Preprocessing and data QC 2

Nipype (3) : Nipype Basic - Interface

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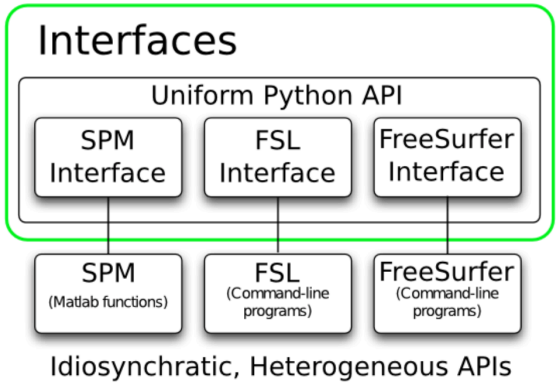
Interfaces

In Nipype, interfaces are python modules that allow you to use various external packages (e.g. FSL, SPM or FreeSurfer), even if they themselves are written in another programming language than python. Such an interface knows what sort of options an external program has and how to execute it.



https://miykael.github.io/nipype_tutorial/notebooks/basic_interfaces.html

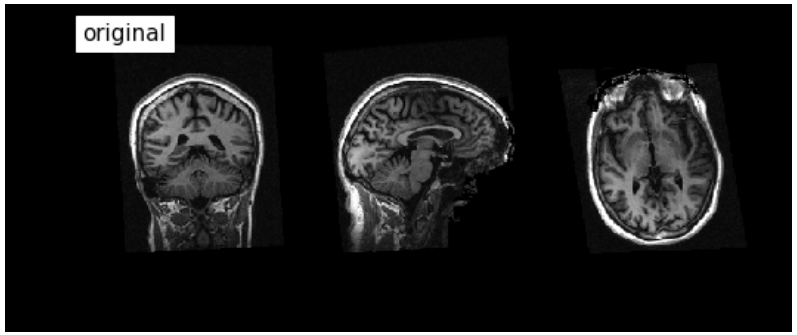
Interfaces : Example

- FSL : BET(Brain Extraction Tool)

```
from nilearn.plotting import plot_anat
%matplotlib inline
```

```
plot_anat('/data/ds000114/sub-01/ses-test/anat/sub-01_ses-test_T1w.nii.gz', title='original',
          display_mode='ortho', dim=-1, draw_cross=False, annotate=False);
```

Result:



https://miykael.github.io/nipype_tutorial/notebooks/basic_interfaces.html

Interfaces : Example

- FSL : BET(Brain Extraction Tool), Command Line usage

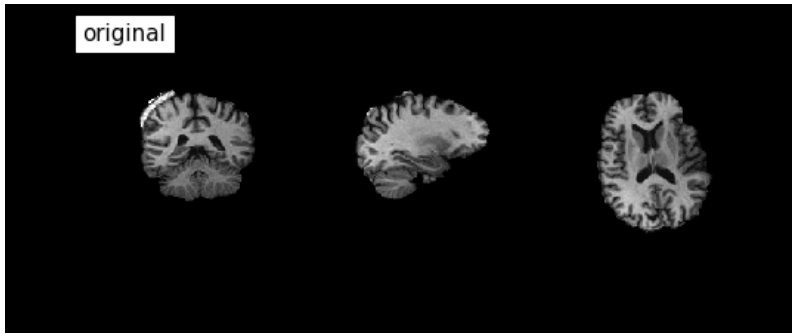
```
%%bash

FILENAME=/data/ds000114/sub-01/ses-test/anat/sub-01_ses-test_T1w

bet ${FILENAME}.nii.gz /output/sub-01_ses-test_T1w_bet.nii.gz
```

```
plot_anat('/output/sub-01_ses-test_T1w_bet.nii.gz', title='original',
          display_mode='ortho', dim=-1, draw_cross=False, annotate=False);
```

Result:



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Interfaces : Example

- FSL : BET(Brain Extraction Tool), Command Line usage

```
%%bash

FILENAME=/data/ds000114/sub-01/ses-test/anat/sub-01_ses-test_T1w

bet ${FILENAME}.nii.gz /output/sub-01_ses-test_T1w_bet.nii.gz -m
```

```
plot_anat('/output/sub-01_ses-test_T1w_bet_mask.nii.gz', title='original',
          display_mode='ortho', dim=-1, draw_cross=False, annotate=False);
```

Result:

https://miykael.github.io/nipype_tutorial/notebooks/basic_interfaces.html

Interfaces : Example

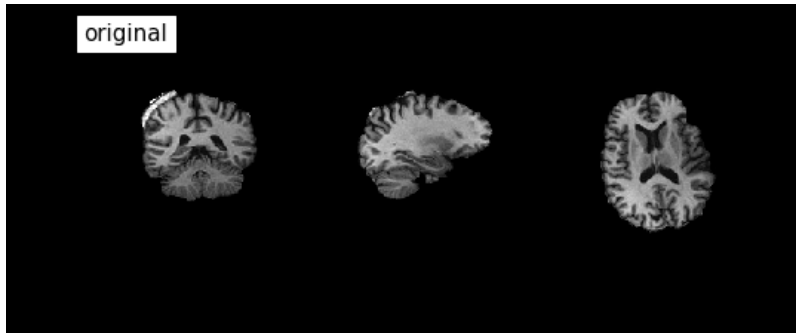
- FSL : BET(Brain Extraction Tool), Nipype usage

```
from nipype.interfaces.fsl import BET
```

```
skullstrip = BET()
skullstrip.inputs.in_file = "/data/ds000114/sub-01/ses-test/anat/sub-01_ses-test_T1w.nii.gz"
skullstrip.inputs.out_file = "/output/T1w_nipype_bet.nii.gz"
res = skullstrip.run()
```

```
plot_anat('/output/T1w_nipype_bet.nii.gz', title='original',
          display_mode='ortho', dim=-1, draw_cross=False, annotate=False);
```

Result:



https://miykael.github.io/nipype_tutorial/notebooks/basic_interfaces.html

Interfaces : Example

- FSL : BET(Brain Extraction Tool), Nipype usage

```
print(skullstrip.cmdline)
```

Result: bet /data/ds000114/sub-01/ses-test/anat/sub-01_ses-test_T1w.nii.gz /output/T1w_nipype_bet.nii.gz

https://miykael.github.io/nipype_tutorial/notebooks/basic_interfaces.html

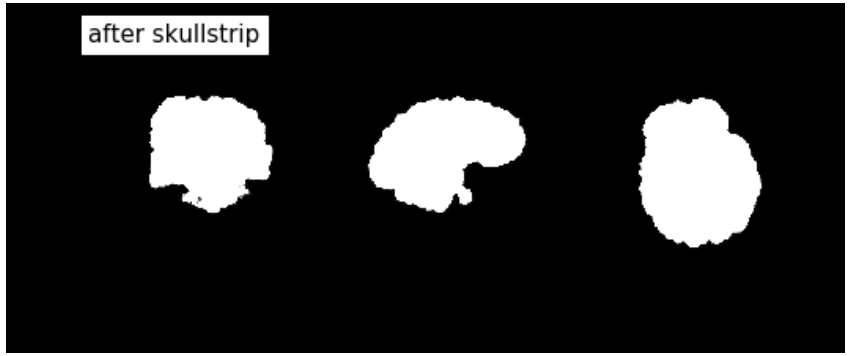
Interfaces : Example

- FSL : BET(Brain Extraction Tool), Nipype usage

```
skullstrip = BET(in_file="/data/ds000114/sub-01/ses-test/anat/sub-01_ses-test_T1w.nii.gz",
                 out_file="/output/T1w_nipype_bet.nii.gz",
                 mask=True)
res = skullstrip.run()
```

```
plot_anat('/output/T1w_nipype_bet_mask.nii.gz', title='after skullstrip',
          display_mode='ortho', dim=-1, draw_cross=False, annotate=False);
```

Result:



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