
Subject: Image subtraction

Posted by [FRANCOIS LAROSE](#) on Mon, 18 May 1998 07:00:00 GMT

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Hi,

I need to do some image subtraction. With IDL, if I only do
Image1 - image2 and I get poor result. Does it have best code to
do image subtraction?

Any help will be appreciated,

Pix

PS If you know a go package of image analisys in IDL, just let me know!

Subject: Re: Image subtraction

Posted by [noname](#) on Tue, 26 May 1998 07:00:00 GMT

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Hi,

Yes, NIH Image is now available for PC.

Go there:

<http://www.scioncorp.com/index.htm>

The name of the pc prog is Scion Image

Skiso

Patrick V. Ford a i½crit:

- > Try
- > tvscl, image1 - A * image2
- >
- > where A is a correction factor for intensity. One of the problems here is
- > how are negative numbers handled, should you change the images to float
- > to allow non integer As, and what value should A be, see? (I could not
- > resist the pun.)
- >
- > To set values less than 0 to 0, you could use one of those matrix logical
- > something like: img = img * (img GE 0.0)
- > (I don't have the ref material handy and unlike many here, I need to
- > lookup all but the simplest of stuff.)
- >
- > For A, there are many ways to determine a value, such as the average of

> the images ratio, max ratio, etc. Or the one I commonly use, trial and
> error.
>
> You could always write(e-mail) the author of NIH Image to find out what he
> is
> doing, whose name escapes me. He
> usually is fairly responsive, or you could examine the source code that,
> at least in the past, was available.
>
> BTW, is NIH image still just a Mac program?
>
> Patrick Ford, MD
> Baylor College of Medicine
> pford@bcm.tmc.edu
>
> FRANCOIS LAROSE (aah904@agora.ulaval.ca) wrote:
> : Ok,
>
> : Let me explain, I take two gray scale images and subtract them together.
> : Then, I display the result on screen with TVSCL command. When I say, I get
> : poor
> : result, is because I compare the result of this subtraction with the
> : result
> : of a program that make image subtraction (NIH image). The two are very
> : different. So, I suppose I should do something else to get the same
> : result.
>
> : For the package, I working in research so I can't afford a expensive one.
> : Maybe, you can point me some web site...
>
> : Tanks
>
> : Frank
>
> : At 09:59 18/05/98 -0600, you wrote:
> : >you writes:
> : >
> : >> I need to do some image subtraction. With IDL, if I only do
> : >> Image1 - image2 and I get poor result. Does it have best code to
> : >> do image subtraction?
> : >
> : >Poor result how? Can't see it? Doesn't look like what
> : >you expect? Don't believe the results?
> : >
> : >Try this:
> : >
> : > TV, BytScl(image1 - image2, top=!D.N_Colors-1)
> : >

> : >Does that help?
> : >
> : >> PS If you know a good package of image analisys in IDL, just let me
> : know!
> : >
> : >How much would you be willing to pay for this? :-)
> : >
> : >David
> : >
> : >-----
> : >David Fanning, Ph.D.
> : >Fanning Software Consulting
> : >E-Mail: davidf@dfanning.com
> : >Phone: 970-221-0438
> : >Coyote's Guide to IDL Programming: <http://www.dfanning.com/>
> : >
> : >

Subject: Re: image subtraction
Posted by [Craig Markwardt](#) on Thu, 14 Mar 2002 00:21:32 GMT
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aburden@mpl.ucsd.edu (Art) writes:

> Hi,
>
> Can anyone come up with an efficient way to subtract a single image
> from an array of images without using a loop, as in
>
> imgArr = imgArr - img1
>
> where,
>
> imgArr = lonarr(12,512,512)
>
> and,
>
> img1 = lonarr(512,512)
>
> as opposed to
>
> For ii=0,11 do imgArr[ii,*,*] = imgArr[ii,*,*] - img1

(a) You can do this:

imgarr = imgarr - rebin(reform(img1,1,512,512),12,512,512)

This makes IMG1 into a 1x512x512 array, and then uses REBIN to expand it to the desired size.

(b) I don't think a FOR loop will be that much slower than the REBIN approach, at least for 512x512 arrays.

Good luck,
Craig

--

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

Subject: Re: image subtraction
Posted by [Dick Jackson](#) on Thu, 14 Mar 2002 02:48:54 GMT
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"Craig Markwardt" <craigmnet@cow.physics.wisc.edu> wrote in message
news:onbsdsxalv.fsf@cow.physics.wisc.edu...

>

> aburden@mpl.ucsd.edu (Art) writes:

>> Hi,

>>

>> Can anyone come up with an efficient way to subtract a single image
>> from an array of images without using a loop, as in

>>

>> imgArr = imgArr - img1

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>> where,

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>> imgArr = lonarr(12,512,512)

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>> and,

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>>

>> For ii=0,11 do imgArr[ii,*,*] = imgArr[ii,*,*] - img1

>

> (a) You can do this:

> imgarr = imgarr - rebin(reform(img1,1,512,512),12,512,512)

>

> This makes IMG1 into a 1x512x512 array, and then uses REBIN to
> expand it to the desired size.

>

> (b) I don't think a FOR loop will be that much slower than the REBIN
> approach, at least for 512x512 arrays.
>
> Good luck,
> Craig

I second Craig's suggestion, and add a small addendum:

The assignment in the FOR loop can be sped up a bit by writing it as:

```
FOR ii=0,11 DO imgArr[ii,0,0] = imgArr[ii,*,*] - img1
      ^ ^
```

The values will be laid in as expected, but this dropped my timing from
1.402 seconds to 1.232 seconds.

Now, having said that, the REBIN method (useful if you have enough memory to
make the second big array) comes in at 0.210 seconds!

Cheers,

--

-Dick

Dick Jackson / dick@d-jackson.com
D-Jackson Software Consulting / http://www.d-jackson.com
Calgary, Alberta, Canada / +1-403-242-7398 / Fax: 241-7392

Subject: Re: image subtraction

Posted by [Kenneth P. Bowman](#) on Thu, 14 Mar 2002 12:55:36 GMT

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In article <qcUj8.884\$HJ.1076@shaw-ty1>,
"Dick Jackson" <dick@d-jackson.com> wrote:

```
>>> imgArr = lonarr(12,512,512)
```

Using the methods suggested previously, this is likely to be faster (due
to better cache use) if you can dimension this array as

```
imgArr = LONARR(512,512,12)
```

Regards, Ken

Subject: Re: image subtraction

Posted by [Dick Jackson](#) on Thu, 14 Mar 2002 16:00:44 GMT

"Kenneth P. Bowman" <kpb@null.com> :

>

>>>> imgArr = lonarr(12,512,512)

>

> Using the methods suggested previously, this is likely to be faster (due
> to better cache use) if you can dimension this array as

>

> imgArr = LONARR(512,512,12)

Good thinking, Ken, if this is an option for Art.

To round out the timings (YMMV):

FOR ii=0,11 DO imgArr[ii,*,*] = imgArr[ii,*,*] - img1 : 1.402 s

FOR ii=0,11 DO imgArr[ii,0,0] = imgArr[ii,*,*] - img1 : 1.232 s

FOR ii=0,11 DO imgArr[*,*,ii] = imgArr[*,*,ii] - img1 : 0.741 s

FOR ii=0,11 DO imgArr[0,0,ii] = imgArr[0,0,ii] - img1 : 0.301 s

A big win there!

For completeness:

imgarr = imgarr - rebin(reform(img1,1,512,512),12,512,512) : 0.210 s

Cheers,

--

-Dick

Dick Jackson / dick@d-jackson.com
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Subject: Re: image subtraction

Posted by [K. Bowman](#) on Sun, 17 Mar 2002 16:11:33 GMT

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In article <MO3k8.1762\$HJ.1430@shaw-ty1>,

"Dick Jackson" <dick@d-jackson.com> wrote:

What's the timing for

imgarr = imgarr - rebin(reform(img1,512,512,1),512,512,12) ?

Ken

Subject: Re: image subtraction

Posted by [Dick Jackson](#) on Tue, 19 Mar 2002 05:45:09 GMT

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"Kenneth Bowman" <k-bowman@null.tamu.edu> wrote in message
news:k-bowman-F0D133.10113317032002@news.tamu.edu...

> In article <MO3k8.1762\$HJ.1430@shaw-ty1>,
> "Dick Jackson" <dick@d-jackson.com> wrote:
>
> What's the timing for
>
> imgarr = imgarr - rebin(reform(img1,512,512,1),512,512,12) ?

Good question. I don't know why it would be so, but it's longer:

```
>>>> > img1 = lonarr(512,512)
>>
>>>> > imgArr = lonarr(12,512,512)
>>
>> Using the methods suggested previously, this is likely to be faster (due
>> to better cache use) if you can dimension this array as
>>
>> imgArr = LONARR(512,512,12)
>
> Good thinking, Ken, if this is an option for Art.
> To round out the timings (YMMV):
>
> FOR ii=0,11 DO imgArr[ii,*,*] = imgArr[ii,*,*] - img1 : 1.402 s
>
> FOR ii=0,11 DO imgArr[ii,0,0] = imgArr[ii,*,*] - img1 : 1.232 s
>
> FOR ii=0,11 DO imgArr[*,*,ii] = imgArr[*,*,ii] - img1 : 0.741 s
>
> FOR ii=0,11 DO imgArr[0,0,ii] = imgArr[0,0,ii] - img1 : 0.301 s
>
> A big win there!
>
> For completeness:
> imgarr = imgarr - rebin(reform(img1,1,512,512),12,512,512) : 0.210 s
```

For even more completeness:

```
imgarr = imgarr - rebin(reform(img1,512,512,1),512,512,12) : 0.260 s
```

Again, this is on IDL 5.5, Win2000.

Cheers,

--

-Dick

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