Description

July 14, 2025

Short description

The bagplot function plots the (approximation of) spherical bagplot for the given data points. The function has multiple optional arguments that help the users customize the plot; for more, see . In addition to the bagplot function, we also provide a function that counts the number of the data points that will be flagged as outliers (see outlierscount.py), this function takes the same arguments as the bagplot function (up to argument *res*, the rest of the arguments are only relevant to displaying the bagplot).

Arguments of the bagplot function

Compulsory arguments:

- *data*: a multidimensinal array of the data points for which the bagplot is to be plotted. Each row should represent an observation.

Optional arguments:

- *weights*: an array of data weights. If not provided, it is assumed that all the data have the same weights.
- *dist*: string, the distance to be used for the calculations. Should be one of arc, cos or chord. The default is arc.
- *a*: float, a value between zero and one. It represents the percentage of the probability mass that should lie inside the fence under the von Mises-Fisher distribution. The default is 0.99.
- *borderdist*: a string. Indicates whether the maximum or average distance from the center to the border should be used in the calculation for the estimates of κ and the multiplying factor. Two options, max or mean. The default is mean.
- *res*: an integer, which controls the size of the grid used to approximate the unit sphere. The number of grid points is equal to the square of *res*. The default value is 500.

- *savefig*: boolean value. If *savefig* is set to True, the plot is saved in a file named *figname*. The default is False.
- *figname*: string. Name of the resulting file when *savefig* is set to True. The default is bagplot.pdf.
- *interactive*: boolean value. If *interactive* is set to true, an interactive plot will be created. If set to False, six plots of a sphere from different angles will be created. For *savefig* set to True, only the option with six plots is possible. The default is False.
- *bagcol*: string, the color of the bag. It should be one of the named colors in Python or a HEX code of a color. The defualt is #3c7cdd.
- *loopcol*: string, the color of the loop. It should be one of the named colors in Python or a HEX code of a color. The default is #a8c5f0.
- *font*: string, a font family used for titles in the plot. The desired font family should be installed on the machine the code is running on. The default is Latin Modern Roman.
- *geo*: boolean value. If true outlines of countries are plotted in black, and the six plots are centered on the six inhabited continents. The default is False.