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Matplotlib line colors from colormap

cdict = {'red': [[0.0, 0.0, 0.0], [0.5, 1.0, 1.0], [1.0, 1.0, 1.0]], 'green': [[0.0, 0.0, 0.0], [0.25, 0.0, 0.0], [0.75, 1.0, 1.0], [1.0, 1.0, 1.0]], 'blue': [[0.0, 0.0, 0.0], [0.5, 0.0, 0.0], [1.0, 1.0, 1.0]]} def plot_linearmap(cdict): newcmp = LinearSegmentedColormap("testCmap", segmentdata=cdict, N=256) rgba = newcmp(np.linspace(0, 1, 256)) fig, ax = plt.subplots(figsize=(4, 3), constrained_layout=True) col = ['r', 'g', 'b'] for xx in [0.25, 0.5, 0.75]: ax.axvline(xx, color="0.7", linestyle="--") for i in range(3): ax.plot(np.arange(256)/256, rgba[:, i], color=col[i]) ax.set_xlabel("index") ax.set_ylabel("RGB") plt.show() plot_linearmap(cdict) For a visual representation of the matplotlib colormaps, see the Color section in the gallery. A module for converting numbers or color arguments to RGB or RGBA RGB and RGBA are sequences of, respectively, 3 or 4 coated in the range 0-1. This module includes functions and stretches for color specification conversions, and for mapping numbers to colors in a multidimensional color array called a color map. Color placement typically involves two steps: a dataset is first mapped to a range 0-1 using an instance of a normalized or subdit; This number in the range 0-1 is then mapped to color by using an instance of a color map subdette. Two are provided here: LinearSegmentedColormap, which is used to create all built-in color map instances, but is also useful for creating custom color maps, and ListedColormap, which is used to create a custom color map from a list of color specifications. The module also provides functions for checking whether an object can be interpreted as a color (is_color_like()), converting such an object to an RGBA array (to_rgba()) or the magic string (to_rgba_array()) similar to HTML in #rrggbb (to_hex()) format, and a color sequence for the RGBA array (n, 4) (to_rgba_array()). Water storage is used for efficiency. Commands that stretch color arguments can use several formats to specify the colors. For the basic built-in colors, you can use one letter b: blue g: green r: red cyan m: magenta y: yellow k: black w: white to use colors that are part of the active color cycle in the current style, use C followed by digit. For example: C0. The first color in the C1 cycle. The second color in a grayscale cycle can be given as a floating encoding string in the range 0-1, for example: 'for a larger range of colors, you have two options. You can specify the color by using the html hexachir color, as in : (possibly specifying an alpha value), or move (r, g, b) or (r, g, b, a) dipped, with each r, g, b, and a in range [0,1]. Finally, legal HTML names for colors, such as 'red', 'burlywood' and 'chartreuse' are supported, class matplotlib.colors.boundaryNorm (borders, colors, clip=False)¶ Bases: matplotlib.color.normalize Create a color map index based on discreet intervals. Unlike Normal or LogNorm, BoundaryNorm maps entries to entire books instead of the 0-1 interval. Mapping to A 0-1 interval could be done through a smooth linear interpolation, but the use of integers seems simpler, reducing the number of conversions back and forth between an integer and a floating point. Monotone sequence borders enlarge ncolors the number of colors in the color map to use if: then v mapped to j color; Because l change from 0 to len(borders)-2, j moves from 0 to ncolors-1. Out-of-range values are mapped to -1 if low and ncolors if they are high; These are converted to valid metrics by Colormap.__call__(). If clip == True, values outside the range are mapped to 0 if they are low and ncolors-1 if they are high. Inverse (value)¶s class matplotlib.colors.colormap (name, N=256)¶ Bases: Base class object for all scaly RGBa mappings. Color map instances are typically used to convert data values (floating) from the interval [0, 1] to the RGBA color that the corresponding color map represents. For data scaling into interval [0, 1] see matplotlib.colors.Normalize. It is worth noting that matplotlib.cm.ScalarMappable sub-classes make heavy use of this data &normalization-&map to processing chain color. Parameters:Name : str Name of the color map. N : int number of rgb-ym levels. colorbar_extend = None¶ When this color map exists on mappable Scully and colorbar_extend is not false, creating the color bar picks up colorbar_extend as the default keyword in the matplotlib.colorbar.colorbar class: is_gray()¶ set_bad (color=k, alpha=None)¶ Set a color to be used for masked values. set_over (color=k, alpha=None)¶ Set a color to be used for high values outside the range. Require norm.clip = set_under (color=k, alpha=None)¶ Set a color to be used for low values outside the range. Requires norm.clip = false class matplotlib.colors.colors.LightSource(azdeg=315, altdeg=45, hsv_min_val=0, hsv_max_val=1, hsv_min_sat=1, hsv_max_sat=0)¶ Bases: A light source object that comes from the specified azimuth and upload. Angles are in degrees, with azimuth measured clockwise from the north and altitude up from the zero plane of the surface. Shading() is used to produce shaded rgb values for a data array, shade_rgb() can be used to combine an rgb image with shade_rgb() the hillshade() produces a surface lighting map. Specify the azimuth (measured clockwise from the south) and the height (measured from the surface plane) of the light source in degrees. Parameters:azdeg : number, optional aesyom (0-360, degrees clockwise north) of the light source. Default to 315 degrees (northwest). altdeg : Number, optional height (0-90, degrees up from horizontal) of the light source. Defaults to 45 degrees horizontally. Notes For backward compatibility, you can hsv_min_val hsv_max_val, hsv_min_sat hsv_max_sat, and hsv_max_sat also at startup. However, these parameters will only be used if the blend_mode='hsv' is passed to the shadow() or shade_rgb(). For more details, see blend_hsv() Volume, hsv_max_sat=None, hsv_max_val=None, hsv_min_val=None, hsv_min_sat=None)¶ Take the input data set, convert to HSV values in the given color map, and then adjust these color values to give the impression of a shaded relief map with a specified light source. RGBA values are returned, which can then be used to outsell the shaded image with imshow. The color of the picture that is explained will be darkened by moving the values (s,v) (in the color space of hsv) towards (hsv_min_sat, hsv_min_val) in the shaded areas, or the light by swiping (s,v) toward (hsv_max_sat, hsv_max_val) in the illuminated areas. Default extremes are selected so that completely shaded dots are almost black (s = 1, v = 0) and fully illuminated dots are almost white (s = 0, v = 1). Parameters:rgb: ndarray floating RGB MxNx3 array ranging from 0 to 1 (color image). Volume : An MxNx1 array of buoys ranging from 0 to 1 (grayscale image). hsv_max_sat: Number, optionally the maximum saturation value that the volume table can move the output image. Default to 1, hsv_min_sat: Number, optionally the minimum saturation value (v in hsv) that the volume table can move the output image to. Default to 1, hsv_min_val: Number, optionally the minimum value (v in hsv) that the volume table of view can move the output image to. The default is 0. Returns:rgb: ndarray array RGB MxNx3 representing the integrated images. blend_overlay (rgb, volume)¶ combines an rgb image with a volume map using overlay blending. Parameters:rgb: ndarray floating RGB MxNx3 array ranging from 0 to 1 (color image). Volume : An MxNx1 array of buoys ranging from 0 to 1 (grayscale image). Returns:rgb: ndarray array RGB MxNx3 representing the integrated images. blend_soft_light (rgb, volume)¶ combines an rgb image with a powerful map using soft light blending. Uses a peggtop formula. Parameters:rgb: ndarray floating RGB MxNx3 array ranging from 0 to 1 (color image). Volume : An MxNx1 array of buoys ranging from 0 to 1 (grayscale image). Returns:rgb: ndarray array RGB MxNx3 representing the integrated images. hillshade (height, vert_exag=1, dx=1, dy=1, fraction=1.0)¶ Calculates the lighting intensity for a surface using a defined azimuth and height for the light source. Imagine an artificial sun located infinitely in an aesyomouth position and altitude illuminating our surface. The parts of the area that extend towards the sun should become clearer while the outward-facing sides should be darker. Parameters:Height : A 2D array (or equivalent) of the height values used to create a lighting map vert_exag: number, optional amount to exaggerate the upload values by which when calculating the lighting. You can use this option to correct the differences in units between x-y coordinate system and A set of coordinates (e.g. decimal degrees versus meters) or to exaggerate or emphasize topographic effects. dx : Number, optional input upload network x interval (columns). dy : Number, optional y-space (lines) of the input upload network. Fraction : Number, increases or decreases the contrast of hillshade. Values greater than intermediate values will approach full light or shadow (and cut values beyond 0 or 1). Note that this is not the same visual or mathematical as vertical exaggeration. Returns :——: ndarray 2D array of lighting values between 0-1, with 0 completely in the shade and 1 completely illuminated. Shadow (data, cmap, norm=None, blend_mode='overlay', vmin=None, vmax=None, vert_exag=1, dx=1, dy=1, fraction=1, **kwargs)¶ Combine color-mapped data values with a light intensity map (also hillshade) of the values. Parameters:Data : A 2D array (or equivalent) of the height values used to create a shaded map. cmap : Color map instance The color map used to color the data array. Note that this instance must be an instance of a color map. For example, instead of moving in cmap->gist_earth', use cmap=plt.get_cmap instead gist_earth. Norm : Normalize the instance, optionally the normalization used to radicalize values before coloring. If none, input size is linear between minimum and maximum blend_mode: ('hsv', Overlay, Soft) or readable, optionally the blending type used to combine the color-mapped data values with the lighting intensity. The default is hsv. Note that for most topographic surfaces, an overlay or soft one looks more visually realistic. If a user-defined function is provided, it is expected to combine an RGB MxNx3 array of buoys (in the range of 0 to 1) with the MxNx1 hills array (also 0 to 1). Additional kwargs (rgb, illum, **kwargs) kwargs provided for this function will be transferred to the blend_mode. vmin : Skelly or None, optionally the minimum value used in data color bleed. If the minimum value is used in the data. If a norm is specified, this argument will be ignored. vmax : Scully or None, optionally the maximum value used in adding colors to data. If the maximum value is used in the data. If a norm is specified, this argument will be ignored. vert_exag: Number, optional amount to exaggerate upload values by calculating lighting. You can use this option to correct the differences in units between the x-y coordinate system and the altitude coordinate system (e.g. decimal degrees versus meters) or to exaggerate or emphasize topography. dx : Number, optional input upload network x interval (columns). dy : Number, optional y-space (lines) of the input upload network. Additional kwargs are passed to the 'blend_mode' function. Returns:shaded_rgb: An MxNx3 array of buoys ranging from 0-1. class matplotlib.colors.colors.linearSegmentedColormap (name, section data, N=256, gamma=1.0)¶ Bases: matplotlib.color.colormap objects map colors based on lookup tables using linear sections. The test table is created by using linear interpolation for each primary color, with domain 0-1 divided into several different seas. Creating a color map from a linear mapping section data argument is a dictionary with red, green, and blue values. Each value should be a list of x, y0, y1 tuples, creating rows in a table. Values for Alpha are optional. Example: Suppose you want red to grow from 0 to 1 during the bottom half, green will do the same during the middle half and blue on the top half. You will then use: cdict = {'red': [(0.0, 0.0, 0.0), 1.0, 1.0], (1.0, 1.0, 1.0)], 'green': [(0.0, 0.0, 0.0), (0.25, 0.0, 0.0), (0.75, 1.0, 1.0), (1.0, 1.0, 1.0)], 'blue': [(0.0, 0.0, 0.0), (0.5, 0.0, 0.0), (1.0, 1.0, 1.0)]}. A new RGB array ((ny*nx*3)) is returned. Parameters:rgb: MxNx3 RGB array, assuming a range of 0 to 1. Elevation : A 2D array (or equivalent) of the height values used to create a shaded map. Fraction : A number increases or decreases the contrast of hillshade. Values greater than intermediate values will approach full light or shadow (and cut values beyond 0 or 1). 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