Subject: Re: Registration of 3D shells?
Posted by Dick Jackson on Fri, 17 May 2002 14:47:22 GMT
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Thanks, that's the direction I'm looking at with Constrained_Min and TNMIN.
Choosing a subset of points might keep it tractable.

"Anne Martel" <anne.martel@nottingham.ac.uk> wrote in message
news:a4bf6780.0205170135.37e51c32@posting.google.com...
> The registration of 2 surfaces is quite a common problem in medical
> image registration. One sucessful approach is that proposed by Charles
> Pelizzari (JCAT, 1989, 13:20-26) where you try to fit one surface on
> top of the other like fitting a hat on a head. The most efficient way
> to do this is to generate a distance map (sometimes called a chamfer
> map) using one surface and then rotate the other surface so that the
> distance between any point on the rotated surface and the stationary
> surface is minimised. You usually only need to calculate the distance
> for a subset of the surface points. The only problem with the
> algorithm is that it can converge to a local minimum (like putting on
> the hat back to front)
>
> "Dick Jackson" <dick@d-jackson.com> wrote in message
news:<3cQE8.82791$GG6.7187426@news3.calgary.shaw.ca>...
>> "Craig Markwardt" <craigmnet@cow.physics.wisc.edu> wrote in message
>> news:onptzxkpqu.fsf@cow.physics.wisc.edu...
>>>
>>> "Dick Jackson" <dick@d-jackson.com> writes:
>>>
>>>> Hi all,
>>>>
>>>> I'd like to know if anyone has any experience to share on
registration
>> of 3D
>>>> shells. That is, if you have two IDLgrPolygons (or Surfaces) that
are
>>>> 'snapshots' of the surface of an object, which:
>>> ...
>>>
>>> Hi Dick--
>>>
>>> Are these 2d or 3d data sets? When you say surface that could be an
>>> isosurface within a 3d data volume, or simple the surface z = f(x,y)
>>> of a 2d data set.
>>>
>>> I think registration of 2d data sets is commonly done with a cross
>>> correlation.
>>
>> Yes, they are generally like a z = f(x,y) surface, in that a surface

doesn't
>> wrap around behind itself. With some datasets we have regular (x,y),
>> sometimes not.
>>
>> As I understand it, cross correlation could find the best x-y
translation
>> with regular (x,y), but we have rotation and translation in 3D to
contend
>> with. My solution will need 6 parameters, can cross correlation help out
>> here?
>>
>> Thanks for your interest!
>>
>> Cheers,
