**Instruction to use the software**

1. The following six MATLAB files are included in this software package. The first four are main files and the last two are functions used in the main files.
   1. ‘als\_along\_tract\_spine\_sct’ – The code used for tract-specific diffusion feature (FA etc.) extraction from DTI fiber tracking data, using the spinal cord toolbox (SCT) based segmentations. The same code can be used for cross-sectional (Fig. 2, 3, and 5 in the main paper) and longitudinal (Fig.8 in the main paper) analysis. A sample demographics file (Demographics\_pvc.txt) is also included in the package.
   2. ‘spine\_csa’ – The code used for tract-specific cross-sectional area (CSA) extraction, based on SCT segmentations (Fig. 4 in the main paper).
   3. ‘correlation\_analysis’ – The code used for the analysis of correlation with ALSFRS-R (Fig. 6 in the main paper).
   4. ‘longitudinal\_stats’ – The code used for the longitudinal analysis of tract-specific diffusion features averaged across C2-C6 (Fig. 7 in the main paper). A sample demographics file (Demographics\_long\_1yr.txt) is also included in the package.
   5. ‘read\_atlas’ – The function used to load the atlas based tract segmentations.
   6. ‘timewarp’ – The function used for warping of the features.
2. We used the following other software packages to produce the results reported in the paper. Installation and use of these software packages are required to reproduce our results.
   1. Diffusion toolkit ([31] in the main paper): The input to the code ‘a’ above is the DTI and fiber tracking (.trk) files processed with the diffusion toolkit.
   2. Spinal Cord Toolbox ([33] in the main paper): Both code ‘a’ and ‘b’ above need the SCT based spinal code segmentations available for the feature extraction. The segmentation is done on the motion corrected mean DWI images using the command ‘sct\_deepseg\_sc’, followed by registration to the template with the command ‘sct\_register\_to\_template’.
   3. Along-tract-stats tool ([14] in the main paper): The code ‘a’ above has dependency on this tool (available at <https://github.com/johncolby/along-tract-stats>). This tool is to be downloaded and added to the MATLAB path.
   4. FADTTS tool ([13] in the main paper): We used this tool for the along the tract statistical analysis.