Homework 3

Hough Transform

Deadline: 6/12 11:59 pm **10 points**

In this assignment you have to implement Hough transform algorithm for detecting lines. Refer to the algorithm that was discussed in class and do not forget to use the polar coordinate system.

The

1. Initialize accumulator H to all zeros

2. For each edge point (x,y) in the image

    For $\theta = 0$ to 180 (Interval is 1, larger can be used)

        $\rho = x \cos \theta + y \sin \theta$

        $H(\theta, \rho) = H(\theta, \rho) + 1$

    end

end

3. Find the value(s) of (θ, ρ) where $H(\theta, \rho)$ is a local maximum

4. The detected line in the image is given by $\rho = x \cos \theta + y \sin \theta$

1) Choose at least three images for showing your result.
2) Show the output for voting and the output for lines in your report.
3) Include your code with comments in the report.
4) If you are using libraries that have Hough transform compare your implementation of Hough transform with the method and discuss the change.
5) Try to add your own ideas and apply non-maxima suppression.
6) Put your code and report in a zip file and upload it to the Brightspace.