Subject: Re: KMean Clustering of RGB Images
Posted by Mort Canty on Wed, 09 May 2007 11:36:57 GMT
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helaha@gmx.net schrieb:

> Thank you Mort,
> concerning the "order of data points" it is necessary to think about
> the construction of the RGB Data space. The original RGB image is a 3
> dim. array e.g. [3,ImageSizeX, ImageSizeY]. The RGB Data space, which
> should be clustered concerning only the grey values and without
> consideration of the pixel locations, has two dimensions e.g. [3,
> NumberOfPixels ]. Therefore the individual image pixels are
> transformed in a sequence of RGB triple values ("data points"). The
> first triple values correspond to the pixel located at [3, 0, 0] e.g.
> the left bottom corner of the image. If the image is mirrored, rotated
> ore transposed before RGB space construction, then the first RGB
> triple value will be altered. Nevertheless all the individual image
> pixels were transformed into the RGB space, only the sequence is
> changed.
>
> Thanks,
> Helmut
>
>

Hi Helmut,

Now I see what you were getting at. But I think you're confusing things
a bit. K-means clustering takes place entirely in the feature space
(3-D RGB space in your case) and makes no reference to any ordering of
the pixels, spatial or otherwise. The Euclidean distances from each
pixel to each cluster mean are determined and the pixel is assigned to
the cluster for which the distance is smallest. Then the means are
recalculated and the procedure repeated until the means cease to change.
The order in which the distances are calculated in each iteration
clearly plays no role. The indeterminacy arises from the random
initialization of the cluster means.

Cheers

Mort