Package 'GauProMod'

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Type Package

Title Gaussian Process Modelling

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Description A package for conditional and unconditional Gaussian Process Modelling (GauProMod).

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LazyData TRUE

Collate 'RcppExports.R'
'GauProMod.R'
'main.R'

Depends base,
methods,
graphics,
stats

LinkingTo Rcpp, RcppEigen

Imports Rcpp,
RcppEigen,
FastGP

RoxygenNote 5.0.1

R topics documented:

`GauProMod-package` *GauProMod: A package for simulating conditional and unconditional Gaussian Process.*

Description

The GauProMod package provides R functions for Gaussian process (GP) modelling. The core functions are coded in C++ and based on the EIGEN library.

Features

- Conditional GP simulation
- Space-time GP
- GP with monomial mean functions
- GP conditioned to derivative observations

References

Several books!

`cholfac` *Return the lower Cholesky factor*

Description

Return the lower Cholesky factor L such that X = L t(L)

Usage

```
cholfac(x)
```

`covm` *Covariance matrix*

Description

Create a covariance matrix according to the kernel parametrisation

Usage

```
covm(x, y, covModel, d = 0, dx = 1, ...)
```

gpCond *Conditional Gaussian Process simulation*

Description

Conditional Gaussian Process simulation

Usage

```
gpCond(obs, targ, covModels, sigma = 0, op = 0, bc = NULL, sigmat = 0)
```

gpSim *Simulate a Gaussian Process*

Description

Simulate a Gaussian Process

Usage

```
gpSim(A, L = NULL, n = 1)
```

invm *Inverse matrix*

Description

This function first try the Cholesky decomposition

Usage

```
invm(x)
```

kernels *Kernels (covariance functions) for Gaussian process*

Description

Squared Exponential Covariance Function (or radial basis or Gaussian) over-smoothness, infinitely differentiable at h=0

Usage

```
kGaussian(r, para, d = 0, w = 1)

kLinear(x, y, para, d = 0, w = 1)

kMatern(r, para, d = 0, w = 1)
```

matGrid *Create grid*

Description

Create grid

Usage

```
matGrid(x, y)
```

mvrnorm2 *Multi-variate Gaussian simulation*

Description

A more robute alternative to the `mvrnorm` function.

Usage

```
mvrnorm2(n, mu, Sigma)
```

`setPosTime` *Reshape target*

Description

Reshape target

Usage

```
setPosTime(xy, tt, val, xystar)
```

`vecGrid` *Create vecgrid*

Description

Create vecgrid

Usage

```
vecGrid(x, y)
```

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