**Influence of tractography termination criteria on structural connectivity matrices in glioma patients**

Colpo Maria[1,2], Silvestri Erica[1,2,3], Villani Umberto[1,2], D'Avella Domenico[3], Della Puppa Alessandro[4], Cecchin Diego[2,5], Corbetta Maurizio[2,3], Bertoldo Alessandra[1,2]

[1] Department of Information Engineering, University of Padova, Padova, Italy.
[2] Padova Neuroscience Center, University of Padova, Padova, Italy.
[3] Department of Neuroscience, University of Padova, Padova, Italy.
[4] Department of Neurosurgery, University of Florence, Florence, Italy.
[5] Department of Medicine, Unit of Nuclear Medicine, University of Padova, Padova, Italy.

E-mail Colpo Maria: maria.colpo@phd.unipd.it

Tractography is a powerful tool to investigate connectivity in glioma. State-of-the-art algorithms rely on the setup of several options: track termination criteria are among the most influencing parameters, in particular the cut-off value applied to the fibre orientation distributions' peaks amplitude [1]. Although for healthy controls the suggested cut-off value is 0.1 [2][3], little is known about glioma patients.

The aim of this work was to verify that the choice of this value does not significantly affect the estimates of Structural Connectivity (SC) matrices [4].

For each patient, the diffusion-weighted-images (b-values 0/710/2855 s/mm$^2$, 100 directions) were processed using the *MRtrix* [5] software, exploiting the *iFOD2* algorithm [6] and six progressively more permissive thresholds cut-offs [0.1:0.01:0.05]. Next, from the tractogram we computed connectivity matrix (SC) with two metrics (*Number of streamlines* ($SC_{NS}$) and *Mean streamline length* ($SC_{MSL}$)). Principal Component analysis (PCA) and Krzanowski test [7] were applied at the individual level to test whether there was a significant relationship between the connectivity structure and the cut-off value.

PCA returned an average variance explained by the first principal component, computed among the patients, equal to (99.09 +/- 0.21%) (73.76 +/- 2.08%) for $SC_{NS}$ and $SC_{MSL}$ respectively. The Krzanowski test revealed no statistically significant differences between the two extreme-cut-off connectivity distributions (p-values>0.05 for both $SC_{NS}$ and $SC_{MSL}$).

Our results suggest that varying the cut-off value from the default does not produce significant changes in the structural connectivity matrix structure and thus, even in glioma, this value can be robustly exploited for the computation.

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