

Package: navmix (via r-universe)

October 10, 2026

Type Package

Title A package for performing directional clustering by fitting a noise-augmented von Mises-Fisher mixture model

Version 0.2.1

Author Authors@R: person("`Andrew", "`Grant", email = "`andrew.grant@mrc-bsu.cam.ac.uk", role = c("`aut", "`cre"))

Maintainer The package maintainer <yourself@somewhere.net>

Description A package for performing directional clustering by fitting a noise-augmented von Mises-Fisher mixture model

License GPL-3

Encoding UTF-8

LazyData true

RoxygenNote 7.1.1

Suggests knitr, rmarkdown

VignetteBuilder knitr

URL <https://github.com/aj-grant/navmix>

Imports expm, ggplot2, plotrix, RColorBrewer, skmeans, tidyr

Config/pak/sysreqs libicu-dev

Repository <https://mrcieu.r-universe.dev>

Date/Publication 2023-01-12 01:57:51 UTC

RemoteUrl <https://github.com/aj-grant/navmix>

RemoteRef HEAD

RemoteSha c3feac409f14f1bd622a4363dbe9403c558f3b79

Contents

navmix	2
Index	4

navmix

*Noise-augmented directional clustering***Description**

Performs directional clustering by fitting a noise-augmented von Mises-Fisher mixture model

Usage

```
navmix(
  x,
  K = 10,
  select_K = TRUE,
  common_kappa = FALSE,
  pj_ini = 0.05,
  no_ini = 5,
  tol = 1e-04,
  max_iter = 100,
  plot = FALSE,
  plot_heat = TRUE,
  plot_heat_mu = FALSE,
  plot_parallel = TRUE,
  plot_radial = FALSE,
  plot_radial_options = list(plot_radial_separate = FALSE, radial_legend_pos = c(-2.5,
    2.7), radial_separate_col = 2)
)
```

Arguments

x	Matrix of values where rows represent observations and columns represent features.
K	The number of clusters to fit.
select_K	If TRUE (the default setting), the number of clusters will be chosen by BIC, with K the maximum number of clusters considered. If FALSE, then a model with K clusters will be fit.
pj_ini	The initial proportion of observations which belong in the noise cluster. Must be a number greater or equal to 0 and strictly less than 1. The default value is 0.05. If set to 0, no observations will be placed in the noise cluster.
no_ini	The number of time the algorithm is run with different initialisations. Must be a number greater than zero. The default value is 5.
tol	The tolerance threshold for convergence of the EM algorithm. Must be a number greater than 0. The default value is 1.0e-4.
max_iter	The maximum number of iterations of the EM algorithm. Must be a number greater than 0. The default value is 100.
plot	Plots of the results will be produced if set to TRUE. Default is FALSE.

<code>plot_heat</code>	Produces a heatmap of the results if <code>plot</code> is set to <code>TRUE</code> . The heatmap will also be returned as a <code>ggplot</code> object.
<code>plot_radial</code>	Produces (a) radial plot(s) of the results if <code>plot</code> is set to <code>TRUE</code> .
<code>common_kapp</code>	If <code>TRUE</code> , then model will force the <code>kappa</code> parameter to be equal for all clusters, except the noise cluster.
<code>plot_radial_separate</code>	If set to <code>FALSE</code> (the default value), the fitted means of each cluster are plotted on the same radial plot. If set to <code>TRUE</code> , they are plotted on separate radial plots.
<code>radial_legend_pos</code>	Adjusts the position of the legend for a radial plots with all fitted means plotted together.
<code>radial_separate_col</code>	Adjusts the format of the output of radial plots on separate plots.

Value

Returned are the BIC values for each model fitted (`$BIC`), the final fitted model (`$fit`) and, if produced, the heatmap as a `ggplot` object (`$heatmap_plot`). The fitted model has the following.

<code>mu</code>	A matrix where each column represents the mean of the fitted von Mises-Fisher distribution for each cluster.
<code>kappa</code>	A row vector where each element represents the <code>kappa</code> parameter of the fitted von Mises-Fisher distribution for each cluster.
<code>g</code>	A matrix of probabilities for each observation belonging to each cluster. The value in the <i>j</i> th row and <i>k</i> th column represents the probability that the <i>j</i> th observation belongs to the <i>k</i> th cluster.
<code>z</code>	A vector of the cluster membership of each observation when allocated according to the cluster for which it has the highest probability of membership (hard clustering).
<code>bic</code>	The BIC for the fitted model.
<code>l</code>	The value of the likelihood function at the estimated parameters.

Index

navmix, [2](#)