Package ‘FitUltD’

September 11, 2019

Type Package
Title Fit Univariate Mixed and Usual Distributions
Version 3.1.0
Author José Carlos Del Valle <jcval94@gmail.com>
Maintainer José Carlos Del Valle <jcval94@gmail.com>
Description Extends the fitdist() (from ’fitdistrplus’) adding the Anderson-Darling ad.test() (from ’AD-GofTest’) and Kolmogorov Smirnov Test ks.test() inside, trying the distributions from ’stats’ package by default and offering a second function which uses mixed distributions to fit, this distributions are split with unsupervised learning, with Mclust() function (from ’mclust’).
License GPL-3
Encoding UTF-8
LazyData true
Depends R (>= 3.2.0), mclust
Imports ADGofTest, fitdistrplus, assertthat, MASS, purrr, ggplot2, cowplot, methods, stats
RoxygenNote 6.1.1
URL https://github.com/jcval94/FitUltD
BugReports https://github.com/jcval94/FitUltD/issues
NeedsCompilation no
Repository CRAN
Date/Publication 2019-09-11 13:30:02 UTC

R topics documented:

FDist ................................................................. 2
FDistUlt ............................................................. 3

Index 5
FDist

Fit of univariate distributions with censored data ignored by default or can be inputed.

Description

Fit of univariate distributions with censored data ignored by default or can be inputed.

Usage

FDist(X, gen = 1, Cont = TRUE, inputNA, plot = FALSE, p.val_min = 0.05, crit = 2, DPQR = TRUE)

Arguments

X  A random sample to be fitted.

gen  A positive integer, indicates the sample length to be generated by the fit, 1 by default.

Cont  TRUE, by default the distribution is considered as continuous.

inputNA  A number to replace censored values, if is missing, only non-censored values will be evaluated.

plot  FALSE. If TRUE, a plot showing the data distribution will be given.

p.val_min  0.05, minimum p.value for Anderson Darling and KS Test to non-reject the null hypothesis and continue with the process.

crit  A positive integer to define which test will use. If 1, show the distributions which were non-rejected by the Anderson Darling or Kolmogorov Smirnov tests, in other cases the criterion is that they mustn’t be rejected by both tests.

DPQR  TRUE, creates the distribution function, density and quantile function with the names dfit, pfit and qfit.

Value

Calculate the distribution name with parameters, a function to reproduce random values from that distribution, a numeric vector of random numbers from that function, Anderson Darling and KS p.values, a plot showing the distribution difference between the real sample and the generated values and a list with the random deviates generator, the distribution function, density and quantile function.

Examples

set.seed(31109)
FIT1<-FDist(rnorm(1000,10),p.val_min=.03,crit=1,plot=TRUE)

#Random Variable
FIT1[[1]]

#Random numbers generator
FDistUlt

FDistUlt()  
#Random sample  
FIT1[[3]]  
#Goodness of fit tests results  
FIT1[[4]]  
#Plot  
FIT1[[5]]  
#Functions r, p, d, q  
FIT1[[6]]

FDistUlt

Fits a set of observations (random variable) to test whether is drawn from a certain distribution

Description

Fits a set of observations (random variable) to test whether is drawn from a certain distribution

Usage

FDistUlt(X, n.obs = length(X), ref = "OP", crt = 1, plot = FALSE, subplot = FALSE, p.val_min = 0.05)

Arguments

X A random sample to be fitted.
n.obs A positive integer, is the length of the random sample to be generated
ref A number of clusters to use by the kmeans function to split the distribution, if isn’t a number, uses mclust classification by default.
crt Criteria to be given to FDist() function
plot FALSE. If TRUE, generates a plot of the density function.
subplot FALSE. If TRUE, generates the plot of the mixed density function’s partitions.
p.val_min Minimum p.value to be given to non-reject the null hypothesis.

Value

A list with the density functions, a random sample, a data frame with the KS and AD p.values results, the corresponding plots an the random numbers generator functions
Examples

```r
set.seed(31109)
X<-c(rnorm(193,189,12),rweibull(182,401,87),rgamma(190,40,19))
A_X<-FDistUlt(X,plot=TRUE,subplot=TRUE)
A_X<-FDistUlt(X,plot=TRUE,subplot=TRUE,p.val_min=.005)

# Functions generated
A_X[[1]][[1]]()

# Random sample
A_X[[2]]

# Distributions
A_X[[3]]

# Plots
par(mfrow=c(1,2))
A_X[[4]][[1]]
A_X[[4]][[2]]

# More functions
A_X[[5]][[1]]()
```
Index

FDist, 2
FDistUlt, 3