

Package ‘fmriqa’

October 13, 2022

Type Package

Title Functional MRI Quality Assurance Routines

Version 0.3.0

Date 2018-02-19

Description Methods for performing fMRI quality assurance (QA) measurements of test objects. Heavily based on the fBIRN procedures detailed by Friedman and Glover (2006) <[doi:10.1002/jmri.20583](https://doi.org/10.1002/jmri.20583)>.

BugReports <https://github.com/martin3141/fmriqa/issues>

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LazyData true

RoxygenNote 6.0.1

Imports viridisLite, RNifti, ggplot2, reshape2, gridExtra, grid, tidy, optparse, tcltk, RcppEigen, imager, pracma

Encoding UTF-8

Suggests testthat, covr, knitr, rmarkdown

VignetteBuilder knitr

NeedsCompilation no

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fmriqa-package *fmriqa: fMRI quality assurance routines*

Description

The fmriqa package provides an implementation of the fMRI quality assurance analysis protocol detailed by Friedman and Glover (2006) <doi:10.1002/jmri.20583>.

Details

#' To learn more about fmriqa, start with the vignettes: `'browseVignettes(package = "fmriqa")'`

For a full list of functions: `'help(package=fmriqa, help_type="html")'`

Author(s)

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See Also

Useful links:

- Report bugs at <https://github.com/martin3141/fmriqa/issues>

run_fmriqa *Run fMRI quality assurance procedure on a NIfTI data file*

Description

Run fMRI quality assurance procedure on a NIfTI data file

Usage

```
run_fmriqa(data_file = NULL, roi_width = 21, slice_num = NULL, skip = 2,
  tr = NULL, pix_dim = NULL, poly_det_ord = 3, spike_detect = FALSE,
  x_pos = NULL, y_pos = NULL, plot_title = NULL, last_vol = NULL,
  gen_png = TRUE, gen_res_csv = TRUE, gen_pdf = FALSE,
  gen_spec_csv = FALSE, png_fname = NULL, res_fname = NULL,
  pdf_fname = NULL, spec_fname = NULL, verbose = TRUE, bg_smooth = 12,
  bg_shrink = 25)
```

Arguments

| | |
|--------------|--|
| data_file | input data in nifti format, a file chooser will open if not set |
| roi_width | roi analysis region in pixels (default=21) |
| slice_num | slice number for analysis (default=middle slice) |
| skip | number of initial volumes to exclude from the analysis (default=2) |
| tr | override the TR detected from data (seconds) |
| pix_dim | override the x,y,z pixel dimensions (mm) detected from data eg pixdim=c(3,3,3) |
| poly_det_ord | polynomial order used for detrending (default=3) |
| spike_detect | generate k-space spike-detection plot (default=FALSE) |
| x_pos | x position of ROI (default=center of gravity) |
| y_pos | y position of ROI (default=center of gravity) |
| plot_title | add a title to the png and pdf plots |
| last_vol | last volume number to use in the analysis |
| gen_png | output png plot (default=TRUE) |
| gen_res_csv | output csv results (default=TRUE) |
| gen_pdf | output pdf plot (default=FALSE) |
| gen_spec_csv | output csv of spectral points (default=FALSE) |
| png_fname | png plot filename |
| res_fname | csv results filename |
| pdf_fname | pdf plot filename |
| spec_fname | csv spectral data filename |
| verbose | provide text output while running (default=TRUE) |
| bg_smooth | amount to smooth background image before calculating the maximum BG percent metric (default=12mm) |
| bg_shrink | amount to shrink the BG image away from the object to avoid residual object signal in the maximum BG percent metric (default=25mm) |

Value

dataframe of QA metrics

Examples

```
fname <- system.file("extdata", "qa_data.nii.gz", package = "fmriqa")
res <- run_fmriqa(data_file = fname, gen_png = FALSE, gen_res_csv = FALSE, tr = 3)
```

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