Computer Vision Lab

Assignment 3

1. By use OpenCV to load an image, implement a mouse click event, and retrieve the coordinate along with the color values of the clicked position on the image?
2. Read an image with OpenCV and perform drawing operations by using coordinate values, including lines, rectangles, triangle, circle and adding the text "Write your name" in a single operation?
3. By utilize OpenCV to perform various geometric transformations such as
    1. Image scaling (use different interpolation like Cubic, Linear, Nearest-neighbor, Area and sinusodial)
    2. Rotation
4. Write code using OpenCV to read an image and apply an affine transformation with a translation of 20 pixels in the x-axis and 30 pixels in the y-axis. Display both the original and transformed images.
5. Create a program that reads an image and applies a Motion blur to it using the filter shown in the image below. Display both the original image and the blurred image.

$$\frac{1}{5}\begin{bmatrix} 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 \\ 1 & 1 & 1 & 1 & 1 \\ 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

Some Useful Commands:

cv2.namedWindow('Image')

cv2.setMouseCallback('Image', own_function)

cv2.EVENT_LBUTTONDOWN

cv2.line, cv2.rectangle, cv2.polylines, cv2.circle, cv2.putText

interpolation=cv2.INTER_LINEAR

cv2.warpAffine

cv2.getRotationMatrix2D