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# Simple Linear Iterative Clustering (SLIC)

For this project, I will implement Simple Linear Iterative Clustering(SLIC) algorithm. Superpixel algorithm groups pixels into various non-overlapping superpixels i.e., perceptually meaningful regions while respecting potential object contours. Thus, it can replace the original rigid pixel grid structure. This method of segmentation is crucial in analysing an image as it can differentiate between the objects of interest and the other objects or their background. Due to the simplistic nature of such algorithms, they are applied to various computer vision tasks likes multiclass object segmentation, image classification, object localization etc. This algorithm is an adaptation of K-means clustering where k is the desired number of approximately equally-sized superpixels. SLIC superpixels correspond to clusters in the 5D color - labxy color– image plane space. Lastly, I will also include three superpixel results with different number of K, i.e., 64, 256, 1024 as shown in the paper.

Link to the research papers:

http://www.kev-smith.com/papers/SMITH_TPAMI12.pdf
https://infoscience.epfl.ch/record/177415/files/Superpixel_PAMI2011-2.pdf
https://ieeexplore.ieee.org/stamp/stamp.jsp?arnumber=7428902