CCD algorithms

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Steps(for segmentation)

1 Initialization

use b-spline to make the contour $\mathbb{C}$ of one object

2 Compute local, mixed color statistics:

Collect all color pixels along the contour $\mathbb{C}$, calculate mean value M_in, M_out and covariance $Covar\_in$, $Covar\_out$ (subscript **in** means inside the contour, **out** means outside the contour)

3 Calculate the cost function (likelihood function of local statistics)

- Compute the color gradient
- Compute the color Jacobian matrix

4 Apply the Levenberg – Marquardt algorithm to the cost function

get δp, update the pose of contour $\mathbb{C} \rightarrow p + \delta p$

5 if δp is smaller than a given threshold, then stop otherwise, go to step 2.