Subject: Re: Fractional SHIFT
Posted by Ralf Flicker on Mon, 03 Dec 2001 21:10:16 GMT
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trouble wrote:
>
> Hi,
>
> Does anyone have a method for doing non-integer shifts ? Interpolate
> doesn't wrap in the way SHIFT does and my hack (based on MOD) is a bit
> dodgy.
>
> To shift orig by 1.5 pixels:
>
> orig = FINDGEN(10)
>
> index = FINDGEN(10)
> delta = 1.5
> index2 = (index+delta) MOD 10
>
> new = INTERPOLATE(orig,index2,/GRID)
>
> PRINT,new
>
> 1.50000 2.50000 3.50000 4.50000 5.50000
> 6.50000
> 7.50000 8.50000 9.00000 0.500000
>
> The 2nd last element of new is wrong (should be 9.5).
>
> Does anyone know a robust way ?

If you had periodic arrays you could FFT, multiply by a complex exponential, and FFT back. In your example above, I guess you could make orig periodic by mirroring it across the origin. No idea if this will work for you, but I sometimes use the FFT + complex exponential rather than interpolating for shifting arrays non-integer steps.

cheers
ralf

--
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Subject: Re: Fractional SHIFT
Posted by tam on Mon, 03 Dec 2001 21:34:30 GMT
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For 1-D you could try the interpol function rather than interpolate...
It seems to extrapolate beyond the grid which seems to be what you want.
You need to specify both x and y values. I.e., you'll

```
  new = INTERPOL(xvals, yvals, xvalues_to_interpolate_at)
```

Personally I've always found the behavior of interpolate to be
more useful, but typically I'm worried about going over the edge
of an image....

Tom McGlynn

trouble wrote:
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>
> Does anyone know a robust way ?
>
> Ciao.

Subject: Re: Fractional SHIFT

Posted by Mark Rivers on Tue, 04 Dec 2001 03:55:55 GMT
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trouble <the_cacc@hotmail.com> wrote in message
news:5f9f0a23.0112030945.2df9d992@posting.google.com...
> Hi,
>
> Does anyone have a method for doing non-integer shifts ? Interpolate
> doesn't wrap in the way SHIFT does and my hack (based on MOD) is a bit
> dodgy.

> Does anyone know a robust way ?

I use the IDL POLY_2D function for shifting 2-D arrays by fractional pixels
in either direction. I think it will work for 1-D arrays also, but I have
not tested it.

Mark Rivers

Subject: Re: Fractional SHIFT
Posted by the_cacc on Tue, 04 Dec 2001 13:34:51 GMT
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Oops - should NOT be 9.5 ! As Dick Jackson pointed out to me, I am
constructing a weighted linear combination of surrounding values, so
it should be 4.5. I was trying to construct a simple example, and took
my mind off the numbers just long enough to press 'Post message - No
preview'.

Thanks for the suggestions everyone.

Ciao.
