NAME

epp − exploratory projection pursuit for multispectral images

SYNOPSIS

epp [**−npr** *nproj*] [**−e** [*rows* [*cols* [*from_row* [*from_col*]]]]] [**−J** *order*] [**−adj** *fname*] [**−tol** *x*] [**−tolidx** *x*]

DESCRIPTION

epp implements an exploratory projection pursuit method for finding interesting (structured) projections of multi-frame images. The projection index maximized in each iteration is a measure of deviation from normality of the density (histogram) for the projected image. *epp* finds *nproj* projections (linear combinations) of the original frames, successively removing already found structure, in order to generate other interesting projections or views of the multivariate image. The user can specify a subarea of the image for use in the optimization by the **−e** option, which works as in the extract function. The **−J** parameter specifies the order of a Legendre polynomial approximation used in computing the projection index. Reasonable values are 4-8 (default 4). Specifying **−adj** causes the program to output the adjusted images also in the file *fname*. *tol* and *tolidx* are convergence tolerances for the gradient optimization. *tol1* is the average squared difference between elements in successive projection vectors and *tolidx* is the relative tolerance for the computed projection index.

EXAMPLE

Find 6 projections using the 50 by 50 subimage with upper left pixel coordinates (10,10), and 6th order Legendre polynomials for the projection index

epp −np 6 −e 50 50 10 10 −J 6 < in.hips > out.hips

The result is a 6-frame image containing the projections.

REFERENCE

Friedman, J.H. (1987): Exploratory Projection Pursuit, *JASA* **82**, 249-266

SEE ALSO

maf(1), extract(1), grandtour(1)

AUTHOR

Kristian Windfeld

CONTACT

Allan Aasbjerg Nielsen
IMM, Technical University of Denmark
e-mail aa@imm.dtu.dk, internet www.imm.dtu.dk/~aa