Report on Participation in the IronTract Challenge 2020

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Essential details of processing and analysis, and some observations from participating in the IronTract challenge 2020 are presented in this report.

DESIGNER, MSMT_CSD, iFOD2, heuristic length and include filtering
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Essential details

Tractography was performed using the `tckgen` tool in MRtrix3 (1) exactly as in the round 1 challenge. The main options were iFOD2, different angle thresholds from 10° through 90°, default stepsize of 0.35, and min and max length thresholds. The basic code, with a few additional parameters, for the tractography is shown below.

```
for ang in `seq 10 10 90`
do
    tckgen odf_sfwm.mif tracts.tck -
       ↪ seed_image injectbin.nii.gz -
       ↪ select 1M -minlength 20 -
       ↪ maxlength 50000 -trials 10000
       ↪ -power 0.001 -algorithm iFOD2
       ↪ -seed_unidirectional -angle
       ↪ $ang
 done
```

Thresholding was applied based on the code from EPFL script. Filtering was applied based on the VUMC script.

Bibliography

1. J-Donald Tournier, Robert Smith, David Raffelt, Rami Tabbara, Thijs Dhollander, Maximilian Pietsch, Daan Christiaens, Ben Jeurissen, Chun-Hung Yeh, and Alan Connelly. Mrtrix3: A fast, flexible and open software framework for medical image processing and visualisation. *NeuroImage*, page 116137, 2019.