Subject: Re: Generate 3D Surface out of Points in Space
Posted by David Fanning on Tue, 22 Jun 2004 23:19:38 GMT
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Tukee10 writes:

> Hi everybody. I have 50 sliced images, that represent a splitting blood
> vessel. I went through the slices and extracted the contours of the blood
> vessel with the function CONTOURS. Now I have many points that lie on the
> surface of the vessel. I would like to reconstruct the 3d surface of the
> vessel out of these points. Is there any function or procedure that is
> able to do that?

You can see a general approach to this problem in this
article:

http://www.dfanning.com/graphics_tips/mesh.html

As someone else discovered earlier this week, this method
works well if you data is "well behaved". You are completely
on your own if your data is not so well behaved. That is
to say, blood vessels make me nervous. :-(

Cheers,

David

--
David Fanning, Ph.D.
Fanning Software Consulting, Inc.
Coyote's Guide to IDL Programming: http://www.dfanning.com/

Subject: Re: Generate 3D Surface out of Points in Space
Posted by Tukee10 on Tue, 22 Jun 2004 23:30:49 GMT
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Hello David.
Thanks for the reply.
I tried your method of creating a mesh structure out of MRI slices before,
but it failed, because the ComputeMesh-method doesn`t work as soon as you
get two contours on one plane.

Best,

Tukee.

Subject: Re: Generate 3D Surface out of Points in Space
Posted by Karl Schultz on Wed, 23 Jun 2004 17:21:23 GMT
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"Tukee10" <turgutkaracay@hotmail.com> wrote in message
news:b599c09a391226a337d5f4fe4e8672fd@localhost.talkaboutpro gramming.com...
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> vessel out of these points. Is there any function or procedure that is
> able to do that?

Surface reconstruction is a hard problem. If you google around you will see that quite a few people have spent much of their lives working on small parts of the problem.

That being said, if your data has certain constraints, then the job can be done.

In your case, are the images such that the blood vessels are a very distinct color, or otherwise distinguishable from the rest of the image? If so, you can stack the images into a volume and then run ISOSURFACE to generate a surface. You would need to determine what isovalue to use that selects the pixels representing the vessels the best. You might consider running some image filtering tools to sharpen or clean up the images to make it as close to "on-off" as possible with respect to the blood vessel pixels.

I think that this is your best shot, given what I know about your data.

Karl

Subject: Re: Generate 3D Surface out of Points in Space
Posted by Beat.Schmutz on Thu, 24 Jun 2004 07:57:52 GMT
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> I tried your method of creating a mesh structure out of MRI slices before,
> but it failed, because the ComputeMesh-method doesn`t work as soon as you
> get two contours on one plane.
>

I had the same problem, so I used SHADE_VOLUME instead. I filled the extracted contours with black (0), created a volume with the stacked contours and then set VALUE and LOW in SHADE_VOLUME to zero. This worked well for the 3D reconstruction of a bone (distal Femur) surface. I don't know whether it will work in your case.

Cheers,

Beat

Subject: Re: Generate 3D Surface out of Points in Space
Posted by siliconcube on Thu, 24 Jun 2004 16:33:40 GMT
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I had the same problem and this board did a great job helping me
figure out where i went wrong. I had 85 SEM image slices, instead of
having contours I just cleared the background noise leaving me with
whatever it is I was looking at. Then I reduced resolution (otherwise
IDL would give me problems with lack of memory and i have a 5GB of DDR
Ram installed), my image files went from 1.8MB each to about 60KB each
and i ran the code (slightly modified) from Dr. Fanning's website
which he posted in the earlier message and everythign worked out
pretty darn well =D.

Good luck
Aleks
"Karl Schultz" <kschultz_no_spam@rsinc.com> wrote in message
news:<10djeuf4dhht95b@corp.supernews.com>...
> "Tukee10" <turgutkaracay@hotmail.com> wrote in message
> news:b599c09a391226a337d5f4fe4e8672fd@localhost.talkaboutpro gramming.com...
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> Karl