**Superpixels**

Rewritten by Han

SLIC:

SLIC was first proposed by Achanta et. al. [10], and their motivation was to find an algorithm to compute nearly equal-sized superpixels efficiently for an image. Intuitively, for all pixels, the algorithm performs local clustering of a 5-D space data defined by *L, a, b*, values of the CIEAB color standard and the *x, y* coordinates. Suppose an image has *N* total pixels, and a user sets *K* as the number of total superpixels to have in the image. Then, there will be around superpixels. If our goal is to make each superpixel’s shape similar to a perfect square, then the length of its side will be . Therefore, this value will be a good estimate for the interval distance between each pair of initial superpixel centers on the image. (Continue here).

According to [10], the *L, a, b*, values are used to calculate the color distances from neighboring temporal superpixel centers, while the *x, y* coordinates are used to estimate the Euclidean distances from the center. The following formula from [10] was intended to combine both color

NCuts:

Turbopixels: