



Theme 4 Quiz 4

TOTAL POINTS 5

1. What is a wrapper function?

1 point

- ☐ an inhomogeneity correction and registration function
- ☒ a function that calls other functions to create an image processing pipeline
- ☐ none of these options
- ☐ a function which "wraps" an image around itself

2. The R function preprocess_mri_within (part of the R package extrantsr) performs which image pre-processing steps?

1 point

- ☒ all of these options
- ☐ registration
- ☐ skull stripping
- ☐ inhomogeneity correction

3. Given the following R code from the lecture:

1 point

```
1 files = c("113-01-MPRAGE.nii.gz",
2           "113-01-T2w.nii.gz",
3           "113-01-FLAIR.nii.gz")
4
5 files = file.path(mridir, files)
6
7 outfiles = c("113-01-MPRAGE_processed.nii.gz",
8              "113-01-T2w_processed.nii.gz",
9              "113-01-FLAIR_processed.nii.gz")
10
11 outfiles = file.path(mridir, outfiles)
12
13 preprocess_mri_within(files = files, retimg = FALSE,
14 outfiles = outfiles, correction = "N4", skull_strip = FALSE)
15
```

which file will the images be registered to?

- ☒ 113-01-MPRAGE.nii.gz
- ☐ 113-01-FLAIR.nii.gz
- ☐ 113-01-PD.nii.gz
- ☐ 113-01-T2w.nii.gz

4. Given the following R code from the lecture:

1 point

```
1 files = c("113-01-MPRAGE.nii.gz",
2           "113-01-T2w.nii.gz",
3           "113-01-FLAIR.nii.gz")
4
5 files = file.path(mridir, files)
6
7 outfiles = c("113-01-MPRAGE_processed.nii.gz",
8              "113-01-T2w_processed.nii.gz",
9              "113-01-FLAIR_processed.nii.gz")
10
11 outfiles = file.path(mridir, outfiles)
12
13 preprocess_mri_within(files = files, retimg = FALSE,
14 outfiles = outfiles, correction = "N4", skull_strip = FALSE)
15
```

what should be changed if you wish to do N3 correct rather than N4 correct?

- ☐ change correction = "N3" to correction = "N4"
- ☐ no changes are necessary as N3 is already being used
- ☐ change skull_strip = FALSE to skull_strip = TRUE
- ☒ change correction = "N4" to correction = "N3"

5. Why is the lapply function used in the following code from the lecture?

1 point

```
1 masked_imgs = lapply(outfiles, fslmask,  
2 | | | | | mask = mask, verbose = FALSE)  
3
```

- ☐ the function lapply is always used with the function fslmask
- ☐ the code is incorrect and we should be using an apply statement instead
- ☒ the function lapply is an apply statement for lists; the object outfiles is a list
- ☐ the code is incorrect and we should be using a mapply statement instead

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