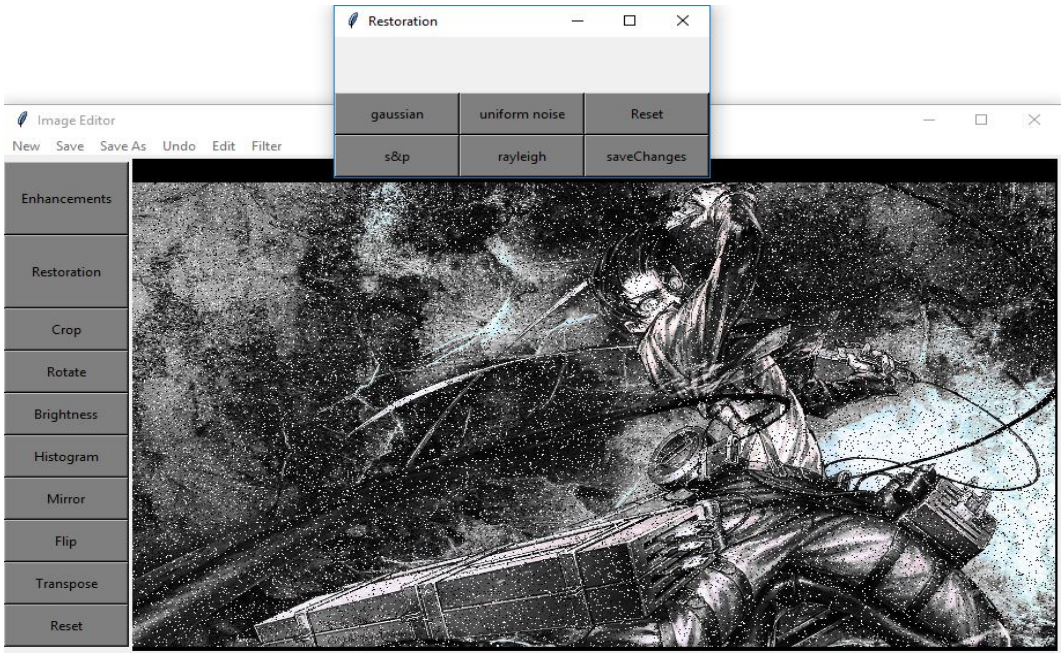


- The main window has a menu bar and a toolbox. Clicking on Enhancement or Restoration open their respective sub boxes. Apart from that, I have incorporated basic editing tools like crop, rotate, brightness adjustment, Histogram for RGB adjustment, Mirror, Transpose and Flip.



Enhancement Features:

- Enhancement features include fourier transform, image smoothing (3X3, 5X5,7X7 averaging filters) , color to binary, sharpen image(using laplacian filter), image negative, log transform and sobel edge detection filter.



Restoration Features:

- Restoration features include adding Gaussian noise, Uniform Noise, salt and Pepper Noise and Rayleigh noise.

Running the Code:

In order to run the code, copy the attached code to python IDE and run. Dependencies include python 3 and above, CV2, numpy, scipy and PIL. There is also a .ipynb file of the code incase you want to run it in jupyter notebook.