ECE/OPTI 532, Spring 2023

Homework 3 Assignment

Due Thu. March 2

Write a computer program to implement the Hough transform to detect straight lines. Write your own code for the steps of the algorithm; don't use existing Hough-related functions. Use the rho/theta parameterization. Use about 100-by-100 resolution for the Hough array. Apply your program to the `edges.png` edge map that is provided, using $\Delta\theta = 2°$ and $\Delta\rho = 2$.

Submit the following items:

- Your commented source code files.
- A diagram illustrating how you are defining the x-axis, the y-axis, the θ angle, and the ρ offset.
- The Hough array (appropriately scaled) and displayed as a grayscale image.
- Adjust the threshold so that you obtain the best set of lines.
- What is the best threshold value?
- A sketch (by hand or by computer) of the most significant lines that were found, along with the θ (degrees) and ρ values for those lines.