NAME

seed − growing of training sets for classification

SYNOPSIS

seed
[−**mahal**||**-eu**]
[−**seed** *seedr seedc*]
[−**T** *trainfile]*
[−**rq** *quantile*]
[−**color** *color*]
[−**eudist** *euclidean_distance*]
[−**noupdate**]
[−**exclude**]

DESCRIPTION

seed grows a training set either from a single pixel or a set of pixels. Connectivity and spectral closeness as well as spatial closeness is the criteria for including new pixels in the training set. Two methods for determining the spectral distance are available. Method 1 is euclidian and method 2 is by use of the Mahalanobis distance. In the latter case a set of pixels (in a training image file) must be given in order to obtain a non-singular estimate of the covariance matrix. For the first method a single pixel as well as a set of pixels may be the starting point. The spectral distance may e measured using updated statistics for the current training set.

By default *seed* uses Euclidean distance.

The input sequence must be in HIPS-format and the format must be either rgb, byte, or float.

The output is the training image.

OPTIONS

−**mahal**
Use Mahalanobis distance as the measure of distance.

−**eu** Use Euclidean distance as the measure of distance.

−**seed** *seedr seedc*
Use the pixel with the row-column coordinates *seedr* and *seedc* as the starting point for growing a training set. This only works for euclidean distance.

−**eudist** *euclidean_distance*
Use *euclidean_distance* as the maximum spectral distance.

−**T** *trainfile*
Read a starting training set from *trainfile.* The training set should be a HIPS byte image. The classes may be numbered arbitrarily. The same numbers will be used in the output image. Pixels that are not part of the training set should have the value 0.

−**rq** *quantile*
Set the reject Mahalanobis distance to the distance given by *quantile* in the chi square distribution. A chi square distribution with *nbands* degrees of freedom is used.

−**range** *range*
Set the maximum distance from the center of the cluster of pixels (or the seed pixel) to *range*

−**color** *color*
Set the color of the training set to *color*. Only in conjunction with −**seed**

−**noupdate**
use statistics from seed or initial training area only.

−exclude

Start by excluding pixels from the original trainingset. Works in conjunction with *-T*

SEE ALSO

disc(1), disc3D(1)

AUTHOR

Rasmus Larsen
IMM, Technical University of Denmark
e-mail: rl@imm.dtu.dk

ACKNOWLEDGEMENTS

The visiting (labelling algorithm) used when searching for new observations to include was programmed by M.Sc (eng) Johan Dore Hansen. The seeding algorithm has been defined by the author in collaboration with Dr. Allan Aasbjerg Nielsen.