Package: cmtkr (via r-universe)

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Type Package

Title Wrapper for the Computational Morphometry Toolkit ('CMTK') Library

Version 0.2.3

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Description Provides R bindings for selected components of the Computational Morphometry Toolkit ('CMTK') for image registration and point transformation. A subset of the 'C++' source code required for point transforms is bundled with 'cmtkr'. This allows direct calls into the 'CMTK' library, avoiding command-line invocations and providing order-of-magnitude speed improvements. Additional 'CMTK' functionality may be wrapped in future releases. 'CMTK' is described in Rohlfing T and Maurer CR (2003) <doi:10.1109/titb.2003.808506>.

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Imports Rcpp (>= 0.11.2)

LinkingTo Rcpp

Suggests testthat, nat

SystemRequirements zlib

Encoding UTF-8

RoxygenNote 7.3.3

URL https://github.com/jefferis/cmtkr

BugReports https://github.com/jefferis/cmtkr/issues

NeedsCompilation yes

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`cmtkr-package` *R wrapper for CMTK*

Description

Provides R bindings for selected components of the Computational Morphometry Toolkit ('CMTK') for image registration and point transformation. A subset of the 'C++' source code required for point transforms is bundled with 'cmtkr'. This allows direct calls into the 'CMTK' library, avoiding command-line invocations and providing order-of-magnitude speed improvements. Additional 'CMTK' functionality may be wrapped in future releases. 'CMTK' is described in Rohlfing T and Maurer CR (2003) doi:10.1109/titb.2003.808506.

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- SRI International (Copyright holder for CMTK library) [copyright holder]
- Google, Inc. (Copyright holder for CMTK library contributions) [copyright holder]

See Also

Useful links:

- https://github.com/jefferis/cmtkr
- Report bugs at https://github.com/jefferis/cmtkr/issues

`streamxform` *transform 3D points using one or more CMTK registrations*

Description

transform 3D points using one or more CMTK registrations

Usage

```
streamxform(points, reglist, inversionTolerance = 1e-08, affineonly = FALSE)
```

Arguments

`points`	an Nx3 matrix of 3D points
`reglist`	A character vector specifying registrations. See details.
`inversionTolerance`	the precision of the numerical inversion when transforming in the inverse direction.
`affineonly`	Whether to apply only the affine portion of transforms default `FALSE`.

Details

To transform points from sample to reference space, you will need to use the inverse transformation. This can be achieved by preceding the registration with a `--inverse` flag. When multiple registrations are being used the are ordered from sample to reference brain.

Value

An Nx3 numeric matrix with the same dimensions as `points` containing transformed coordinates. Rows for points that cannot be transformed are returned as `NA_real_`.

Examples

```
m=matrix(rnorm(30,mean = 50), ncol=3)
reg=system.file("extdata","cmtk","FCWB_JFRC2_01_warp_level-01.list", package='cmtkr')
# from reference to sample
streamxform(m, reg)

# from sample to reference
streamxform(m, c("--inverse", reg))

## Not run:
# concatenating 3 registrations to map S -> B1 -> B2 -> T
# the first two registrations are inverted, the last is not.
streamxform(m, c("--inverse", StoB1, "--inverse", B1toB2, TtoB2))

## End(Not run)
```

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