Subject: Re: Antes de FAC Club
Posted by David Fanning on Fri, 27 Apr 2007 17:50:17 GMT
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David Fanning writes:

> Suppose I have a surface that looks sort of like
> cans of various radii stacked on top of one another.
> Big cans on the bottom and progressively smaller
> cans toward the top. But here is the thing, the
> can tower sort of *lists* to one side, as if it were
> thinking about toppling over.

BTW, Coyote thinks this surface looks more like the
breast of a sleeping woman, but he thinks a LOT of
things look like that, so I don't know how much credence
to give it. But I have already fitted a plane surface
through the data and subtracted that. That removed
a great deal of tilt, but not all. Subsequent plane
surface fits and subtractions seem to make things worse,
for reasons I don't yet understand.

Thanks,

David
--
David Fanning, Ph.D.
Fanning Software Consulting, Inc.
Coyote's Guide to IDL Programming: http://www.dfanning.com/
Sepore ma de ni thui. ("Perhaps thou speakest truth.")

Subject: Re: Antes de FAC Club
Posted by Craig Markwardt on Fri, 27 Apr 2007 18:34:52 GMT
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David Fanning <news@dfanning.com> writes:
> David Fanning writes:
>
>> Suppose I have a surface that looks sort of like
>> cans of various radii stacked on top of one another.
>> Big cans on the bottom and progressively smaller
>> cans toward the top. But here is the thing, the
>> can tower sort of *lists* to one side, as if it were
>> thinking about toppling over.
>
> BTW, Coyote thinks this surface looks more like the
> breast of a sleeping woman, but he thinks a LOT of

> things look like that, so I don't know how much credence
> to give it. ...

After reading your first post I was going to say that we needed a
picture to understand it... and now I'm absolutely sure of it!
:-)

--
---------- ----------
Craig B. Markwardt, Ph.D. EMAIL: craigmnet@REMOVEcow.physics.wisc.edu
Astrophysics, IDL, Finance, Derivatives | Remove "net" for better response
---------- ----------

Subject: Re: Antes de FAC Club
Posted by James Kuyper on Fri, 27 Apr 2007 19:23:18 GMT
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David Fanning wrote:
> Folks,
>
> Here is a question for those of you who haven't started
> your FAC celebrating yet.
>
> Suppose I have a surface that looks sort of like
> cans of various radii stacked on top of one another.
> Big cans on the bottom and progressively smaller
> cans toward the top. But here is the thing, the
> can tower sort of *lists* to one side, as if it were
> thinking about toppling over.
>
> What I would like to do is put this tower back in
> the proper orientation, so that if I looked straight
> down on it from the +Z direction on a line through
> the center of the cans, I would see a sort of bulls-eye
> pattern.

What precisely do you mean by "put this tower back in the proper
orientation"? Do you actually want to modify the tower. If so, what
kinds of modification are permitted, and whjch are prohibited?
Alternatively, are you trying to find a point of view that makes it
look "similar" in some sense to the way it would look if it didn't
list? If so, in what way should the appearance be "similar"?

Subject: Re: Antes de FAC Club

Posted by David Fanning on Fri, 27 Apr 2007 20:54:41 GMT
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kuyper@wizard.net writes:

> What precisely do you mean by "put this tower back in the proper
> orientation"?

Well, according to Coyote, we are trying to make this
structure "look like she was 18 again", but maybe we
should take the rest of this discussion off-line. :-(

Cheers,

David

--
David Fanning, Ph.D.
Fanning Software Consulting, Inc.
Coyote's Guide to IDL Programming: http://www.dfanning.com/
Sepore ma de ni thui. ("Perhaps thou speakest truth.")

Subject: Re: Antes de FAC Club
Posted by David Fanning on Fri, 27 Apr 2007 21:07:31 GMT
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kuyper@wizard.net writes:

> What precisely do you mean by "put this tower back in the proper
> orientation"? Do you actually want to modify the tower. If so, what
> kinds of modification are permitted, and whjch are prohibited?
> Alternatively, are you trying to find a point of view that makes it
> look "similar" in some sense to the way it would look if it didn't
> list? If so, in what way should the appearance be "similar"?

Here is one approach I have thought about, and haven't tried
to implement yet. If I took contours through the several
cans piled on top of each other, as I got closer to the
top of the tower the contours would get more and more like
ellipses, rather than circles, because the cans at the top
lean more than the cans at the bottom.

If I found the center of each contour, and fitted a line
though them, say with a stiff wire. I would like to be able to
bend the stiff wire into a straight line and tilt the
entire structure until the straight line was perpendicular

to the XY plane and pointing in the +Z direction. As I did
so, I would carry the cans with me.

The effect I am trying to achieve is to stack each can on
top of the other, so that if I look down on them from above
(you can imagine gazing into your lover's eyes), I would
see a sort of bulls-eye pattern.

I'm afraid modesty prohibits me from actually providing a
picture.

Cheers,

David
--
David Fanning, Ph.D.
Fanning Software Consulting, Inc.
Coyote's Guide to IDL Programming: http://www.dfanning.com/
Sepore ma de ni thui. ("Perhaps thou speakest truth.")

Subject: Re: Antes de FAC Club
Posted by James Kuyper on Fri, 27 Apr 2007 22:00:59 GMT
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David Fanning wrote:
> kuyper@wizard.net writes:
>
>> What precisely do you mean by "put this tower back in the proper
>> orientation"? Do you actually want to modify the tower. If so, what
>> kinds of modification are permitted, and whjch are prohibited?
>> Alternatively, are you trying to find a point of view that makes it
>> look "similar" in some sense to the way it would look if it didn't
>> list? If so, in what way should the appearance be "similar"?
>
> Here is one approach I have thought about, and haven't tried
> to implement yet. If I took contours through the several
> cans piled on top of each other, as I got closer to the
> top of the tower the contours would get more and more like
> ellipses, rather than circles, because the cans at the top
> lean more than the cans at the bottom.
>
> If I found the center of each contour, and fitted a line
> though them, say with a stiff wire. I would like to be able to
> bend the stiff wire into a straight line and tilt the
> entire structure until the straight line was perpendicular
> to the XY plane and pointing in the +Z direction. As I did
> so, I would carry the cans with me.

>
> The effect I am trying to achieve is to stack each can on
> top of the other, so that if I look down on them from above
> (you can imagine gazing into your lover's eyes), I would
> see a sort of bulls-eye pattern.

I sort of get the picture of what you're trying to do, but what I'm not quite sure I understand is in what sense the transformed surface should remain similar to the original image. I'm going to describe a solution. If it's the solution you're looking for, then it's just a matter of figuring out how to implement it (right now, I have no idea). If not, at least it will give you an example of the kind of questions you need to answer before you can solve this problem.

You have surface that looks similar to a series of cans on a bent wire. Let s be the distance, measured along the wire, from it's starting point to a particular position along the wire. The wire may be described by the coordinates [x(s), y(s), z(s)]. Can number 'i' is centered at a position s[i] along the wire with its axis of rotation tangent to the wire at that position. It has a length l[i] and a radius r[i]. I would presume that s[i+1]-s[i] = 0.5*(l[i+1]+l[i]).

I think that what you'd like to do is create a new surface which is similar to the original, in that it can be described in exactly the same fashion, using exactly the same values of s[i], l[i], and r[i]. The only difference would be that, for the new surface, xnew(s)=0, ynew(s)=0, and znew(s)=s. Is that what you're looking for?
