



LAB 05: DETECTING EDGES

CS353 IMAGE PROCESSING

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INTRO

During this week, you will be applying methods to highlight areas of abrupt value (intensity) change (i.e., edges)

STEP 1:

Use your script from last week, to import yet another image of Lena.

STEP 2:

If not monochrome, convert to grayscale (you don't need color to detect changes in intensity).

STEP 3:

Convolve with the appropriate 3 x 3 kernels, to get the horizontal and vertical Sobel outputs separately.

STEP 4:

Display a single (combined) Sobel magnitude, applying a threshold at $M > 0.66$ on the output.

STEP 5:

Return to the original version and add some Gaussian noise (e.g., $\mu=0$, $\sigma=1$) to blur.

STEP 6:

Use Sobel vs. LoG on the blurred image, placing the two outputs side by side to compare.

STEP 7:

Now, find and import a good-resolution image of a zebra in the wild (convert to grayscale if needed).

STEP 8:

Put this new image through all 5 phases of a Canny edge-detecting algorithm (like we did in class).

STEP 9:

Display all five outputs (Blurred, Gradient, Non-max, Double Threshold, and Hysteresis) side by side.

STEP 10:

Take the final edge image (binarized output) from step 8, and try to improve it, by employing HT line detection.

STEP 11:

Create another document containing code snippets alongside output screenshots for each step.

STEP 12:

Save your work, and submit the document under the corresponding slot on Moodle.



THE END