
Subject: Re: iterating POLY_2D
Posted by [David Williams](#) on Mon, 21 Feb 2000 08:00:00 GMT
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Just as a postscript...

Christophe Morisset helpfully suggested that I also post the routine that's giving me bother. It's included below. I'd really appreciate any help anyone can give.

Dave Williams.

```
--
;+
;NAME:
;  frames_move.pro
;PURPOSE:
;  To remove the shaking from a sequence of digital
;  images in the form of a 50x40x200 floating point
;  array.
;INPUTS:
;  DATA - the input array
;OUTPUTS:
;  DATAOUT - the stabilised sequence
;  DISPARR - the 2x200 array containing the
;             displacement co-ordinates relative to
;             DATA(*,*,0).
;-
PRO frames_move,data,dataout,disparr

sizD=SIZE(data)
disparr=fltarr(2,sizD(3))
dataout=fltarr(sizD(1),sizD(2),sizD(3))
dataout(*,*,0)=data(*,*,0)
;the original image will be the same in the output
;as it's the reference point from which
;the displacement in the rest of the images
;is measured.

;make the temporary gradient array to
;define the edges of the main feature:
gradex=fltarr(sizD(1),sizD(2),sizD(3))
FOR g=0,sizD(3)-1 DO BEGIN
  gradex(*,*,g)=grad(data(*,*,g))
  ;(I've included this GRAD function
  ;below in a commented section. It
  ;comes from the IDL User's Guide.)
```

ENDFOR

```
;set up the comparison array BIGJUMP and the
;contents of the first image equal to
;the original image in the sequence passed.
bigjump=fltarr(sizD(1)-1,sizD(2)-1,2)
bigjump(*,*,0)=gradex(1:sizD(1)-1,1:sizD(2)-1,0)
```

FOR k=1,sizD(3)-1 DO BEGIN

```
    bigjump(*,*,1)=gradex(1:sizD(1)-1,1:sizD(2)-1,k)
    ;set the second image equal to the image
    ;that is to be compared to the original image,
    ;removing the first X and Y lines which get
    ;wrapped around by the GRAD routine.
```

```
    dxy=tr_get_disp(bigjump)
    ;dxy is created by a specialised routine
    ;written for the TRACE SolarSoft IDL distribution
    disparr(0,k)=-dxy(0,1)
    disparr(1,k)=-dxy(1,1)
    ;get the cross-correlation displacement
```

```
    ;this is the bit I'm having trouble iterating successfully:
```

```
    dataout(*,*,1)=POLY_2D(data(*,*,1),$
```

```
    [disparr(0,k),0.,1.,0.],$
```

```
    [disparr(1,k),1.,0.,0.],cubic=-0.5)
```

```
    PRINT,'polynomial interpolation completed for iteration
```

```
    '+ARR2STR(k,/trim)
```

ENDFOR

END

```
;the GRAD.PRO function is as follows, and is used in FRAMES_MOVE.PRO
;to enhance the accuracy of the routine by detectin the edges of the
;slightly fuzzy main feature:
```

```
;
;
;FUNCTION GRAD, IMAGE
;
;
;RETURN, ABS(IMAGE - SHIFT(IMAGE,1,0)) + $
;    ABS(IMAGE-SHIFT(IMAGE,0,1))
;
;
;END
;
```

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