MeasurementError.cor

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R topics documented:

cor.me.matrix .................................................. 1

Index

| cor.me.matrix | A function to calculate measurement error estimates for all pairs of genes given by the matrix |

Description

Given a matrix (p x n) for observed values of p variables and a corresponding matrix for their standard errors, the all pairwise measurement error estimates for true correlations are returned.

Usage

cor.me.matrix(exp, se)

Arguments

exp observed value matrix

se standard error matrix

Value

The final estimates for true correlation (i.e. cor.true) from the measurement error model

Note

The function involves using quasi-newton for linear optimization, "BFGS" is the only implemented method now. Refer to cor.me.vector for more details.

Author(s)

Beiying Ding
References


See Also
cor.me.vector

Examples

```r
exp <- matrix(abs(rnorm(200,1000,20)),ncol=10)
se <- matrix(abs(rnorm(200,50,5)),ncol=10)
cor.me.matrix(exp,se)
```

Description

Given the observed value of two variables and their respective standard error, the measurement error estimate for their correlation coefficient is returned.

Usage

```r
cor.me.vector(exp1, se1, exp2, se2)
```

Arguments

- `exp1` observed value for vector 1
- `se1` estimated standard error for vector 1
- `exp2` observed value for vector 2
- `se2` estimated standard error for vector 2

Value

- `estimate` Vector containing the estimates from the measurement error model, i.e. `cor.me`, `cor.true`, `mu1`, `mu2`, `s1`, `s2` which are correlation for the measurement error distribution of the two variables, true correlation between the two variables, and true mean and standard deviation estimates for the two variables respectively.
- `count` number of function and gradient evaluation
- `convergence` 0 if converged. See `optim()` for details

Note

Most applicable for microarray expression data where standard errors are readily estimated by most low level analysis softwares. Hence variables can be thought of as genes. One also need to differentiate between `cor.me` and `cor.true`: the first one being the correlation between the measurement error distributions of the two genes whereas the second one is the quantity of interest, i.e true correlation between the two gene expression profiles.

The function involves using quasi-newton for linear optimization, "BFGS" is the only implemented method now.
cor.me.vector

Author(s)

Beiying Ding

References


See Also

cor.me.matrix

Examples

exp <- matrix(abs(rnorm(200,1000,20)),ncol=10)
se <- matrix(abs(rnorm(200,50,5)),ncol=10)
cor.me.vector(exp[1,],se[1,],exp[2,],se[2,])
Index

*Topic multivariate
   cor.me.matrix, 1
   cor.me.vector, 2

cor.me.matrix, 1
cor.me.vector, 2