import numpy as np

import matplotlib.pyplot as plt

import matplotlib.colors

mingap = .11

maxgap = 2

class SqueezedNorm(matplotlib.colors.Normalize):

def \_\_init\_\_(self, vmin=None, vmax=None, mid=0, s1=2, s2=2, clip=False):

self.vmin = vmin # minimum value

self.mid = mid # middle value

self.vmax = vmax # maximum value

self.s1=s1; self.s2=s2

f = lambda x, zero,vmax,s: np.abs((x-zero)/(vmax-zero))\*\*(1./s)\*0.5

self.g = lambda x, zero,vmin,vmax, s1,s2: f(x,zero,vmax,s1)\*(x>=zero) - \

f(x,zero,vmin,s2)\*(x<zero)+0.5

matplotlib.colors.Normalize.\_\_init\_\_(self, vmin, vmax, clip)

def \_\_call\_\_(self, value, clip=None):

r = self.g(value, self.mid,self.vmin,self.vmax, self.s1,self.s2)

return np.ma.masked\_array(r)

fig, (ax, ax2, ax3) = plt.subplots(nrows=3,

gridspec\_kw={"height\_ratios":[3,2,1], "hspace":0.25})

x = np.linspace(.11,2, 110)

print(x)

norm=SqueezedNorm(vmin=mingap, vmax=maxgap, mid=0.8, s1=1.7, s2=4)

line, = ax.plot(x, norm(x))

ax.margins(0)

ax.set\_ylim(0,1)

im = ax2.imshow(np.atleast\_2d(x).T, cmap='gist\_rainbow', norm=norm, aspect="auto")

cbar = fig.colorbar(im ,cax=ax3,ax=ax2, orientation="horizontal")

from matplotlib.widgets import Slider

midax = plt.axes([0.1, 0.04, 0.2, 0.03], facecolor="lightblue")

s1ax = plt.axes([0.4, 0.04, 0.2, 0.03], facecolor="lightblue")

s2ax = plt.axes([0.7, 0.04, 0.2, 0.03], facecolor="lightblue")

mid = Slider(midax, 'Midpoint', x[0], x[-1], valinit=0.8)

s1 = Slider(s1ax, 'S1', 0.5, 6, valinit=1.7)

s2 = Slider(s2ax, 'S2', 0.5, 6, valinit=4)

def update(val):

norm=SqueezedNorm(vmin=mingap, vmax=maxgap, mid=mid.val, s1=s1.val, s2=s2.val)

im.set\_norm(norm)

cbar.update\_bruteforce(im)

line.set\_ydata(norm(x))

fig.canvas.draw\_idle()

mid.on\_changed(update)

s1.on\_changed(update)

s2.on\_changed(update)

fig.subplots\_adjust(bottom=0.15)

plt.show()