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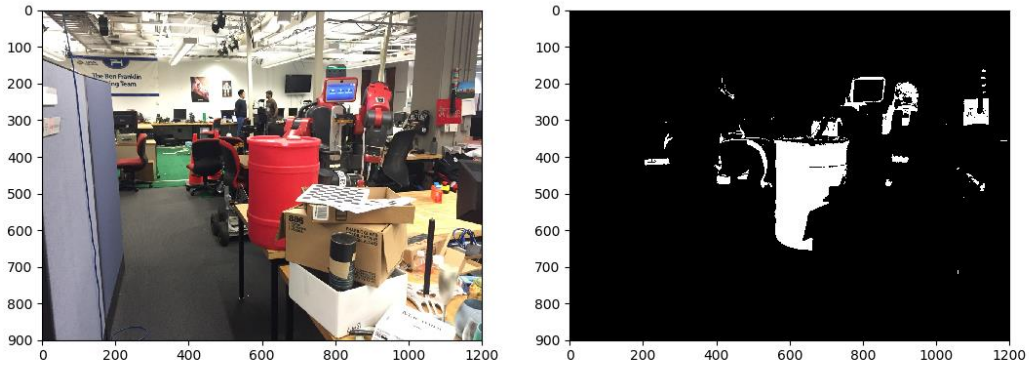
Homework 1

Instructions:

- In the directory mag445_hmwk1, run “EM.py”
- This will show all the mask images, as well as the centroids and estimated distances

Log-likelihood threshold by default is set to -14. Changing the values, you could see the different behavior that happens

The distances are predicted with Linear regression, comparing the area of each measured contour, to 1/Distance. It is predicted that during fitting, these results were skewed because I could not figure how to separate the contours when there were two barrels in the same image.



Centroids and distances:

ImageNo = [00], CentroidX = 692.0991615555265, CentroidY = 422.41636761059635, Distance = [4.42266175]

ImageNo = [01], CentroidX = 582.357949275594, CentroidY = 433.95084274154857, Distance = [4.74062136]

ImageNo = [02], CentroidX = 655.203360431339, CentroidY = 424.6562663267225, Distance = [4.55963291]

ImageNo = [03], CentroidX = 634.7069200779727, CentroidY = 444.2660006497726, Distance = [4.42013504]

ImageNo = [04], CentroidX = 641.5442268737339, CentroidY = 483.8095881161377, Distance = [5.08512726]

ImageNo = [05], CentroidX = 644.875751503006, CentroidY = 432.90460921843686, Distance = [5.09123159]

ImageNo = [06], CentroidX = 566.3172950819672, CentroidY = 647.0397540983606, Distance = [4.96731304]

ImageNo = [07], CentroidX = 735.2288531395952, CentroidY = 470.6585365853659, Distance = [5.09867591]

ImageNo = [08], CentroidX = 670.6619718309859, CentroidY = 410.35424669227484, Distance = [5.0932216]

ImageNo = [09], CentroidX = 632.259631657541, CentroidY = 438.64071677451466, Distance = [4.99430536]

Centroids and distances: