
Subject: Automatic Binsize Calculations

Posted by [David Fanning](#) on Sun, 29 May 2011 16:42:48 GMT

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Gianguido Cianci writes:

> Here's what I came up with, using sshist_2d.pro
> (<http://tinyurl.com/3on7bzx>) that automagically finds bin size:

I don't have a television, so while I listened to Djokovic defeat Gasquet on the French Open Radio I was fooling around using the 1D version of sshist to calculate a default bin size for cgHistoplot. What I discovered is that I get completely different results depending on the data type of the input data!

I modified sshist a bit to get the bin size out of it as a keyword:

```
; Author: Shigenobu Hirose at JAMSTEC
; based on original paper
; Shimazaki and Shinomoto, Neural Computation 19, 1503-1527, 2007
; http://toyozumilab.brain.riken.jp/hideaki/res/histogram.htm I
;
function sshist, data, x=x, cost=cost, nbin=nbin, binsize=binsize
```

```
  COMPILE_OPT idl2
```

```
  nbin_min = 2
  nbin_max = 200
```

```
  ntrial = nbin_max - nbin_min + 1
```

```
  nbin = INDGEN(ntrial) + nbin_min
```

```
  delta = FLTARR(ntrial)
  cost = FLTARR(ntrial)
```

```
  for n = 0, ntrial-1 do begin
    delta[n] = (MAX(data) - MIN(data)) / (nbin[n] - 1)
```

```
    k = HISTOGRAM(data, nbins=nbin[n])
```

```
    kmean = MEAN(k)
    kvari = MEAN((k - kmean)^2)
    cost[n] = (2. * kmean - kvari) / delta[n]^2
  endfor
```

```
n = (WHERE(cost eq MIN(cost)))[0]
k = HISTOGRAM(data, nbins=nbins[n], locations=x, reverse_indices=ri)

if arg_present(binsize) then binsize = delta[n]
return, k

end
```

But, look at this:

```
IDL> void = sshist(cgdemodata(21), binsize=bs) & print, bs
9.00000
IDL> void = sshist(fix(cgdemodata(21)), binsize=bs) & print, bs
1.00000
IDL> void = sshist(long(cgdemodata(21)), binsize=bs) & print, bs
1.00000
IDL> void = sshist(float(cgdemodata(21)), binsize=bs) & print, bs
1.33684
```

I have NO idea why this is occurring. :-(

Cheers,

David

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Coyote's Guide to IDL Programming: <http://www.idlcoyote.com/>
Sepore ma de ni thui. ("Perhaps thou speakest truth.")
