

Hough Transform - Part b

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1. Explain why the (ρ, θ) parametrization for lines leads to a better discretization of the Hough parameter space than (m, t) in

$$y = m \cdot x + t.$$

Compare the accuracies of the parameter estimates you can hope to achieve in both cases, given the search for the maxima must take place in a reasonable time.

2. The finite size of the image implies that, on average, the length in pixel of the visible portions of lines close to the image center C is greater than that of lines distant from C . How does this bias the Hough transform? How would you counter this bias?
3. Write an algorithm using the Hough transform to detect **circles**. Discuss whether the algorithm is suitable for tracking circles. Which other methods can you think of to detect circles?