
Subject: Re: MEDIAN filtering and why it's not working
Posted by [David Foster](#) on Wed, 10 Jun 1998 07:00:00 GMT
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T Bowers wrote:

>
> Hi,
> How come
>
> print, median([0.0,1.0,1.5,2.0,5.0,6.0], 3, /EVEN)
>
> prints
> 0.00000 1.00000 1.50000 2.00000 5.00000 6.00000
>
> instead of
> 1.00000 1.00000 1.00000 5.00000 5.00000 5.00000
>
> Doesn't look like it's filtering anything to me, no matter what
> I set the filter width to.
>
> Actually, I'd really like it to print
> 1.00000 5.00000
> just the median of each filter width. I'm trying to filter spikes in
> time series data.
> I'm using IDL 5.02 and win95

Check the Online help for info on MEDIAN(), because you are a bit confused as to how it works. For example, the median of [1.0,1.5,2.0] is 1.5, not 1.0 as you suggest. With a width of 3, each element of your median array will be the median of itself and its two neighbors. Since your array is monotonically increasing, each element will be it's "own" median value.

If you want only the median values from every 3 elements, then you can use:

```
index = lindgen(n_elements(array))  
ind3 = where(index mod 3 eq 0)
```

```
median3 = (median(array, 3))[ind3]
```

Hope this helps.

Dave

>
> tia,
> todd bowers

--

~~~~~  
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~~~~~

Subject: Re: MEDIAN filtering and why it's not working
Posted by [thompson](#) on Thu, 11 Jun 1998 07:00:00 GMT
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"T Bowers" <tbowers@nrlssc.navy.mil> writes:

> Hi,
> How come

> print, median([0.0,1.0,1.5,2.0,5.0,6.0], 3, /EVEN)

> prints
> 0.00000 1.00000 1.50000 2.00000 5.00000 6.00000

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> 1.00000 1.00000 1.00000 5.00000 5.00000 5.00000

> Doesn't look like it's filtering anything to me, no matter what
> I set the filter width to.

> Actually, I'd really like it to print
> 1.00000 5.00000
> just the median of each filter width. I'm trying to filter spikes in
> time series data.
> I'm using IDL 5.02 and win95

One of the oddities of the median filter program is that it doesn't filter points near the edges of the array. It doesn't filter points if there aren't enough points on either side. In your example, with a filter width of three, then it won't filter the points on either end, because it needs one point before and one point after for each point it filters.

If I understand you correctly, I think you want to do something like the following. It would require that array be evenly divisible by the filter width.

```
array = [0.0,1.0,1.5,2.0,5.0,6.0]
n = n_elements(array) / 3
array = reform(array, 3, n, /overwrite)
for i=0,n-1 do array(*,i) = median(array(*,i))
array = reform(array, 3*n, /overwrite)
```

This would give you

```
1.00000  1.00000  1.00000  5.00000  5.00000  5.00000
```

as you request. However, the last step would probably be better implemented as

```
array = reform(array(0,*), /overwrite)
```

to remove the repeated entries. This would give you simply

```
1.00000  5.00000
```

William Thompson

Subject: Re: MEDIAN filtering and why it's not working
Posted by [David Foster](#) on Fri, 12 Jun 1998 07:00:00 GMT
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David Foster wrote:

```
>
> If you want only the median values from every 3 elements, then you
> can use:
>
> index = lindgen(n_elements(array))
> ind3 = where(index mod 3 eq 0)
>
> median3 = (median(array, 3))[ind3]
>
```

Whoops! That second line should read:

```
ind3 = where(index mod 3 eq 1)
          ^^^
```

Dave

```
> --
>
> ~~~~~
> David S. Foster      Univ. of California, San Diego
> Programmer/Analyst  Brain Image Analysis Laboratory
```

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