Subject: Re: Scalp editting??
Posted by David Foster on Thu, 04 Feb 1999 08:00:00 GMT

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Carol Docherty wrote:

>

> Dear all,

>   I'm currently trying to find the optimum method for removing the scalp from a series of MR datasets. The only method I'm aware of is erosion and dilation of the images. I have a series of 91 transverse images in each dataset and this method is relatively successful for most of them. The problems arise in the lower slices ie around the sinus regions etc. Is this the only method available or is there a more robust one??

Carol -

We use a combination of thresholding, erosion/dilation, and
connectivity-in-3D (using SEARCH3D()) to do this. Our data sets are
two fast-spin-echo series, and we allow the user to adjust thresholds
for each series. These thresholds are then "ANDed" together by applying
them to their respective series and seeing which voxels meet both
criteria. Then we apply a few erosion/dilation operations which does
a good job of filling holes and breaking narrow bands. Then we do
a SEARCH3D() operation starting at the edge, and finding all connected
voxels that are below one of the low thresholds in its respective image
series; any remaining voxels that are below threshold that were not
connected in 3D to the "outside" are "thrown"
into the mask, as they are assumed to be veins and related artifacts
that are indeed brain but would otherwise not be included.

Hope this helps. Let me know if you need more specific information.

As an aside, the Mayo Clinic's Analyze program uses an edge detection
algorithm using gradient fields to do this. Works well, but it is
very interactive.

Dave
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