

# Package ‘dancode’

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**Type** Package

**Title** Dimension Estimation from Angle and Norm Concentration (DANCo)

**Version** 1.1

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**Depends** manifgen, yaImpute, R.utils

**Description** Provides functions to do manifold dimension estimation with the DANCo, MIND\_MLi and MIND\_MLk methods.

**License** GPL (>=2)

**URL** <http://www.maths.lu.se/staff/kerstin-johnsson/research/manifold-dimension-estimation/>

**LazyLoad** yes

## R topics documented:

DANCo . . . . .	1
<b>Index</b>	<b>3</b>

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DANCo	<i>Dimension estimation with the DANCo or MIND methods</i>
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### Description

Intrinsic dimension estimation with the DANCo (Ceruti et al. 2012), MIND\_MLi and MIND\_MLk (Rozza et al. 2012) methods.

### Usage

```
DANCo(data, k, D, ver = "DANCo", cal = NULL, caldir = NULL)
```

**Arguments**

<code>data</code>	a data set for which the intrinsic dimension is estimated.
<code>k</code>	neighborhood parameter.
<code>D</code>	maximal dimension.
<code>ver</code>	possible values: 'DANCo', 'MIND_MLi', 'MIND_MLk'.
<code>cal</code>	precomputed data to use for calibration.
<code>caldir</code>	directory where calibration data is located.

**Details**

If `cal` = NULL and `caldir` = NULL new calibration data is computed. If `caldir` = NULL, then if `caldir` contains calibration data it is used, otherwise calibration data is computed and stored in `caldir`.

**Value**

A vector with one component

<code>de</code>	the intrinsic dimension estimate.
<code>kl</code>	the KL divergence between data and reference data for the estimated dimension.

**Author(s)**

Kerstin Johnsson, Lund University

**References**

- Ceruti, C. et al. (2012) DANCo: Dimensionality from Angle and Norm Concentration. *arXiv preprint* 1206.3881.
- Rozza, A et al. (2012) Novel high intrinsic dimensionality estimators. *Machine learning* **89**, 37-65.

**Examples**

```
library(manifgen)
data <- hball(50, 10)
DANCo(data, 8, 20)
```

# Index

DANCo, 1