Subject: Re: interpolation for resizing
Posted by David Fanning on Tue, 02 Dec 2008 23:28:36 GMT
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bryan.s.hong@gmail.com writes:

> I have a 100 X 100 spatial image to be resized to 1000*1000.
> The data of this image is surface temperature and includes some part
> of ocean.
> Because I want to exclude data of ocean area during interpolation, I'm
> trying to resize it using "interpolate".
> But I cannot understand the IDL help pages for the 'interpolate'.
> Could anyone help me with a simple command line for this job?

I don't think this is what you want to do.
Just use CONGRID (or REBIN) to resize your
image. (CONGRID uses INTERPOLATE to do the
interpolation, so you can see how it is done,
if you read the code.) Then mask out your ocean
pixels in the usual way, with the WHERE function.

```
bigImage = Congrid(image, 1000, 1000)
oceanPixels = Where(bigimage EQ 9999, count)
IF count GT 0 THEN image[oceanPixels] = 0
```

Cheers,

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

Subject: Re: interpolation for resizing
Posted by Chris[6] on Wed, 03 Dec 2008 04:04:39 GMT
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On Dec 2, 1:28 pm, David Fanning <n...@dfanning.com> wrote:
> bryan.s.h...@gmail.com writes:
>> I have a 100 X 100 spatial image to be resized to 1000*1000.
>> The data of this image is surface temperature and includes some part
>> of ocean.
>> Because I want to exclude data of ocean area during interpolation, I'm
>> trying to resize it using "interpolate".
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>> Could anyone help me with a simple command line for this job?
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> IF count GT 0 THEN image[oceanPixels] = 0
>
> Cheers,
>
> David
> --
> David Fanning, Ph.D.
> Coyote's Guide to IDL Programming (www.dfanning.com)
> Sepore ma de ni thui. ("Perhaps thou speakest truth.")

One potential issue with this approach is that IDL may interpolate
between your 9999 values and your real data values when you expand the
array. If you set the 9999s to !values.f_nan beforehand, then the
interpolation will behave more sensibly.

chris

Subject: Re: interpolation for resizing
Posted by David Fanning on Wed, 03 Dec 2008 04:07:47 GMT
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Chris writes:

> One potential issue with this approach is that IDL may interpolate
> between your 9999 values and your real data values when you expand the
> array. If you set the 9999s to !values.f_nan beforehand, then the
> interpolation will behave more sensibly.

I deliberately used CONGRID without the INTERP keyword
to avoid this problem. Nearest neighbor interpolation
does not create any data that is not present in the
original image.

Cheers,

David
--
David Fanning, Ph.D.

Fanning Software Consulting, Inc.
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Subject: Re: interpolation for resizing
Posted by Craig Markwardt on Wed, 03 Dec 2008 10:13:41 GMT
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On Dec 2, 11:07 pm, David Fanning <n...@dfanning.com> wrote:
> Chris writes:
>> One potential issue with this approach is that IDL may interpolate
>> between your 9999 values and your real data values when you expand the
>> array. If you set the 9999s to !values.f_nan beforehand, then the
>> interpolation will behave more sensibly.
>
> I deliberately used CONGRID without the INTERP keyword
> to avoid this problem. Nearest neighbor interpolation
> does not create any data that is not present in the
> original image.

That's true, but nearest-neighbor sampling also adds high-frequency
aliases, so what one uses to interpolate does depend on what one
needs.

Craig

Subject: Re: interpolation for resizing
Posted by David Fanning on Wed, 03 Dec 2008 13:43:50 GMT
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Craig Markwardt writes:

> That's true, but nearest-neighbor sampling also adds high-frequency
> aliases, so what one uses to interpolate does depend on what one
> needs.

I have a feeling it will be some weeks before the person
asking the question feels compelled to ask about this
complication. ;-)

Cheers,

David

P.S. Isn't a 100 by 100 image, uh, pretty small to be

doing *any* high-resolution analysis? Certainly too
small to be worried about high-frequency aliasing.
You should be thinking about other problems, my friend!

--
David Fanning, Ph.D.
Fanning Software Consulting, Inc.
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Subject: Re: interpolation for resizing
Posted by loebasboy on Wed, 03 Dec 2008 13:52:58 GMT
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On 3 dec, 14:43, David Fanning <n...@dfanning.com> wrote:
> Craig Markwardt writes:
>> That's true, but nearest-neighbor sampling also adds high-frequency
>> aliases, so what one uses to interpolate does depend on what one
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>
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> David
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> small to be worried about high-frequency aliasing.
> You should be thinking about other problems, my friend!
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> --
> David Fanning, Ph.D.
> Fanning Software Consulting, Inc.
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> Sepore ma de ni thui. ("Perhaps thou speakest truth.")

About interpolate and other related functions... is it possible to use
these function to interpolate data where there is no data in a grid.
For instance I have the following code:

a= findgen(5,5)
a[3,3] = -999
a[1,2] = -999
indices = where(a EQ -999)

b = interpolate(a, indices)

and the interpolated numbers in b are interpolated with available numbers in 2 dimensions...

Is there a function in IDL that can do this, because interpolate and other related functions work differently I guess (making extra rows or columns between rows or columns). I'm sorry that this is a very 'open' question but I'm rather busy and this something I could use later on.

Subject: Re: interpolation for resizing
Posted by bryan.s.hong on Wed, 03 Dec 2008 15:49:11 GMT
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> On 3 dec, 14:43, David Fanning <n...@dfanning.com> wrote:
>
>
>
>
>
>> Craig Markwardt writes:
>>> That's true, but nearest-neighbor sampling also adds high-frequency
>>> aliases, so what one uses to interpolate does depend on what one
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>> I have a feeling it will be some weeks before the person
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>> Fanning Software Consulting, Inc.
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>> Sepore ma de ni thui. ("Perhaps thou speakest truth.")
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> indices = where(a EQ -999)
> b = interpolate(a, indices)
>
> and the interpolated numbers in b are interpolated with available
> numbers in 2 dimensions...
>
> Is there a function in IDL that can do this, because interpolate and
> other related functions work differently I guess (making extra rows or
> columns between rows or columns). I'm sorry that this is a very 'open'

>

Replacing the fill value to a string, for example 'NaN', will exclude
the pixels when using 'congrid' or 'rebin'.

Subject: Re: interpolation for resizing
Posted by David Fanning on Wed, 03 Dec 2008 15:54:56 GMT
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bryan.s.hong@gmail.com writes:

> Replacing the fill value to a string, for example 'NaN', will exclude
> the pixels when using 'congrid' or 'rebin'.

To a string!? How would that work?

IDL> a = lindgen(5)
IDL> a[2] = 999
IDL> I = where(a eq 999)
IDL> a[I] = 'nan'
% Type conversion error: Unable to convert given STRING to Long.
% Detected at: $MAIN$

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: interpolation for resizing
Posted by bryan.s.hong on Wed, 03 Dec 2008 16:17:10 GMT
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> bryan.s.h...@gmail.com writes:
>> Replacing the fill value to a string, for example 'NaN', will exclude
>> the pixels when using 'congrid' or 'rebin'.
>
> To a string!? How would that work?
>
> IDL> a = lindgen(5)
> IDL> a[2] = 999
> IDL> I = where(a eq 999)
> IDL> a[I] = 'nan'
> % Type conversion error: Unable to convert given STRING to Long.
> % Detected at: $MAIN$
>
> 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.")

Only works in a real array not in a integer array.

Subject: Re: interpolation for resizing
Posted by David Fanning on Wed, 03 Dec 2008 16:25:22 GMT
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bryan.s.hong@gmail.com writes:

> Only works in a real array not in a integer array.

Well, there you go. I've learned something already today. :-)

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: interpolation for resizing
Posted by pgrigis on Wed, 03 Dec 2008 16:36:02 GMT
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David Fanning wrote:
> bryan.s.hong@gmail.com writes:
>
>> Only works in a real array not in a integer array.
>
> Well, there you go. I've learned something already today. :-)

Maybe we should have one of those december xmas
calendars for IDL: every day we open a little window
and discover a new IDL feature never dreamed
of before!

Ciao,
Paolo

>
> 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: interpolation for resizing
Posted by Chris[6] on Wed, 03 Dec 2008 21:02:42 GMT
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On Dec 3, 6:36 am, Paolo <pgri...@gmail.com> wrote:
> David Fanning wrote:
>> bryan.s.h...@gmail.com writes:
>
>>> Only works in a real array not in a integer array.

It also only seems to work for strings which correspond to actual
floating point values, like 'nan' and 'inf':

IDL> a = fltarr(3)
IDL> a[0] = 'nan'
IDL> a[1] = 'hi'
    % Type conversion error: Unable to convert given STRING to Float.

Subject: Re: interpolation for resizing
Posted by pgrigis on Wed, 03 Dec 2008 21:19:06 GMT
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I really love this ;-)

IDL> a=float('nanny')
IDL> help,a
A FLOAT = NaN

Chris wrote:

>> David Fanning wrote:
>>> bryan.s.h...@gmail.com writes:
>>
>>>> Only works in a real array not in a integer array.
>
> It also only seems to work for strings which correspond to actual
> floating point values, like 'nan' and 'inf':
>
> IDL> a = fltarr(3)
> IDL> a[0] = 'nan'
> IDL> a[1] = 'hi'
> % Type conversion error: Unable to convert given STRING to Float.

Subject: Re: interpolation for resizing
Posted by loebasboy on Fri, 05 Dec 2008 08:36:11 GMT
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On 3 dec, 16:49, bryan.s.h...@gmail.com wrote:

>
>
>
>
>
>> On 3 dec, 14:43, David Fanning <n...@dfanning.com> wrote:
>
>>> Craig Markwardt writes:
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>>> 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.")
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>> and the interpolated numbers in b are interpolated with available
>> numbers in 2 dimensions...
>
>> Is there a function in IDL that can do this, because interpolate and
>> other related functions work differently I guess (making extra rows or
>> columns between rows or columns). I'm sorry that this is a very 'open'

-
>

>
> Replacing the fill value to a string, for example 'NaN', will exclude
> the pixels when using 'congrid' or 'rebin'.- Tekst uit oorspronkelijk bericht niet weergeven -
>
> - Tekst uit oorspronkelijk bericht weergeven -

I guess you didn't read my question properly (although I maybe didn't
have to ask it in this thread to avoid this, but I didn't want to make
a new thread because of David's post several days ago). I'm not trying
to resize anything. I just want the -999 or NaN (I make them with !
Values.F_NAN option btw.) values to have a value in the b array that
is calculated by interpolation (for instance: the IDW of the

surroundig pixels in a 3x3 window).

So sorry for the mixup and thanks if you guys still feel like finding
a solution for this.
