Bioimage Computing

# Programming Assignment - 1

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## Question-1

### SLIC algorithm

- This is a clustering algorithm that works on a centroid model just like k-means algorithm.

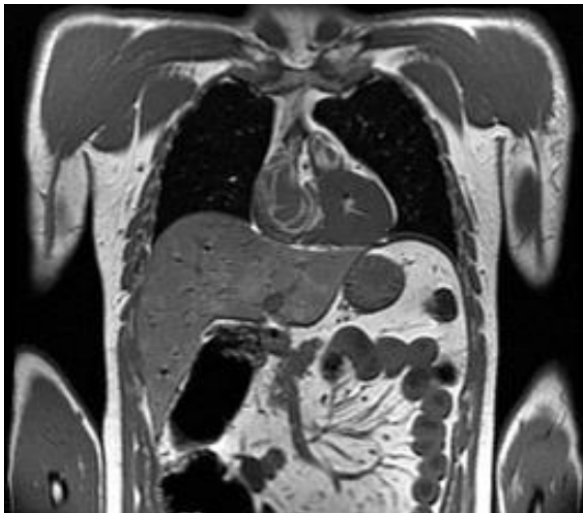
Given cluster centers $n_1$,$n_2$… and clusters are C1, C2, …

- In SLIC, we iteratively go to pixels and based on it's distance from various cluster centers, we assign a cluster to it.
- And at the end of each iteration, we update the cluster center based on new pixels of the cluster by taking average.

The iteration process is similar to that of k-means, but here, instead of going to all the cluster centers, we only check inside a pre-decided proximity. (We have done that for 2*area of cluster(S))

The program was run on Q1.png (given on classroom) the output for that can be found in the folder: *q1/sample-output*

Sample Input Image:



Sample Output (Q1 M=20 K=100 5th iteration):