

Package ‘ipfp’

October 13, 2022

Type Package

Title Fast Implementation of the Iterative Proportional Fitting Procedure in C

Version 1.0.2

Author Alexander W Blocker

Maintainer Alexander W Blocker <ablocker@gmail.com>

Description A fast (C) implementation of the iterative proportional fitting procedure.

License Apache License (== 2.0)

LazyLoad yes

URL <https://github.com/awblocker/ipfp>

RoxygenNote 7.1.2

NeedsCompilation yes

Repository CRAN

Date/Publication 2022-05-05 06:50:05 UTC

R topics documented:

ipfp	1
Index	3

ipfp	<i>Function to run IPFP (iterative proportional fitting procedure)</i>
------	--

Description

Use IPFP starting from x_0 to produce vector x s.t. $Ax = y$ within tolerance. Need to ensure that $x_0 > 0$.

Usage

```
ipfp(  
  y,  
  A,  
  x0,  
  tol = sqrt(.Machine$double.eps),  
  maxit = 1000,  
  verbose = FALSE,  
  full = FALSE  
)
```

Arguments

y	numeric constraint vector (length nrow)
A	constraint matrix (nrow x ncol)
x0	numeric initial vector (length ncol)
tol	numeric tolerance for IPFP; defaults to <code>sqrt(.Machine\$double.eps)</code>
maxit	integer maximum number of iterations for IPFP; defaults to 1e3
verbose	logical parameter to select verbose output from C function
full	logical parameter to select full return (with diagnostic info)

Value

if not full, a vector of length ncol containing solution obtained by IPFP. If full, a list containing solution (as x), the number of iterations (as iter), and the L2 norm of $Ax - y$ (as errNorm)

Examples

```
A <- matrix(c(1,0,0, 1,0,0, 0,1,0, 0,1,0, 0,0,1), nrow=3)  
x <- rgamma(ncol(A), 10, 1/100)  
y <- A %*% x  
x0 <- x * rgamma(length(x), 10, 10)  
ans <- ipfp(y, A, x0, full=TRUE)  
print(ans)  
print(x)
```

Index

- * **array**
 - ipfp, 1
- * **iteration**
 - ipfp, 1
- ipfp, 1