

ELEC 474

Machine Vision

Prelab 3

Line RANSAC

February 5th/6th, 2018

Implement (from scratch) a RANSAC line extraction routine. First, load an image, (if it's a colour image) convert it to grey scale, and generate a binary edge image using Canny edge extraction. Then execute your RANSAC line extraction method on the edge image to detect the significant lines in the image. Display these lines, either overlaid (in colour) in the original or edge image, or in a separate image.

Test your routine on a variety of images, including **highway.jpg**, **empire_state_building.jpg**, and **seaside.jpg**.

Notes:

1. Experiment with different stopping conditions, such as an iteration threshold, and a consensus threshold.
2. Write your routine so that it returns the top k results, ideally sorted from best to worst.
3. You will need to write a subroutine that calculates the distance of a point to a line. There exists a number of good resources on the Web that describe the (fairly simple) algebra behind this.
4. As a bonus, calculate the inliers in the edge map that contribute to each resulting line, and highlight these inliers with a different color (e.g. red highlight).