

colorful plot using persp

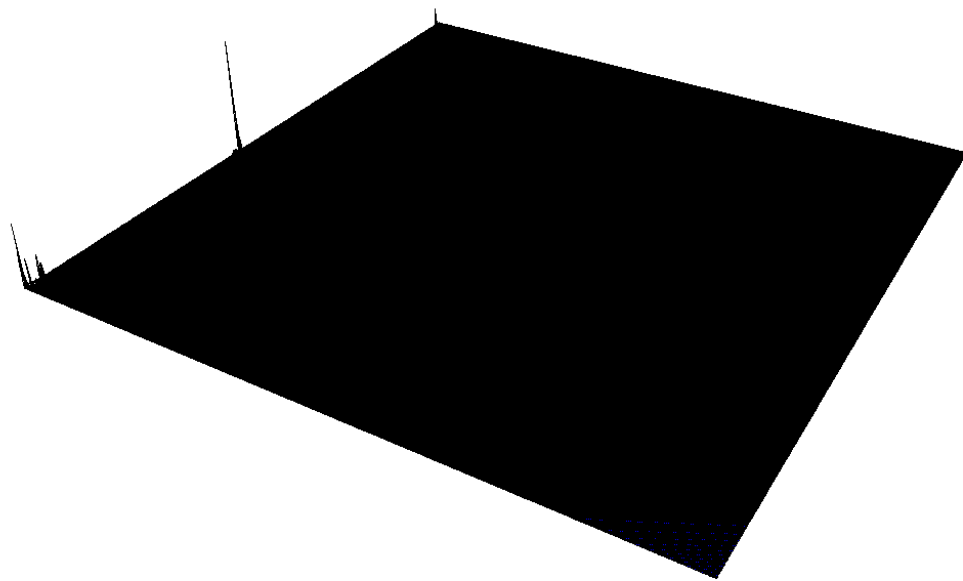
Asked 6 years, 11 months ago Modified today Viewed 6k times  Part of R Language Collective



I am using 'persp' to generate 3D-Plot. it is the result:

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```
persp(TestMatrix ,theta = 30, phi = 30, expand =  
0.19, scale=FALSE, shade=0.4, border=NA, box=FALSE)
```

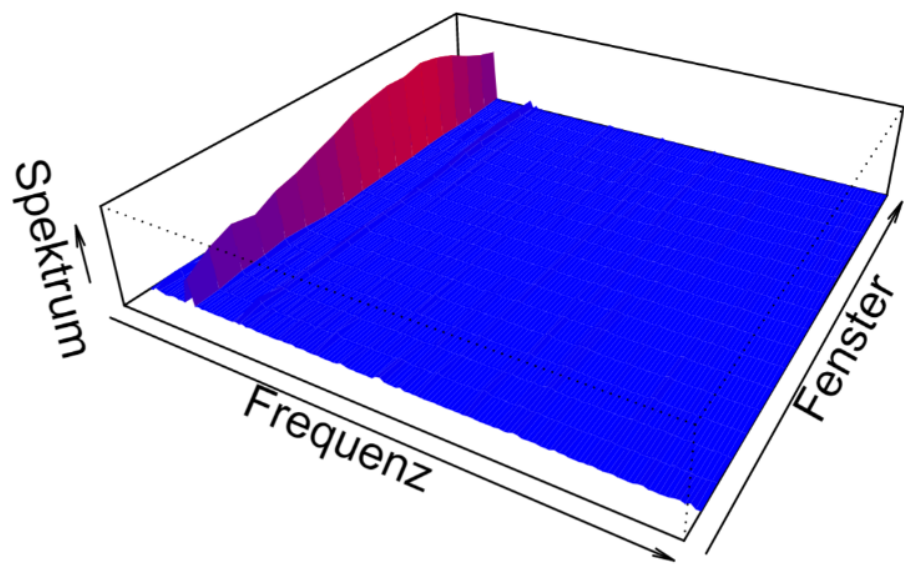


in my diagram. I would like to change the color continuous from blue to red.

what should I do?

UPDATE

I would like generate a diagram like this:



r plot colors 3d Edit tags

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edited 12 mins ago

asked Aug 24, 2016 at 8:10



Sandipan Dey

21.3k 2 49 62



Kaja

2,962 18 63 99

- 1

▲

Just build a contour plot. These are usually a much better visualization then perspective plots (in particular if the viewer can't change the perspective). – Roland Aug 24, 2016 at 8:18

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- ▲

Do you have anexample for me? – Kaja Aug 24, 2016 at 8:19

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- ▲

See the examples in `help("filled.contour")` . – Roland Aug 24, 2016 at 8:25

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2 Answers

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Decoupling the palette creation part, we can implement a 3D plotting function which accepts the `pal.func` as argument:

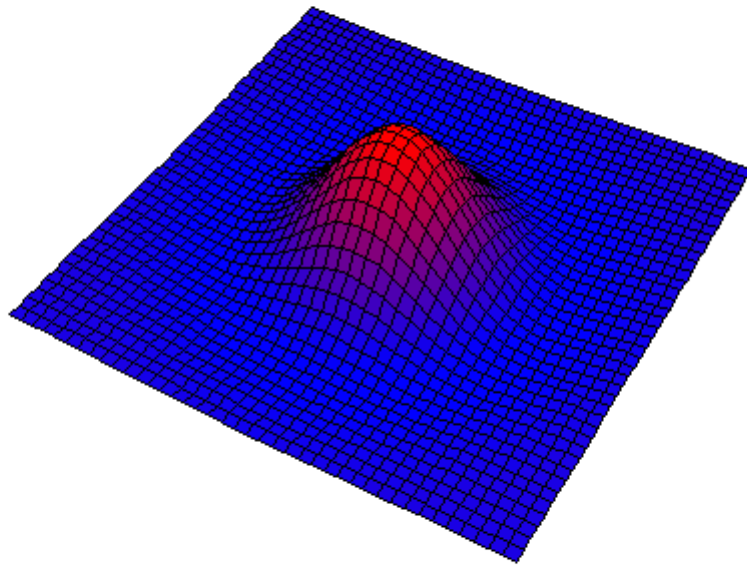
0



```
plot.3d <- function(x, y, z, pal.func, nlevels=50) {
  colors <- pal_func(nlevels)
  z.facet.center <- (z[-1, -1] + z[-1, -ncol(z)] + z[-nrow(z), -1] + z[-nrow(z), -
ncol(z)])/4
  z.facet.range <- cut(z.facet.center, nlevels)
  persp(x, y, z, theta = 30, phi = 45, scale=FALSE,
        expand = 0.2, col=colors[z.facet.range], box=FALSE)
}
```

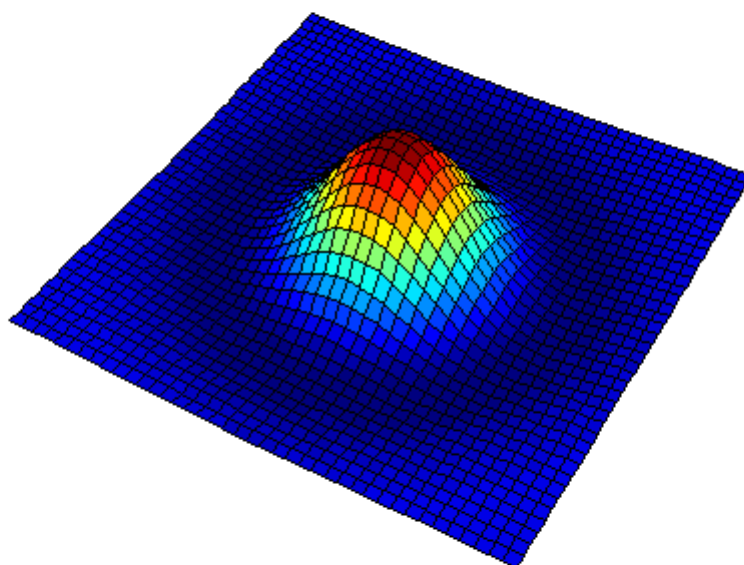
```
x <- seq(-3,3,0.15)
y <- seq(-3,3,0.15)
s <- 1
z <- outer(x, y, function(x,y) 50/s^4/pi*(1-(x^2+y^2)/2/s^2)*exp(-(x^2+y^2)/2/s^2))

plot.3d(x, y, z, pal.func = colorRampPalette(c("blue", "red")))
```



using the library GA we can get matlab like jet colormap

```
plot.3d(x, y, z, pal_func=jet.colors)
```

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edited 1 min ago

answered 14 mins ago

**Sandipan Dey****21.3k** 2 49 62

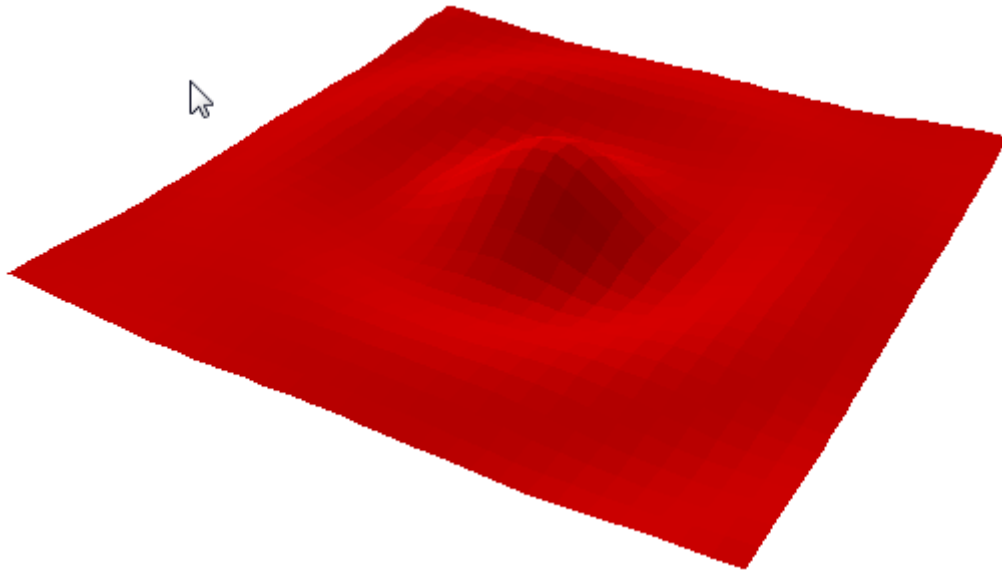
If you just need a shaded red curve, try to add a `col` parameter in your `persp` function :

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```
persp(TestMatrix,  
      theta = 30, phi = 30, expand = 0.19, scale=FALSE,  
      shade=0.4, col="red", border="blue",  
      box=FALSE)
```

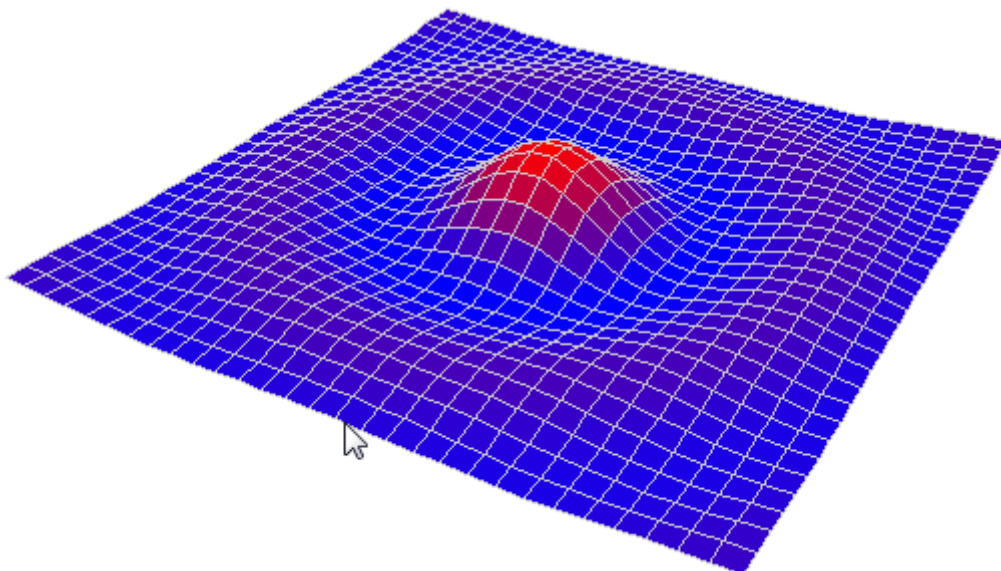




Edit : Thanks for your edit, I wasn't sure you needed a two-colors plot. There is an question on this problem here : [Create 3D Plot Colored According to the Z-axis](#). You need a color matrix to specify the colors of each facet of the surface. The subtil point is to calculate the height (z) in the middle of each facet, ie the mean of the four summit of the grid (which correspond to z values). Adapting the answer for your graph, the solution can be something like that :

```
# Color palette (100 colors)
col.pal<-colorRampPalette(c("blue", "red"))
colors<-col.pal(100)
# height of facets
z.facet.center <- (z[-1, -1] + z[-1, -ncol(z)] + z[-nrow(z), -1] + z[-nrow(z), -
ncol(z)])/4
# Range of the facet center on a 100-scale (number of colors)
z.facet.range<-cut(z.facet.center, 100)

persp(x, y, z,
  theta = 30, phi = 30, expand = 0.19, scale=FALSE,
  shade=NA, col=colors[z.facet.range], border="grey80",
  box=FALSE)
```



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edited May 23, 2017 at 12:00

answered Aug 24, 2016 at 8:41

CommunityBot

11

Jean-Noël

36816